ANGLIA RUSKIN UNIVERSITY

FACULTY OF HEALTH, EDUCATION, MEDICINE
AND SOCIAL CARE

ASSESSING THE AWARENESS/KNOWLEDGE OF CERVICAL CANCER AND SCREENING AMONG RURAL WOMEN, AND THE HEALTH STAKEHOLDERS' PERCEPTION OF THE RELEVANT STRATEGY IMPLEMENTATION IN IMO STATE, SOUTH-EASTERN NIGERIA.

A CROSS-SECTIONAL STUDY

FAITH SOPURUCHUKWU OGBONNA

A thesis in partial fulfilment of the
requirements of Anglia Ruskin University
for the degree of Doctor of Philosophy

Submitted: January 2021

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I give God all the glory, for the gift of life and inspiration required to complete this research.

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Abstract

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JANUARY, 2021.

Background: Cervical cancer has always been a significant public health issue, mostly in developing countries. The low attendance to screening programs has been evidenced to increase among the rural community due to lack of knowledge.
Method: The research was divided into two different studies and adopted a mixed-method research approach. Study 1 assessed the awareness/knowledge and health beliefs of rural women regarding cervical cancer and its impact on screening participation using the Health Belief Model as a theoretical framework. About 436 rural women ≥18 years completed the questionnaire.
Study 2 assessed the perception of relevant implementation strategy among health stakeholders, of which 22 of them were recruited and interviewed. Participants involved in both studies were recruited from Imo State, South-East Nigeria.
Results: SPSS v.20 was used for study 1 analysis. Findings showed that the awareness of cervical cancer has a significant impact on screening participation. Also, >50% of the women lack knowledge of cervical cancer and believe they are less susceptible to the disease but perceive the disease outcome as highly severe. The main identified barriers to screening were, lack of money (86%), lack of information/awareness (85.8%), screening location is far (74.5%), and lack of knowledge of where screening is done (61.7%).
Study 2 adopted thematic analysis using the NVivo software. Strategies to improve awareness have not been effective in reducing cervical cancer disease or increasing screening participation among rural women in Imo State, Nigeria.
Conclusion: This research suggests better ways of increasing the awareness/knowledge of cervical cancer and screening among the target population. The benefits of screening ought to be routinely discussed, and policies tailored to women's needs mostly at the community level need to be drafted.

Keywords: Cervical cancer, Cervical screening, Human Papilloma Virus, Rural women, Health stakeholders, Health Belief Model.

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Copyright Declaration

I declare that I am the sole author of this research “Assessing the awareness/knowledge of cervical cancer and screening among rural women, and the health stakeholders’ perception of the relevant strategy implementation in Imo State, South-eastern Nigeria”. The research and its contents have not been submitted for any degree or examination in any university other than this purpose. All cited sources have been specified and acknowledged.

January 2021.

Chapter 1 - Cervical Cancer: A Public health issue

This chapter draws reference from different studies and discusses cervical cancer disease in detail with regards to the stages of the disease, its risk factors and screening measures.

1.1 Introduction

Cervical cancer is the leading cause of world-wide gynaecological diseases and deaths mostly encountered by Black and Minority Ethnic women and explains why the disease is a global public health emergency (Sankaranarayanan and Ferlay, 2006; Spencer, 2009). Although cervical cancer can be prevented, it remains the leading cause of death among women. It is more prevalent in regions with a low standard of living due to increased health inequalities such as limited or no access to screening (Boyles and Levin, 2008; Rossi, et al., 2009; Scarinci, et al., 2010; Eze, et al., 2012; Sowemimo, Ojo and Fasubaa, 2017). Cervical cancer is a world-wide pandemic disease that mostly affects women aged 15 - 45 (WHO, 2007). The disease is recognised as the 3rd and 10th most common cancer in developing and developed worlds, respectively (Boyle and Levin, 2008; Rossi, et al., 2009). A later statistic shows that the disease is the 4th most diagnosed gynaecological cancer and the 4th leading cause of cancer deaths world-wide (Chrysostomou, et al., 2018; Jassim, Obeid and Al Nasheet, 2018). In developing countries, cervical cancer has been observed to be the 2nd most diagnosed cancer (Breast cancer is the first) and the 3rd leading cause of cancer deaths (after breast and lung cancer) among women. Therefore, the disease remains a critical issue for women in developing countries (WHO, 2008a; WHO, 2008b; Ferlay, et al., 2014; Onyenwenyi and Gugu, 2016). Out of the world population of about 7.3 billion, [1]≈2.3 million women >15 years are at risk of developing cervical cancer (WHO, 2007). There is an urgent need to implement screening strategies to identify premalignant lesions to ensure early commencement of treatment or appropriate referral (Sowemimo, Ojo and Fasubaa, 2017). Immediate treatment

[1] Approximately

of diagnosed cervical abnormalities reduces the further progression of cancerous cells, cervical cancer incidence and prevalence alongside related complications (Denny, et al., 2008).

1.2 Pathophysiology of Cervical Cancer

Cervical cancer is mostly caused by Human Papilloma Virus (HPV) which is sexually transmitted (Zeferino and Derchain, 2006; Castellsagué, et al., 2007a; Townsley, 2007; van Schalkwyk, Maree and Wright, 2008; American Cancer Society, 2016). The HPV oncogenic (high-risk) strain is passed through skin-to-skin contact, but its oncogenic impact is mostly within the cervix's transformation zone (Burd, 2003; Peto, et al., 2004; Pollack, Balkin and Denny, 2006). Evidence has shown that more than 100 types of HPV are categorised into high and low-risk levels according to types and severity of the lesion or cancer (Li, et al., 2010; NHS Choices, 2011). HPV, type 16 and 18 as shown in Figure 1, are said to be highly oncogenic and are the leading cause of about 70% to 90% cervical cancer cases (Roblyer, et al., 2007). Previous studies conducted in Mozambique, Uganda and Mali, affirmed the above statement by reporting that HPV type 16 and 18 had the highest occurrence rate of >50% among women diagnosed with cervical cancer respectively (Bayo, et al., 2002; Castellsagué, et al., 2007b; Odida, et al., 2008).

The Cervix

The cervix is a hollow but pear-shaped organ situated at the neck of the uterus, as seen in Figure 2 (National Cancer Institute, 2018). The cervical opening starts from the end of the uterus and leads to the vagina, often known as the ‘birth canal’. As indicated in the diagram, the uterus has an inner lining known as the ‘endometrium’ while the outer muscular layer is the myometrium.

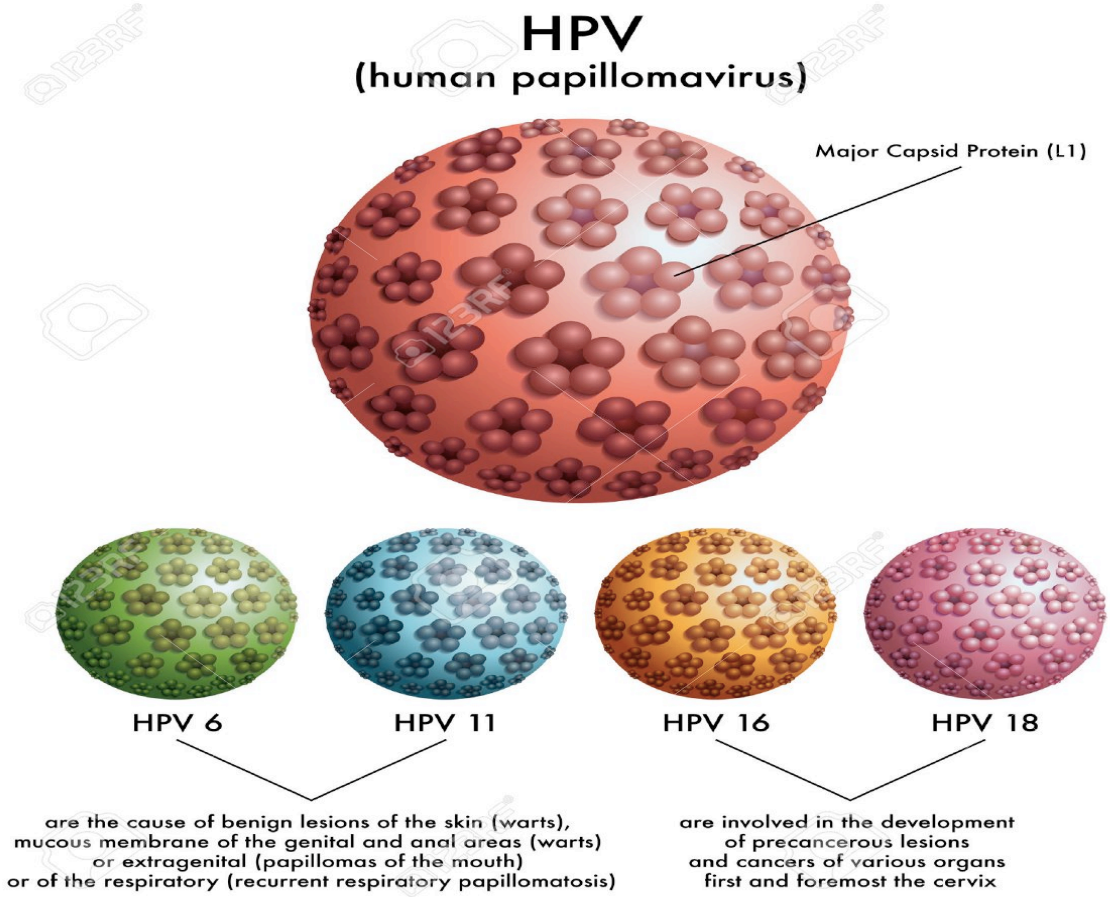


Figure 1: Diagram showing HPV 16 and 18[2]

(Biasini, n.d)

[2] Diagram has a protected licence and was downloaded using a free trial subscription

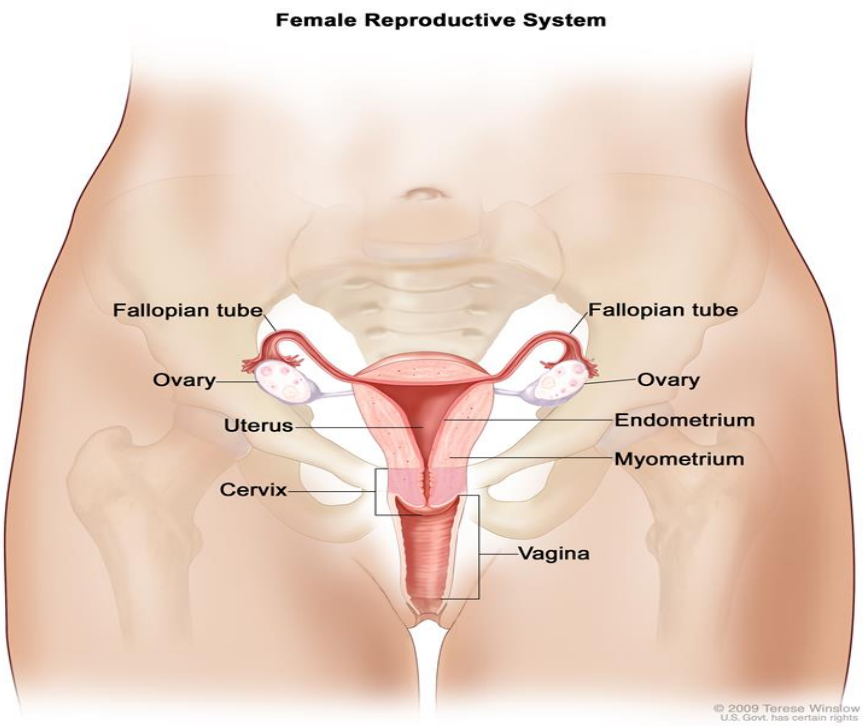


Figure 2: Anatomy of the female reproductive organ showing the cervix and related organs. (National Cancer Institute, 2018).

Stages of the disease

Cervical cancer stages refer to the extent of cancer spread to other parts of the body before or during diagnosis. Three main questions asked by physicians after diagnosis, to help determine the appropriate stage of the disease and the right treatment plan are:

1. The extent of cancer growth?
2. Its spread to nearby structures?
3. Spread to distant organs or nearby lymph nodes?

The extent of cancer spread determines the disease stage and enables the healthcare professional to decide the appropriate treatment plan as treatment varies according to the stage of the disease (American Cancer Society, 2018). According to the American Cancer Society (2018), there are two developmental systems to stage cervical cancer: the FIGO system (International Federation of Gynecology and Obstetrics) and the AJCC system (American Joint Committee on Cancer). The FIGO stages are classified using roman numerals

from 1 to IV with each one having its sub-stages or categories. Stage 1 is not terminal and is controllable; however, it can spread to other distant organs in the body (e.g. the rectum and bladder). Stage IV is the terminal stage which often results in death as it is difficult to manage. The AJCC, on the other hand, uses the TNM staging system developed based on three principal reasons:

1. T = Growth extent of the *Tumor* from its primary site of origin and deep into the cervix or nearby tissues.
2. N = Spread of cancer to the lymph *nodes* close to the cervix. The lymph nodes are usually the first to be affected before other body tissues and organs.
3. M = shows if cancer has *metastasised* to distant organs, tissues and lymph nodes not close to the cervix.

To use the TNM staging system, a “stage grouping” needs to be done to determine the disease's overall stage. For this study, the FIGO staging system, as stated by Tsikouras, et al., (2016) and the American Cancer Society (2018), was used to explain the disease's stages and its spread. The above was because the FIGO staging system provides a more detailed explanation and breakdown of the disease at each stage, making it easier to understand. Table 1 below shows a summary of the FIGO staging system.

Table 1: FIGO staging system for Cervical Cancer

Stage I	Stage II	Stage III	Stage IV
Carcinoma confinement is strictly at the cervix only.	Cancer extends or grows beyond the cervix to the vagina but not to its lower third. The pelvic sidewalls are also not affected at this stage.	Cancer extends to the pelvic sidewalls. During the rectal examination, no free space is noticed due to the extent of tumour growth. The lower third of the vagina is equally affected. Non-functioning kidneys and hydro-nephrosis cases are classified under stage III.	Cancer has grown beyond the true pelvis and clinically involves the bladder and rectum mucosa.
Stage IA: Cancer is invasive and can only be seen through the aid of a microscope. This Invasion is limited to measured stromal invasion with a maximum depth of 5 mm and a diameter of ≈7mm.	**Stage IIA**: Involvement is with the upper two-thirds of the vaginal but no parametrial involvement or invasion.	**Stage IIIA**: The lower third of the vagina is affected, but the pelvic sidewalls are not	**Stage IVA:** Tumour has spread to adjacent pelvic organs extending beyond the pelvis, the rectum and the bladder
Stage IA1: The measured stromal invasion is less than 3 mm in depth and not more than 7 mm in diameter or extension.	**Stage IIA1**: Clinically visible tumours of not more than 4cm with the upper two-thirds of the vagina involved.		
Stage IA2: The measured stromal invasion is greater than 3mm in depth but less than 5 mm and not more than 7 mm in diameter.	**Stage IIA2**: Tumours are clinically visible more than 4cm with no involvement to the pelvic sidewalls.		

Stage I	Stage II	Stage III	Stage IV
Stage IB: The lesions are clinically visible but are limited or confined to the cervix or pre-clinical cancers greater than stage 1A. Stage IB cancers include all gross lesions, including those with superficial invasion.	**Stage IIB:** There is parametrial involvement, but the pelvic sidewalls are not affected.	**Stage IIIB**: Extends to the pelvic sidewalls causing hydro-nephrosis, non-functioning kidneys or obstructive uropathy.	**Stage IVB:** Tumour has spread to distant organs.
Stage IB1: The clinically visible lesions are not more than 4cm in size.			
Stage 1B2: The clinically visible lesions are more than 4cm in size but have not grown into the pelvic sidewalls.			

Recreated by Researcher from

Tsikouras, et al., (2016) and American Cancer Society (2018)

1.3 Risk Factors

Cervical cancer is a disease that affects only women; therefore, anything that increases a woman's likelihood of acquiring the disease is a risk factor (Anon, 2020).

Sexual transmission of the HPV is the main cause of cervical cancer disease (van Schalkwyk, Maree and Wright, 2008; American Cancer Society, 2016). Though previous studies agree with the above statement, they highlighted other cervical cancer risk factors which implies that the disease cannot only be caused by the HPV virus as most cases resolve within 6 to 12 months even without the presence of the clinical signs and symptoms (Muñoz, et al., 2009; Rossi, et al., 2009). According to the above studies, HPV is a necessary but not sufficient cause as cervical carcinoma arises from about 20% HPV-associated lesions, which means that it is unlikely to get squamous cell cervical carcinoma without prior HPV infection. Presently, the best option for disease prevention resulting from HPV infection is through vaccination as no cure has been found to manage the growth and lesions caused by the disease effectively.

Sexual Behaviour

Sexual intercourse with immature sex organs increases the odds of contracting cervical cancer and has been evidenced to be among the major causes of the disease at a later age of a woman's life (WHO, 2006). Women between the ages of 18 - 24 years are viewed to be more sexually active and are, therefore, at a greater risk of harbouring the HPV virus which often arises from the damage caused to the cervix. Women with multiple sex partners and those married to men whose previous partners had cervical cancer are at a higher risk of developing the disease. The above is because HPV virus can be transferred from the male partner especially if they have been diagnosed with penile cancer (CDC, 2006; WHO, 2006; Shepherd, Frampton and Harris, 2011).

Weak Immune system

Studies have shown that HIV positive women have the highest burden of pre-cancer lesions, increasing the risk of the disease in the country (Anorlu, 2008). Some other factors and health behaviours like a history of cervical cancer, untreated STD, high parity (multigravida) and early marriages (sexual intercourse at an early age) also weakens the immune system and promotes the oncogenic effect of the HPV Virus (Bayo, et al., 2002; Hawes, et al., 2003; Anorlu, 2008; Castellsagué, 2008).

Smoking

Cigarette or tobacco smoking, either passive or active, fosters cervical carcinogenesis due to its chemical and nicotine content (Fey and Beal, 2008). These contents increase the duration of HPV oncogenic infections and explain the increased rate of early cervical carcinogenic events in women who smoke compared to those who do not (Zeferino and Derchain, 2006).

1.4 Diagnostic Screening Test

For cervical cancer to be diagnosed, there are some tests and procedures which needs to be carried out by only trained health personnel to ensure the authenticity of derived results. These procedures are explained below with the aid of diagrams.

1.4.1 Pelvic Exam

Examining the pelvis is the internal and external physical inspection of the female pelvis and its related organs like the cervix, vagina, ovaries, uterus, fallopian tubes, and the rectum. The woman lies in a lithotomy[3] position while a trained health personnel inserts lubricated, gloved fingers usually one or two, of one hand into the vagina, as seen in Figure 3. The other gloved

[3] Lying on their back with hips and knees flexed, thighs apart and legs hanging on a stirrup.

hand is placed on top of the lower abdomen to feel the position, size and shape of the uterus and ovaries.

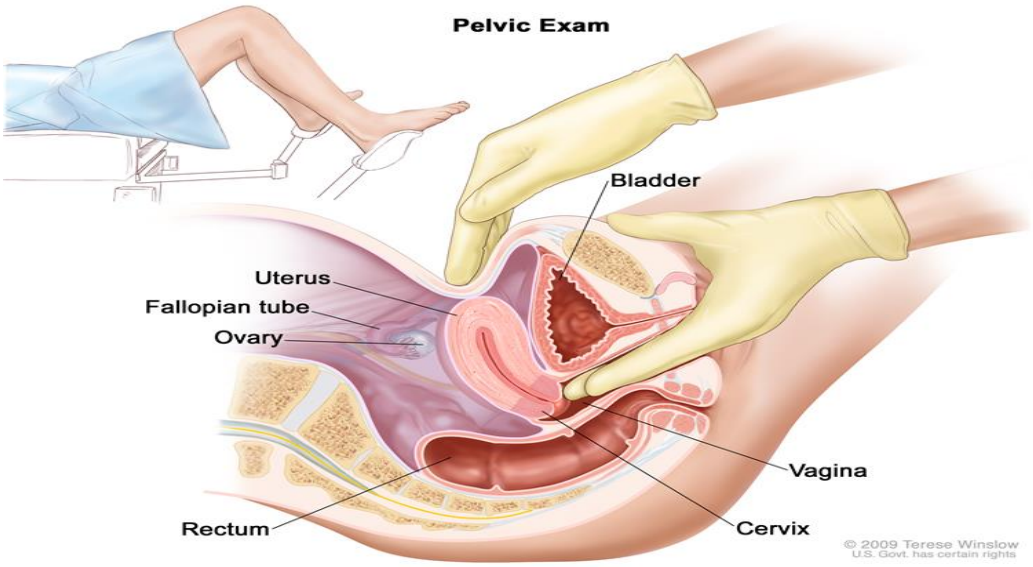


Figure 3: Procedure for Pelvic Exam
(National Cancer Institute, 2018)

1.4.2 Pap-Smear Test

On the other hand, the Pap-Smear test is used to collect superficial cells from the linings of the cervix using a small wooden stick, cotton, or brush. The woman lies in a lithotomy position as the trained health personnel uses a speculum to widen the opening of the vagina for a clearer view and gently scrape the cells using the brush as shown in Figure 4. The collected cell is then taken to the lab to be viewed with the aid of a microscope to determine if the cells are abnormal or not (National Cancer Institute, 2018).

The Pap-Smear test is deemed the best and cost-effective screening measure for invasive cervical cancer (CDC, 2006). Early diagnosis and screening using the Pap-Smear test help detect any pre-cancerous or abnormal change in the cervical wall. A skilled health provider does the procedure to ascertain the accurate result. The process of the procedure ought to be

well communicated to the woman before commencement to ensure full consent is gained (CDC, 2006). For the procedure to be effectively carried out by a skilled health provider, four considerations were outlined by the Centre for Disease Control (CDC) to help caregivers have a better understanding of the disease as follows:

(1) Pap-Smear test is not a screening test for STD's and should not be used as one; neither should it be used as a substitute test measure.

(2) All women irrespective of their sexual orientation, race, location, or ethnic background should be considered for cervical cancer screening.

(3) Women who had a hysterectomy should not be mandated or considered for a routine Pap-Smear test except the surgical operation was because of cervical lesions.

(4) Pap-Smear test should be recommended as a prenatal care examination for all pregnant women (CDC, 2006).

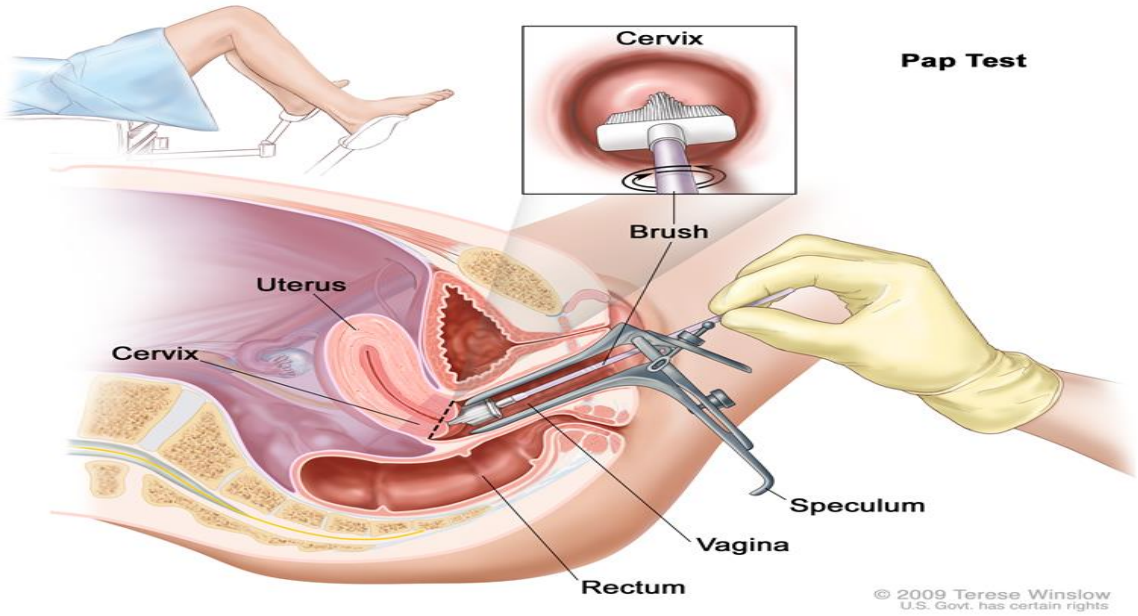


Figure 4: Procedure for Pap-Smear test
(National Cancer Institute, 2018)

1.4.3 Other Diagnostic Tests

Aside from the main and most common two tests mentioned above, other tests are used to detect abnormal cells or diagnose cervical cancer. These tests include biopsies; HPV tests; colposcopy, and endo-cervical curettage (National Cancer Institute, 2018). The biopsy test is used for further investigation if abnormal cells are detected during the Pap-Smear test. The endo-cervical curettage and the colposcopy test both involve collecting or scrapping cells using a spoon-shaped instrument. However, the colposcopy requires using a light magnifying instrument known as a 'colposcope', to check the cervix for abnormalities. Nevertheless, the colposcopy test and the endo-cervical curettage can be done at the same time. The HPV test on its own is a laboratory investigation of the DNA and RNA of the HPV types to ascertain if they are linked to cervical cancer (National Cancer Institute, 2018).

1.5 Cytology Screening

Cytology screening is the oldest and most widely adopted screening technique, but its implementation varies in different countries (Anorlu, 2008; Kolawole, 2012; Catarino, et al., 2015). Some countries in Europe, such as the UK and the Czech Republic, carry out screening as part of an organised population-based program (Ponti, et al., 2017). However, this is offered opportunistically in Sub-Saharan African countries when women contact healthcare services or when there is an indication for cervical screening (Leyden, et al., 2005; Cox, 2006; Kolawole, 2012). The screening test has effectively reduced the incidence and mortality rate of cervical cancer in developed countries (Nygård, 2011). Nevertheless, limitations in the healthcare system such as lack of quality control; policies and guidelines; poor diagnostic screening technique; lack of adequate resources, and poor access to healthcare service and screening programs make it difficult for the technique to be successfully implemented in developing countries (Levin and Tsu, 2008; Wong, et al., 2008; Bharadwaj, et al., 2009; Catarino, et al., 2015).

Cytology screening is done repeatedly to help identify women with pre-cancerous abnormalities. Therefore, it requires expertise and a good laboratory which means that the involvement of a pathologist, a cytopathologist and a colposcopy specialist is paramount (Kolawole, 2012; Catarino, et al., 2015). However, it is technically and financially challenging to decentralise cytology-based cervical screening in developed countries (Eze, et al., 2012). The above view was also supported by a study which reports that the implementation of cytology-based screening is too complex and expensive as screening needs to be routinely done (Catarino, et al., 2015). Implementing the screening technique in developed countries is moderately effective as the women only have the screening once or twice in their lifetime (Catarino, et al., 2015). Therefore cheaper alternatives such as the VIA (Visual inspection with 3-5% Acetic acid) or VILI (with Lugol's iodine) as seen in Figure 5 should be temporarily advocated (Eze, et al., 2012).

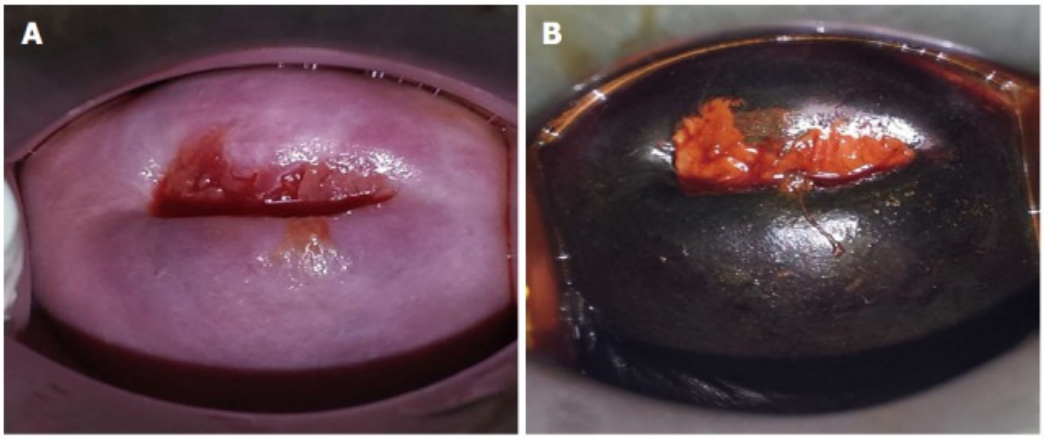


Figure 5: Visual inspection with (A) 3-5% Acetic acid and (B) Lugol's Iodine. (Catarino, et al., 2015)

VIA and VILI

The VIA and VILI are alternative satisfactory approaches to cytology screening (Catarino, et al., 2015). They are cheap, regarded as safe, acceptable, easy to use, fairly effective, and can easily be taught to healthcare workers in developing countries thereby making single screening visit strategy possible (Blumenthal, et al., 2007; Arbyn, et al., 2008; Sauvaget, et

al., 2011; Kolawole, 2012). Visible changes occur immediately after applying the acetic acid, and these changes can be categorised into positive or negative cervical neoplasia (Catarino, et al., 2015). This single-visit approach facilitates the concept of '*screen and treat'* and has been evidenced to decrease high-grade Cervical Intraepithelial Neoplasia (CIN) significantly. The result determines same day management, thus minimising the need for a repeat visit (Gaffikin, et al., 2004; Catarino, et al., 2015). The above addresses the issues around time constraints and the need for follow-ups, moreover; VIA and VILI have helped reduce cervical cancer mortality rate in developing countries as they do not require high technology or infrastructure (Wright and Kuhn, 2012; Sankaranarayanan, et al., 2013). The test is promoted as an alternate test to cytology in developing countries like Nigeria, where the screening technique is not widely available (Kolawole, 2012). Nevertheless, the accuracy of the techniques compared to conventional Pap-Smear tests is not fully established (Ronco, et al, 2007; Siebers, et al, 2009).

Though the VIA and VILI are cost-effective and safe, previous studies report that sensitivity declines in women >40 years due to ageing, which causes degeneration of the cervical epithelium. Therefore, visibility of the transition zone is affected, making it difficult to interpret the visual test as seen in Figure 6 (Sankaranarayanan, et al., 2007; Li, et al., 2009; Catarino, et al., 2015). This limitation needs to be addressed, or the screening techniques might face being replaced in future.

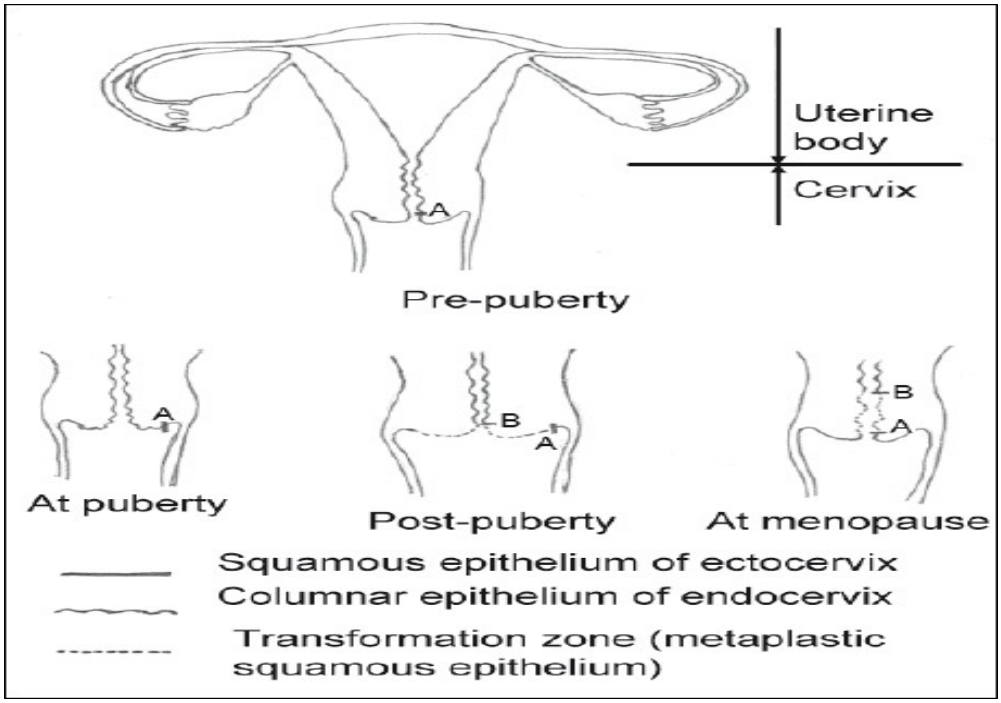


Figure 6: Cervical Epithelium showing the Transition Zone.

(Dim, 2012)

1.6 Signs and Symptoms

Cervical cancer disease is usually asymptomatic during the early stage (Spencer, 2009; Presannakumari, 2011; Ukpo, 2013). However, asymptomatic pre-cancerous lesions are picked up by cervical screening. Therefore, by the time a woman has symptoms, the cancer is already established of which cervical screening will no longer be of use.

Although cervical cancer is asymptomatic at the early stage, intermittent vaginal bleeding is one of its early presenting symptoms. Bleeding may occur during douching, between menstrual periods (heavy and last longer), menopause or after sexual intercourse (Moini, 2011). Other profound symptoms which may present at the later stage of the disease include painful urination (Dysuria); lower back and pelvic pain; blood in the urine (Haematuria); painful sexual intercourse (Dyspareunia), and foulsmelling vaginal discharge (Moini, 2011; Ukpo, 2013).

Some of the symptoms mentioned above, such as bleeding during pelvic exams; foulsmelling vaginal discharge, and urinary infection (Urethritis) are notable signs seen by the clinician during the cervix examination. Nonetheless, eminent signs and symptoms such as loss of appetite; constipation; leg and back pain; fatigue; leaking of urine or faeces from the vagina; increased urine frequency, and bone fracture, could easily be associated with other diseases or infections (Ukpo, 2013). The above reason explains the need for a screening test to detect any pre-cancerous abnormalities in the cervix.

1.7 Epidemiology

Globally - Africa

Global estimates show that about 493,000 women are diagnosed with cervical cancer and over 274,000 deaths are recorded annually of which most deaths are in developing countries (Oluwole, et al., 2017; Okunowo, et al., 2018). In 2012, >80% (444,546) new cases diagnosed globally were from developing countries of which Nigeria accounts for about 14,000 of them (Wong, et al., 2009; Okunowo, et al., 2018). This percentage was predicted to increase to 90% by 2020 (Andrus, et al., 2008). In some Sub-Saharan African countries like Uganda, Mali and Zimbabwe, cervical cancer is ranked as the second most prevalent gynaecological cancer among women aged 15 to 44 (Anorlu, 2008; Nwankwo, et al., 2011; Bruni, et al., 2019). In Nigeria, after breast cancer, cervical cancer is the next most prevalent cancer (Morounke, 2017). The prevalence rate of HPV is 24.8%, while the disease incident rate is 250/100,000 (Nwankwo, et al., 2011). The Society for Family Health (SFH) supports the above statistics and reports that 26 Nigerian women die daily from the disease, which amounts to an annual total of 9,659 deaths; therefore 69% Nigerian women out of the 14,000 diagnosed annually die from the disease (Society for Family Health, 2019). The above figures have been presumed to increase in 2025 with over 22,000 new cases and >65% deaths if cervical cancer control programs are not strongly implemented (Ukpo, 2013).

Other countries

Globally, evidence has shown that cervical cancer is higher among women from Central and South America, South-East Asia, and Sub-Saharan Africa (Remington, Brownson and Wegner, 2010). According to the 2008 GLOBOCAN report, more than 159,000 and 31,700 cervical cancer-related deaths were recorded among Asian and Latin American/Caribbean women, respectively (Ahmed, et al., 2014). It was also recorded that out of the 134,000 women diagnosed with cervical cancer in India, 54% died from the disease (Arbyn, et al., 2011).

A vast difference has been observed between the United States (US) and the European Union (EU) countries. The US and countries in the EU have screening practices; however, the acceptance level of the disease and screening implementation is higher in the EU than the US. The high rate of migration from developing countries (where screening practices are not widely accepted) to the US, cannot be compared to that of the EU (WHO, 2007; De Vincenzo, et al., 2009). >13,000 women are diagnosed with cervical cancer annually, of which 38% die from it. The above statistics contrast with that of Italy, one of the EU countries where only 3,500 incident cases and 3% of deaths were recorded (Rossi, et al., 2009). Nevertheless, the mortality rate in the EU countries varies by region. About 50% of the women diagnosed with cervical cancer in the EU die from the disease, but only 5% of deaths have been recorded in the UK (Arbyn, et al., 2009).

1.8 Economic Implication

Cervical cancer causes a world-wide financial burden which leads to huge economic implications. Evidence has shown that the disease is less expensive to manage at the early stage than the advanced stage (National Cancer Institute-France, 2007; Roblyer, et al., 2007; Jemal, et al., 2010). Therefore, the importance of creating awareness of the disease and its screening cannot be over-emphasised. In the US, it was estimated that the cost of treating 10,000 cases of invasive cancer is directly equivalent to the cost of preventing the disease

among 50 million women (Markovic and Markovic, 2008). It was also estimated that about $1.7 billion is spent annually on cervical cancer-related medical care in the US while the UK's cost is ≈£157 million (American Cancer Society, 2011; Woo and Omar, 2011). However, there are no adequate national records or databases to give precise information on allocated funds to health which threatens the control of cervical cancer in Nigeria (Sowemimo, Ojo and Fasubaa, 2017). The above issue calls for the implementation of policies and guidelines that will help address cervical cancer as a public health priority in Nigeria with regards to diagnosis, prevention, and cost reduction (Barot, 2012; Kolawole, 2012).

1.9 Effect of Cervical Cancer

Cervical cancer disease often results in psychological trauma because of pain and fear of unknown disease outcome (Baze, 2008). Some cultural perspectives view the disease as a punishment from the gods, making the woman lose her sense of confidence in anticipation of death which is the last resort (Holroyd, Twinn and Adab, 2004). Cervical cancer has a severe effect on the concerned individual, their families, communities, and the government (Denny, et al., 2008). The effect of the disease affects the cultural, physical, and psychological state of those involved. It is often regarded as an embarrassing situation resulting in low self-esteem and an inferiority complex due to stigma (Ackerson and Gretebeck, 2007). Families and communities who heavily depend on women's roles as caregivers and providers suffer more from the disease's effect (Hyacinth, 2012). Therefore, this study will suggest better ways of increasing the knowledge of the disease and screening in Imo state and Nigeria, as this will help reduce the negative effect of the disease on the women and the public. The views of women and health stakeholders regarding barriers to screening will be solicited in this study. The above finding will also help the government understand the people's perception and draft policies to reduce these barriers.

1.10 Summary

This chapter has provided a general overview of cervical cancer as a public health issue. Although the disease affects only women and can be prevented; it still ranks highest amongst other gynaecological cancers. Cervical cancer is mostly caused by HPV type 16 and 18, which is sexually transmitted. However, some other identified risk factors include a weak immune system from diseases like HIV/AIDS and sexual behaviour(s) such as having multiple sex partners. The disease has four stages based on the FIGO staging system and is usually asymptomatic at the early stage but terminal at the last stage. Nevertheless, diagnostic tests such as the Pap-smear test help detect abnormal cells in the cervix but are no longer useful once the cancer is established. Common identifiable signs of the disease include intermittent vaginal bleeding and pain either during sex or urination. Most cervical cancer deaths are recorded in developing countries due to lack of adequate screening practices and low acceptance level compared to developed countries where screening is routinely done, and acceptance level is higher.

Chapter 2 - Service and Cervical Screening in Nigeria

This chapter lays emphasis on what is obtainable in the Nigerian healthcare system and its relation to cervical cancer disease, which includes the follow-up system; referral method and its implementation at the community level. This chapter helps the researcher understand the efficacy of the Nigerian health system across the three tiers of government: the Federal, State and Local government.

2.1 Introduction

Nigeria is located in West Africa, and old French colonies surround its four cardinal points; Republic of Cameroon in the East, the Benin Republic in the West, the Niger Republic in North, the Atlantic Ocean in the South including the Chad Republic in the South East (Ojo, Ologe and Ezechukwu, 1999). Before its colonisation by the UK, the country had separate social, geographical, and political entities which encompassed several ethnic nations, economic actors, religious sectors, cultural groups, and linguistics divisions (Abdulazeez, 2010). Nigeria obtained its independence from Britan on the 1st of October 1960 and became a Republic 3 years later in 1963. The country has been estimated to have multiple ethnic groups and is blessed with diverse customs, languages, and traditions that invariably define her rich cultural identities (Abdulazeez, 2010, Nigeria Population, 2019a).

Nigeria is often referred to as the "Giant of Africa" due to its vast economy and large population (Holmes, 1987). The country has about 109 Senatorial zones, 360 Federal House of Representatives, 774 Local Governments (LG) scattered within the 36 states and 1 Federal Capital Territory (FCT). The 36 states are sub-divided and categorised into six geopolitical or regional zones namely: North Central**,** North Eastern, North Western, South Eastern, South Southern, and South Western zones as seen in Appendix A (Abdulazeez, 2010). Its FCT is Abuja which is one of the major known cities in the country. The country is also viewed as a multinational state, with over 521 languages and cultural diversities scattered in more than

250 ethnic groups. The largest three are Hausa, Igbo, and Yoruba (Nigeria Fact sheet, 2012). Figure 7 is a comprehensive map of Nigeria which shows the target area for this research sample population (Imo state - highlighted).

Figure 7: Map of Nigeria showing the 36 States.
(Onwumere, 2018)

2.2 Target Area

Imo State: Sample population

The area of study, Imo State is known as the 'Eastern heartland' with a population of ≈4 million people of which the men and women each make up 50% respectively. The above estimates are scattered among the 27 Local Governments' (LG) in the State, which is graphically represented in Figure 8. Approximately 51% of the women are between the reproductive ages of 15 - 45 years. Imo State ranks 13th most populous out of 36 States in Nigeria (Ezem, 2007). Imo state is predominantly dominated by the Igbos, one of the three major Nigerian ethnic groups (Hausa and Yoruba). Its capital city is Owerri, and the mother tongue is Igbo which is spoken and understood throughout the state (Ezem, 2007). The predominant religion is

Christianity, with the different denomination of Christians scattered over the State. However, some indigenes still cling to the local traditional religion (Okeke, Ibenwa and Okeke, 2017). Though Imo State indigenes are homogenous in culture, the diversities in religion may result in conflicts of ideas among some of the communities and local governments which also explains why this State was chosen in order to understand the influence of these diversities on the knowledge of cervical cancer and acceptance of screening services. Previous studies have been conducted in some South-Eastern states such as Abia State and Imo State inclusively (Ezem, 2007; Eze, et al., 2012; Ukpo, 2013). However, none has targeted Imo State Nigeria (ISN) rural women as a whole which is another advantage of this study in choosing this target area.

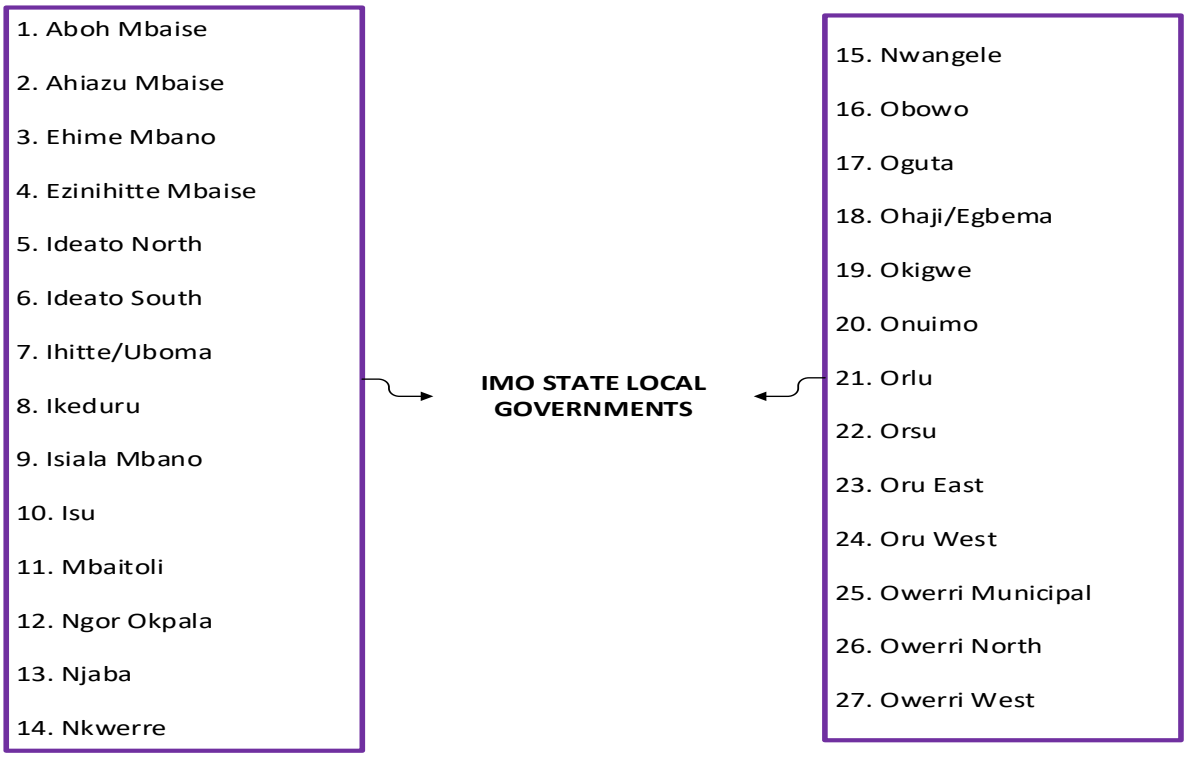


Figure 8: 27 LG's in Imo state, Nigeria.
(Developed by Researcher - Visio)

2.3 Nigeria's Population Growth

Over the years, Nigeria has remained the most populous nation in Africa and 7th globally with an initial start-up population of about 45.2 million, as seen in Appendix B (Abdulazeez, 2010). The country's population increased within eight years by ≈37 million from 2009 to 2017, as seen in Figure 9. This increase means that one person out of every 43 people calls Nigeria their home. Further estimates show that Nigeria's population will be more than 200 million in 2019 and more than 398 million by 2050. Statistics from the US Census Bureau (2018) affirms this by stating that Nigeria's population has increased to ≈204 million and has been projected to reach 417 million by 2050. About 51.7% of the current population live in the rural area and 48.3% in the urban region (Abdulazeez, 2010; Nigeria population, 2019a; Nigerian Population, 2019b). The World Population Review supports this and states that Nigeria's population accounts for about 19% of the continent's total population and 2.35% of the world's population. The review in Appendix C also shows that with the current trend in growth, Nigeria will surpass the US by becoming the 3rd most populous country with an increased population of more than 746 million by 2100 if not controlled (Nigeria Population, 2019a).

Figure 9: Nigeria's Population from 2009 to 2017
(Nigeria Population, 2019a)

Based on the United Nations (UN) report in 2005, Nigeria has an explosive population growth with a global high fertility rate. It is estimated to be one of the eight countries expected to reach half of the world's total population by 2050 (United Nations, 2005). In 2008, it was estimated that more than half of the country's population, ≈42% were between the ages of 0-14, 55% were between 15-65, and 3% were above 65 years. The above result affirms the WHO world health ranking result which showed that Nigerian men and women have an average life expectancy of 55 and 56 years respectively (World Health Ranking, 2018; Nigeria Population, 2019a). Further observation showed that 40/1000 people's birth rate is significantly higher than the death rate of 17/1000 people, which explains the continuous rise in the country's population (Anon, 2008).

Nevertheless, the Nigerian government is fighting to control its population growth by providing artificial family planning methods such as free contraceptives to her citizens to reduce the birth rate. Despite the country's vast economic status in Africa and globally, the poor condition of healthcare and its delivery are factors responsible for low average life expectancy; not excluding overall poor living conditions. Previous findings show that only 29% of the population have access to sanitation, while 32% do not have access to clean drinking water (Anon, 2008; Nigeria Population, 2019a).

2.4 Healthcare Delivery System in Nigeria

Healthcare delivery system in Nigeria is a concurrent and sole responsibility of Private and Non-Governmental Health Organisations (NGO); and the three main tiers of government in the country; Federal, State and Local (Akhtar, 1991). However, there is an urgent need to integrate health services among the different healthcare organisations and tiers of government. This integration should incorporate expert management, delivery of quality rather than quantity care, and safe health services that promote disease prevention, management, early diagnostic/treatment measures, rehabilitation, and palliative care services (WHO, 2015).

A functional healthcare system has a well-maintained infrastructure, workforce, and adequate supply of technology with reliable, evidence-based health policies (WHO, 2015). However, the

above does not apply to the Nigerian healthcare system, which is observed by an average Nigerian citizen to be below expectations. The above assumption was based on some of the complaints ranging from inadequate personnel, fake drugs, 'out-of-stock syndrome', nonchalant attitude of some healthcare professionals, inadequate facilities, equipment and most importantly funding (Monye, 2006). These problems were the same reasons that led to the establishment of the National Health Insurance Scheme (NHIS) in 1999. The NHIS was launched in 2005 with the aim of bringing positive change to the health system through the provision of quality and cost-effective healthcare services to only insured persons and their dependents (Kannegiesser, 2009; Etobe and Etobe, 2013).

2.4.1 The National Health Insurance Scheme (NHIS)

This NHIS aimed to provide universal healthcare coverage and comprehensive healthcare services for its citizens using the revenues gotten from oil exports and general taxation (Victor, 2014). The government drafted nine objectives to keep the scheme focused on its goals (NHIS, 1999; NHIS, 2009). They are;

1. Universal provision of healthcare services in the country
2. Control and reduction of arbitrary increases in healthcare services
3. Protection of families from high cost derived from medical bills
4. Equal distribution of healthcare service cost across income groups
5. Maintenance of high healthcare delivery standards to beneficiaries of the scheme
6. Participation of private sectors in healthcare delivery
7. Distribution of equitable and adequate healthcare facilities within the country
8. Equitable patronisation of primary, secondary, and tertiary healthcare providers in the federation and lastly
9. Maintenance and adequate flow of funds for the smooth running of the scheme and healthcare delivery sectors in general.

However, the government's aim of providing free healthcare services to its citizens could not be achieved due to the 1980's global slump in oil prices, which affected the country's economy. They rather opted to provide adequate and affordable healthcare service through taxation to help improve the healthcare status of Nigerian citizens (NHIS, 2009; Victor, 2014). The initiated health insurance program was to target major groups of people in the country such as the formal and informal sector; rural community dwellers; the vulnerable group (the under-fives' and prison inmates), and the international travel group (Monye, 2006: Onyedibe, Giyit and Nandi, 2012). According to Victor (2014), health insurance allows a healthcare consumer to make payments to a third party who is under an agreement to pay some or all of the consumer's future healthcare service expenses. Through this scheme, the NHIS scheme provided healthcare services to insured outpatients and inpatients, their spouses and four family members <18 years of age (Akande, Salaudeen and Babatunde, 2011).

Implementation, strengths, and barriers of the NHIS scheme

All public health sectors were mandatorily enrolled in the NHIS Scheme in 2005. Since then, ≈2.5 million Nigerians have accessed healthcare through the scheme, of which most of them were Federal civil service employees (Falegan, 2008). Basic curative care was covered during implementation; however, it was argued that the scheme neglected rehabilitative and preventive health matters. In addition, it was also noted that the NHIS service does not cover hospital admissions outside the first twenty-one days, neither does it cover family members outside the first wife and the first four children which thus, indirectly increases the financial burden of the affected family especially among the low socio-economic group where polygamy and preference for children are culturally acceptable and still exist (Razum, 1993; Victor, 2014).

Health insurance is a veritable tool adopted by most developed nations to help finance healthcare, thereby reducing the burden of paying for healthcare services (Victor, 2014). In America for example, >80% of her citizens have their health insurance provided by the government (24.2%) and their employers (64.1%) while others have their self-health insurance provided by the private

market. The above measure covers about 39 million Americans who find it challenging to obtain affordable health insurance (Tooker, 2003) but is contrary to the Nigerian healthcare system as most Nigerians cannot access and afford healthcare service. This assumption was evidenced by a statistic which showed that 70.2% of Nigerians live below the poverty line of $1.00 (₦199.02 or £0.66) per day thus encouraging the vicious cycle of poverty, ignorance and disease (Vogel, 1993). It is also expedient to know that the total global percentage of the Gross Domestic Product (GDP) on health expenditure is 4.6%. Still, the Nigerian federal government's percentage of healthcare expenditure is only 1.5%, making it difficult to specifically allocate funds to the control of cervical cancer as other health issues affect the country and its economy (Victor, 2014).

2.5 Healthcare Service in the Public and Private Health Sector

The Nigerian health system comprises of private and public healthcare providers. The private healthcare providers are under the care of the NGO's and individual donors. They provide primary, secondary and most times specialist care in health centres and private hospitals (Nigeria Federal Ministry of Health, 2004). On the other hand, the public healthcare providers are under the direct supervision of the three tiers of government: Federal, State and Local government. Healthcare services are therefore provided on three varied levels.

The Federal Government (FG) provides tertiary care in Federal Medical Centres (FMC) and University of Nigeria Teaching Hospitals (UNTH) patronised mostly by those of high socioeconomic status due to the high cost of healthcare service. Its responsibilities include drafting policies; providing national health management information, and international relations on health matters for its entire healthcare system (Nigeria Federal Ministry of Health, 2004). They are also the first point of contact between the Nigerian healthcare system and that of other countries.

The State Government (SG) provides secondary care in specialist and general hospitals mostly accessed by urban dwellers. Its responsibilities include providing regulations and support to ensure that the FG policies are successfully implemented within the State and the Local Government

(Nigeria Federal Ministry of Health, 2004). The LG, on the other hand, provides primary care to rural dwellers and oversees the affairs of the primary health centres. Implementation of strategies, policies, and interventions occurs at this level, starting from the communities (Nigeria Federal Ministry of Health, 2004). Figure 10 shows the Nigerian healthcare system's administrative structure and their level of skills with regards to staffing.

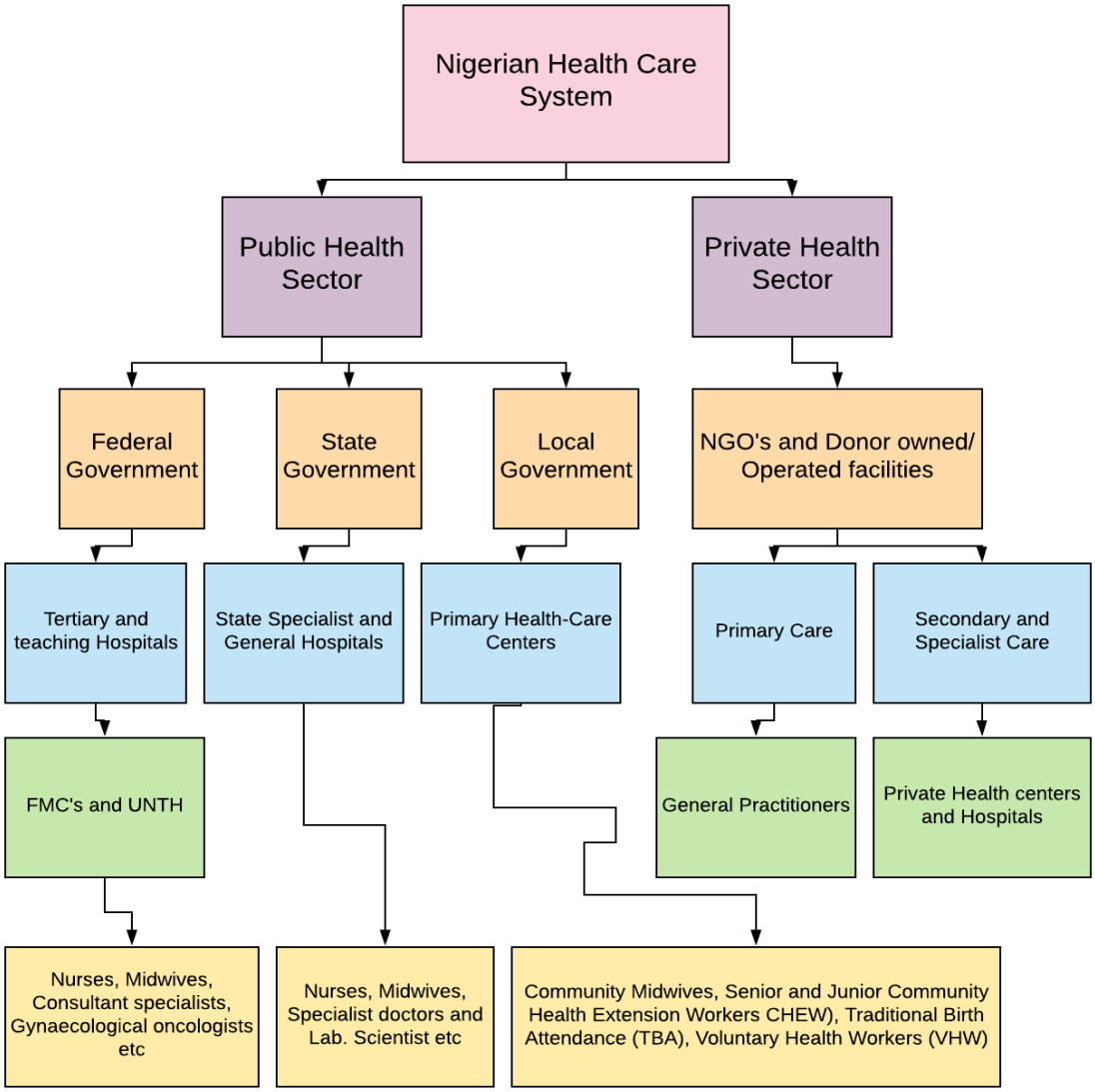


Figure 10: The Nigerian Healthcare system
(Developed by Researcher, Lucidchart)

2.6 Strengths of the Nigerian Healthcare System

The Nigerian government has made efforts to re-organise its health system since the adoption of the 1987 Bamako Initiative (BI) by African health ministers. The initiative aimed to implement strategies designed to increase the availability and effectiveness of essential drugs and other healthcare services for Sub-Saharan Africans through taxation and initiation of health insurance policies for resident (UNICEF, 1988). The initiative was adopted and implemented in Nigerian in 1988. The revenue generated from tax aimed at improving the quality of service; increasing availability and accessibility of drugs; extend coverage and accessibility to care which includes diagnosis and treatment of residents within the country through community-based methods (UNICEF, 1988). The above resulted to more efficient and equitable provision of services; however, it was observed that the services rendered were of more benefit to those of the middle and high socio-economic group with reference to tax payment thus neglecting the views and interest of the poor masses (WHO, 1988; Gilson, et al., 2001; Uzochukwu and Onwujekwe, 2004). For the plan to be more effective, there needs to be a balance between the decision-makers at the central and local level. Also, the decision-makers at the local level need to have a board of representatives that can voice out the needs of the poorest in the society (Gilson, et al., 2001).

The Nigerian healthcare system has its strengths which are recognised by other countries. Their unique method of -high-quality contact tracing by experienced epidemiologists in the country was successfully adopted by other countries such as the US when Ebola threats were discovered (Odiogor, 2014; WHO, 2014). Also, the expert management of polio has yielded a tremendous result as the country is on its way to be declared polio-free (BBC, 2004; York, 2014). Similarly, the prevalence rate of HIV/AIDS (Acquired Immune Deficiency Syndrome) in Nigeria was reduced to 3.1% in 2012. This rate is much lower than that of other African countries such as Kenya and South Africa, whose percentage rates are in double digits (CDC, 2005; CIA, n.d). However, despite the above strengths, cervical cancer remains the leading

cause of deaths among Nigerian women with lack of sustainable control program or policy to help combat its spread in the country.

2.7 Factors Affecting the Sustainability of the Nigerian Healthcare System

There are so many factors that negatively affect the present-day healthcare system in Nigeria. Some of these factors, as identified by Obansa and Orimisan (2013), include:

- Inadequate or poor supply of health facilities, structure, and infrastructure
- Lack or shortage of essential drugs and supplies
- Lack of or poor supervision of the healthcare system and staff
- High out-of-pocket health expenditure by citizens
- Poor or inadequate human resources, management, remuneration and motivation
- Unequal economic and political relations
- Change of government and lack of sustainability of health policy
- Bribery and corruption
- Lack of sustainable healthcare funding
- Absence of community-based interventions or an integrated system for disease prevention, surveillance, and treatment.

Some factors that may influence knowledge of cervical cancer and screening uptake are collated and explained below. Figure 11 summarises the explained factors.

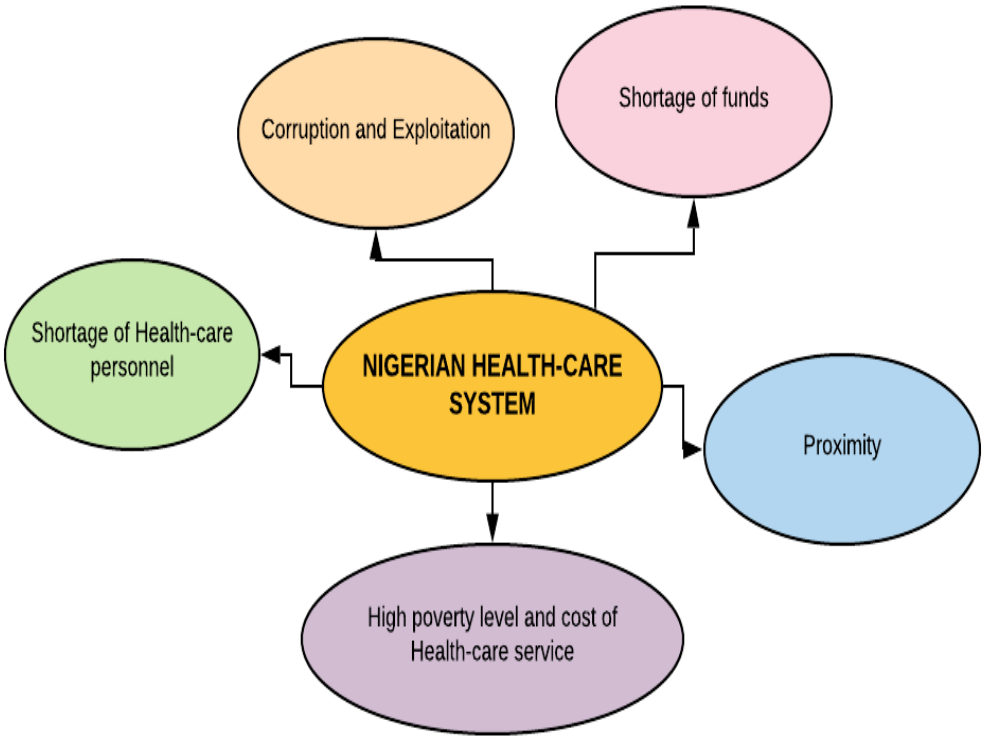


Figure 11: Factors affecting the Nigerian healthcare system.
(Developed by Researcher, Lucidchart)

Proximity

A previous Nigeria study showed that household dwellers who reside within 10 kilometres of a hospital, health centre or clinics based on geographical calculations were 88% in the southwest, 87% southeast, 82% in the central, 73% northeast and 67% in the northwestern regions (Obansa and Orimisan, 2013). These percentages imply that the women from the above regions have little or no access to cervical cancer screening centres as access to a healthcare facility is affected by the poor transportation system, bad roads and inability to pay for transport services (Razzak and Kellermann, 2002; Obansa and Orimisan, 2013).

Shortage of funds

The country has a federation account where the bulk of the government's resources, e.g. oil revenue, are deposited. Funds are being distributed from this account to the three tiers of

government. However, funds transferred to the state and local governments are not 'earmarked' which simply means that these tiers of government are solely in control of how they spend the funds allocated to them (Nigeria Federal Ministry of Health, 2004). These two tiers of government do not provide any form of expenditure or budgetary report; therefore, the FG does not significantly influence their monetary expenses except for funds coming from special agencies and programs (Nigeria Federal Ministry of Health, 2004). The situation mentioned above is an issue for concern as there is a lack of accountability on healthcare service expenditure between the three governmental levels. This assertion explains why there is no definitive national record of the allocated funds to health interventions such as cervical cancer control programs. The above issue needs to be addressed if national strategies, interventions, policies, or frameworks are expected to have the desired impact on the country's healthcare system.

Extreme poverty level and cost of healthcare service

A major issue linked with health indicator in Nigeria and Africa is poverty, of which its high incidence rate has been observed to be widespread (Oyibocha, et al., 2014). The result of a household survey conducted by the Nigerian government in 2003/2004 revealed that >50% Nigerian citizens in the rural area have a poverty rate of more than 60%, making it difficult for them to afford the cost of healthcare. The Health Reform Foundation of Nigeria (HERFON) affirms the above statement by stating that over half of the Nigerian population live below the poverty line, which is about <$1 a day. The above estimate makes it impossible to afford the excessive cost of healthcare service and cervical screening (Federal Ministry of Health, 2005; HERFON, 2006; Obansa and Orimisan, 2013). Most rural women have no health insurance coverage and are expected to pay for cervical screening from their savings (National Population Commission and ICF Macro, 2009) which explains why the women are forced to make a choice of attending inadequate health facilities to obtain healthcare services that equate their purse irrespective of how severe the health outcome is.

Corruption and exploitation

Some of the things identified to be a challenge to the Nigerian healthcare system include bribery of health professionals; regulators and public officials; embezzlement of healthcare budgets; overbilling of health consumers for services rendered; health insurance fraud; stealing of medication and supplies by health personnel; absence from work, and informal payments to ghost workers (Vian, 2007; Akinbajo, 2012). Example of such corruption was noted by Akinbajo (2012) who noticed arbitrary inflation of the unit price of anti-retroviral drugs purchased by the ministry of health to help combat the spread of HIV/AIDS in the country. These challenges pose a threat to the health and well-being of the public and the country's economic status as the women find it difficult to trust the healthcare system or adhere to the health educational programs because they perceive it to be another means of exploitation.

Shortage of healthcare personnel

The shortage of skilled healthcare personnel is a global problem. A WHO report states a global shortage of ≈2.4 million doctors, nurses, and midwives of which >800,000 shortage rates have been recorded in Africa (WHO report, 2008). According to Chankova, et al., (2007), the number of health workers, in a public sector per 100,000 population coverage was about 13 doctors, 92 nurses/midwives, and 64 community health workers (CHWs). In Nigeria, the Nursing and Midwifery Council of Nigeria (NMCN) are estimated to have registered >140,000 nurses who are expected to care for ≈150 million people in the country with a nurse to patient ratio of 1:1013 while a physician to patient ratio is about 1:2536 persons (National Bureau of Statistics, 2007; Oyibocha, et al., 2014). The above ratio cannot be compared to developed countries with a physician to patient ratio of about 1:410 (Jhingan, 2007). In 2005, only 35% of births were attended by skilled health personnel of which, traditional birth attendants and unskilled personnel did >50% compared to 95% in developed countries (UNDP, 2007). Some of the major reasons for acute shortage were inadequate infrastructure and poor salary/compensation packages. These reasons led to a huge migration of some health

personnel (mostly doctors and nurses) to developed countries searching for more fulfilling and lucrative positions with better pay (Raufu, 2002; Adeloye, et al., 2017). This also explains why there is a shortage of skilled pathologists, cytopathologists, and laboratory specialists to carry out screening and diagnostics tests (Catarino, et al., 2015).

The above factors show an urgent need to develop strategies and plans that will help revitalise and checkmate the issues mentioned above that negatively affect the sustainability of the Nigerian healthcare system. Obansa and Orimisan (2013) proposed three main strategic plans to help combat these issues:

- Improved access to the community, primary and secondary health centres
- Increased allocation of funds to manage the health sectors
- Strategic and purposeful leadership in health delivery services which includes supervision; monitoring, and evaluation.

2.8 Healthcare Referral System in Nigeria

In healthcare, a referral is the temporary or permanent transfer of a patient's care responsibility from one health professional to another although in some cases; patients are self-referred while others independently approach the hospital for emergencies (WHO, 1987; Dunne and Martin, 1997; Ransome-Kuti, Sorungbe and Oyegbite, 1998; Akande, 2004). In Nigeria, the referral system connects the three levels of care as they operate independently but jointly enjoy the patronage from patients and the national health system (Irvine, 1991; Akande, 2004).

The primary health centres are designed as the first point of call but are required to refer patients to other higher levels of care depending on the diagnosis (Federal Ministry of Health, 1988; Federal Ministry of Health, 1990). However, previous studies have shown that patients often prefer the services from the higher levels (Secondary and Tertiary) of care thereby overcrowding these facilities with minor ailments that ca n be efficiently managed at the primary point of care (Osibogun, 1996; Laffoy, O'Herlihy and Keye, 1997; Dolan and Dale,

1997; Akande, 2004). This surge increases the workload on the staff at these facilities, leaving those at the primary level with little or no workload.

More so, patients tend to spend hours waiting to be seen by trained medical personnel, resulting in a waste of time for both the patient and the health professional (Akande, 2004). The main reason for this surge is that these high levels of care are the first point of call for those residents in the urban area where there are more employment opportunities while the primary care level is mostly for people at the rural area (World Bank, 1994). Also, patients deem the primary level of care to be inadequate with little or no functioning equipment (World Bank, 1994). Some of the above views were disputed by a previous Nigerian study, which reports that the urban areas have a huge number of health centres and rural hospitals that offer primary care, yet; a large proportion of patients bypass these facilities (Akande, 2004). From the above reports, it could be inferred that community women also depend on health professionals at the higher level of care to organise screening programs before they consent to a screening test due to lack of confidence in the care provided at the primary level.

Figure 12 shows the flow of referral in a typical Nigerian healthcare setting. However, this is not usually the case as >90% of the patients often jump the process and make the tertiary level of care (federal hospitals) their first point of call. Using the tertiary level as the first point of call makes it difficult to maintain continuity of care and thus affects the effective implementation of the NHIS scheme as there is lack of follow-up especially with women who have pre-cancerous abnormalities post-screening (Akande, 2004). To effectively combat this problem, the necessary resources and facilities such as manpower; drugs, and working equipment need to be provided at the lower levels of care to help build the people's confidence in these healthcare centres.

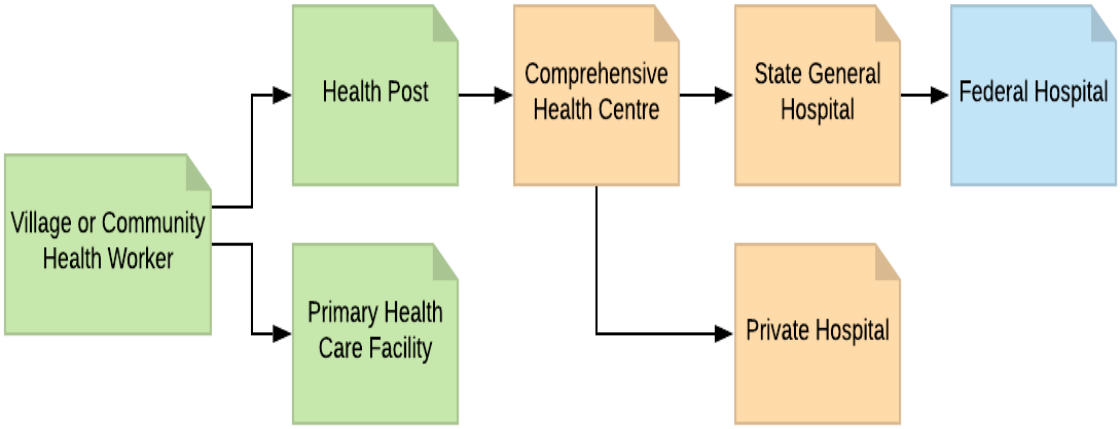


Figure 12: Two-way referral process.
(Developed by Researcher, Lucidchart)

2.9 Flow of Healthcare Information in Nigerian Health System

The flow diagram in Figure 13 represents the normal flow of healthcare information, including cervical cancer screening and diagnosis, in an average Nigerian clinical setting ranging from patients visit, admission and discharge. The information was collated based on three major sources; the researcher's view as a healthcare provider in Nigeria, anecdotal information, and reviews from different studies on what is obtainable in all levels of care within the country.

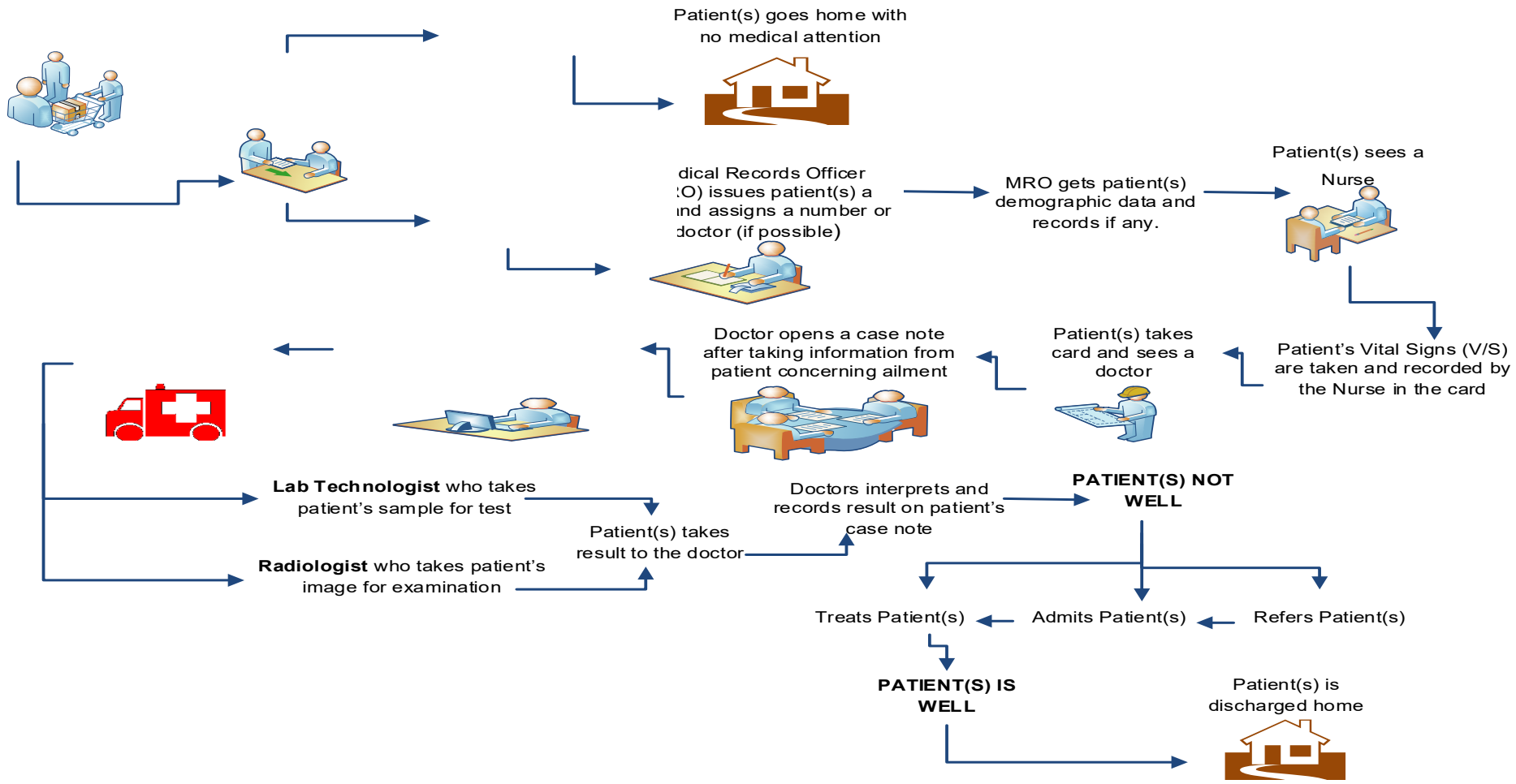


Figure 13: Flow of Healthcare information in a typical Nigerian hospital.

(Developed by Researcher - Visio)

2.10 Oncology Foundations in Nigeria

Though few foundations have tried to incorporate cancer care, cervical cancer has remained a threat to Nigerian women's lives, especially those at the community level. All efforts seemed to be targeted at the national level, and none have been found to be effective in reducing cervical cancer which ranks second in the country. Some of the foundations established within the country to help create awareness about cancer, early diagnosis, and preventive screening measures are:

- Breast Cancer Associations of Nigeria (BRECAN)
- Care Organization Public Enlightenment (COPE)
- Ego Bekee Cancer Foundation
- Mama Cancer Foundation of Nigeria
- Nigerian Cancer Society
- Preventive Healthcare Initiative
- Society of Oncology and Cancer Research of Nigeria (SOCRON)
- National Cancer Control Program (NCCP)
- National Cervical Cancer Control Policy

Most of these foundations, like BRECAN, COPE and so many others listed above, are non-profitable organisations that aim to improve women's lives by creating awareness of cancer and its related disease, and providing support, advocacy, empowerment and education (BRECAN, 2015). The above was also to ensure that Nigerian women were not taken out of the picture by gynaecological cancers (COPE, 2014). However, more than half of these foundations focus more on breast cancer which is rated higher among other gynaecological cancers in Nigeria (Ferlay, et al., 2014; Morounke, 2017) thereby neglecting the drastic effect cervical cancer has on Nigerian women.

2.11 Cervical Cancer Control in Nigeria by Healthcare Workers and the Government (Recommendations)

Healthcare Professionals

Healthcare providers are the first point of contact for the public, and their influence can help women live a healthy and better lifestyle by implementing policies and guidelines related to women's health (Ryan, 2009). Therefore, every healthcare professional's responsibility is to ensure early detection of at-risk individuals by taking comprehensive history during routine or random screenings. Reducing the incidence and prevalence of cervical cancer in Nigeria is a shared responsibility as goals need to be set in relation to the problem and should be the focus of the health team. As such, every healthcare provider should work together as active team members with effective interpersonal relationships and communication. Teamwork should be based on trust and respect to ensure every member is allowed equal right to state their opinions without bias (Cronenwett, et al., 2009; Oscarsson, Dahlberg and Tydén, 2011). Community-based awareness outreaches, screening, healthcare services, and sex educational campaigns that aim to reduce the possible risk and danger of cervical cancer, should be taken to the community. These strategies should be planned, organized, and implemented by healthcare providers (Schleicher, 2007).

Nigerian women should be well-informed about the disease and its screening measures so they can make informed choices. According to the UK's government white paper, *"Healthy lives, healthy people",* people should be well informed to make decisions and be actively allowed to participate in issues concerning their health. The six key words *"no decision about me without me",* as stated in the paper, has been the standard yardstick guiding the decisions made by healthcare providers in the UK (Department of Health, 2010) and if adopted will help improve the quality of care in Nigeria and other developing countries. Most importantly, Nigerian healthcare providers ought to have a better understanding of the wider determinants of health

to help avoid health inequalities and promote the general well-being of Nigerian women and the public at large. Evidence has shown that people come from different cultural backgrounds which influences their decision towards their healthcare and uptake of health services (Dahlgren and Whitehead, 1991; Department of Health, 2010; Glanz and Bishop, 2010). The need for healthcare professionals to be culturally competent was emphasized by Papadopoulos (2006), as it plays an important role in increasing patient's knowledge of the disease and screening services thus clarifying all misconceptions (Department of Health, 2010a; Department of Health, 2012). A previous Chinese study also showed evidence that community-based programs are effective in reducing the barriers of cervical cancer screening based on people's belief and should be an important considerable factor by the healthcare provider (Wang, et al., 2010).

A study carried out among midwives suggests that the participants have little or no knowledge of cervical cancer and its preventive measures, resulting in poor or degraded delivery in the quality of healthcare services rendered to the public (Oscarsson, Dahlberg and Tydén, 2011). Therefore, all employers must ensure that their employees (healthcare providers) have an annual update training and knowledge of current evidence-based practice, and skills that will help improve competency and quality of care (Benner, 1984; NMC, 2008; Department of Health, 2012). The above policy is applicable in countries such as the UK, where healthcare providers can only carry out a procedure such as cervical screening if they are trained and competent to do so (NMC, 2008).

The Government

It is the government's sole responsibility to ensure that the incidence and prevalence of a disease are reduced to its minimum; therefore, policies in relation to the health challenges encountered in a country should be initiated to help achieve the desired reduction rate. It is also the government's responsibility to ensure that those policies are implemented to the latter and

should also be periodically evaluated. The health of the citizens and immigrants, especially those in hard-to-reach places such as the rural area, should be safeguarded. The ecological, interpersonal, and environmental aspects of human life should be considered when initiating these policies that aim at promoting the health of the public (Glanz and Bishop, 2010).

The United Nations Population Fund (UNFPA) stated the need for healthcare service to be taken to the people's doorstep at the community level especially in developing countries as statistical evidence has shown high incidence rate of diseases among minority ethnic communities. However, it is very important to note other vital places such as schools; workplaces, and social gatherings, that could help increase the awareness of diseases like cervical cancer (UNFPA, 2011). The above view was agreed by some authors who also stated that both the federal and state government ought to liaise and provide an effective eligibility framework in accordance with available national programs that will help the public have free and easy access to healthcare services and its benefits which include screening (Fortuny and Chaudry, 2011). Example of such a framework is the "The Coalition: our program for government" (2010) bill, passed and signed by the UK government ensuring patients have access to cancer drugs based on doctor's prescription. The drugs are given under the National Health Service (NHS) scheme and paid for, through the Employer's National Insurance to ensure all patients and clients have access to quality and timely care without infringing their right of autonomy (Beauchamp and Childress, 2009).

2.12 Cervical Cancer-Related Policies and Guidelines

Evidence-based global or national policies and guidelines urgently need to be established, implemented and evaluated to reduce health inequalities and obtain optimal health satisfaction among the women. These will ensure quality and adequate screening of minor or advanced stages of the disease (WHO, 2020).

2.12.1 Policies

Though unscreened women are at a greater risk of acquiring cervical cancer, they are still uninformed and poorly educated about the disease which shows lack of empowerment in this respect (Gannon and Dowling, 2008; Black, et al., 2011; Onyenwenyi and Gugu, 2016). The above issues impact negatively on the women's quality of life and behavioural care-seeking patterns if they eventually contract the disease (Denny, Quinn and Sankaranarayanan, 2006). One of the needs by Maslow that ought to be achieved before an individual move to a higher need is that of safety and security (includes: health; job security, or safe environment) which relates to keeping an individual safe from harm (Maslow, et al., 1987). In relation to this research, it simply implies that if women feel safe from any form of threat to their health, they will take a step further to seek higher health needs.

To ensure high coverage of screening among women, mostly the hard to reach such as migrants; low-income earners and rural dwellers, the American Cancer Society stressed the need to have strong public health policies to reduce the widespread of cervical cancer disease (Satcher and Higginbotham, 2008). Several global and national policies have been initiated and implemented to help achieve this aim.

In the US, a public-private partnership named 'Pink Ribbon Red Ribbon' (PRRR) was formed to promote worldwide cervical cancer campaigns (Barot, 2012). Likewise, in the UK, a governmental policy called *National Cancer Equality* was established to help reduce the incidence and mortality rate of all cancers among residents within the country irrespective of race, culture, or religion (NHS Improvement, 2010). Another policy called *'Helping More People Survive Cancer'* was also launched in England by the Department of Health and carried out through a *'Be clear on cancer'* campaign. The policy aimed to create public awareness of the

dangers, signs and symptoms of all cancers and encourage early screening and diagnosis (Ellison, 2013).

A previous Nigerian report states that the country has no national policy on cervical cancer, which explains the increase in late presentation of the disease among women of reproductive age (Kolawole, 2012). However, the WHO reports that Nigeria is one of the 17 countries with an operational policy or plan of action for cervical cancer prevention since 2008 (Stefan, et al., 2013). Nevertheless, it has been observed over the years that the policy is not well-implemented due to inadequate publicity of available strategies (Oguntayo, et al., 2011; Eze, Emeka-Irem and Edegbe, 2013; Sowemimo, Ojo, and Fasubaa, 2017). Also, the highly over-populated rural area is under-served because the community's health centres are not equipped to carry out diagnostic and screening services (Kolawole, 2012). Inadequate healthcare service delivery, other competing health needs (such as HIV/AIDS; malaria and breast cancer) and inadequate budgetary allocation to health, are contributory factors that also pose as threats to the progress of cervical cancer control in Nigeria (Sowemimo, Ojo and Fasubaa, 2017).

The National Reproductive Health Policy which was established in Nigeria in 2001 incorporated cervical cancer under the big heading termed 'other reproductive health conditions' with the aim of promoting cervical screening programs (Sowemimo, Ojo, and Fasubaa, 2017). Similarly, the National program for STD's was also expected to contribute to the reduction of the HPV infection (Kolawole, 2012). All these seemed to be a good development; however, there was no measurement of the plan outcomes in the national statistics. Regional cancer registries and institutional data also did not show any significant improvement or change in the trend of the disease (Sowemimo, Ojo, and Fasubaa, 2017). It was also observed that the Federal Government's strategic health development plan for 2010 - 2015 did not identify the modalities and preventive measures for the control of cervical cancer of which inadequate funding and

technical manpower were contributory factors (Federal Ministry of Health, 2010). However, this was disputed by the Nigerian National System of Cancer Registries (NNSCR). They stated that information on common cancers, including their incidence; mortality and achievements, has also been provided (Onyenwenyi and Gugu, 2016). The NNSCR claimed that they provided information on cervical cancer disease burden, and informed the Ministry of Health to provide training for health staff, radiotherapy equipment, vans for mobile cancer screening, and local community-based outreach programmes (Onyenwenyi and Gugu, 2016).

Nevertheless, no published record has shown the success and effectiveness of these strategies, which supports the claim from the above previous studies disputed by the NNSCR. Therefore, it could be inferred that the available efforts towards cervical cancer control in Nigeria lack co-operation, co-ordination, and organisation (Ezem, 2007; Onyenwenyi and Gugu, 2016).

From the above findings, successful implementation of policies and guidelines in most developing countries like Nigeria is challenging due to the lack of comprehensive national policy. Therefore, this research will suggest some recommendations that will be beneficial to the Nigerian government with regards to drafting comprehensive, sustainable, and consistent policies that will help prevent and control cervical cancer disease in Imo State and Nigeria at large.

2.12.2 Guidelines

The Department of Health UK supports screening older women aged 25 - 65 years every 3 to 5 years using the cytology-based test if no anomaly is diagnosed (DH, 2012). According to the American Congress of Obstetrician and Gynaecologists (ACOG) report, the American Society for Colposcopy (ASC), American Society for Clinical Pathology (ASCP), the Consensus of American Cancer Society (CACS) and the US Preventive Services Task Force (USPTF) recommends cytology-based screening test among US resident women aged 21 - 29 years

within a 3-year interval (ACOG, 2012). The Pap-Smear test has been proven to be successful over the years with a high specificity of about 98%. However, a low sensitivity of <50% has also been recorded in some countries and explains why screening is repeated at regular intervals (Cuzick, et al., 2006; Arbyn, 2009).

2.13 Cervical Cancer in Nigeria

Cervical cancer is the second highest-ranking cancer in Nigeria (Eze, Obiebi and Umuago, 2018). More than 9,000 Nigerian women die annually from the disease, thus highlighting the lack or poor cervical screening utilization alongside an increase in disease mortality rate (Nwachukwu, 2015; Society for Family Health, 2019). Cross-sectional studies carried out in major parts of the country: Owerri; Niger Delta; Onitsha, and Ibadan, affirmed low awareness and uptake of cervical cancer and screening (Ezem, 2007; Arulogun and Maxwell, 2012; Owoeye and Ibrahim, 2013; Eze, Obiebi and Umuago, 2018).

In 2004, findings from previous studies carried out in Port-Harcourt and Ilorin respectively showed that, out of all the histological confirmed cases of gynaecological cancers in the country, 63.1% was constituted by cervical cancer (Nwosu and Ana, 2004; Ijaiya, Aboyeji and Buhari, 2005). These findings have been further affirmed by another study carried out in Lagos states which stated that cervical cancer was more prevalent with a rate of about 70.5% as compared to other cancers such as Ovarian and Uterine cancer which had 16.3% and 8.5% respectively (Oluwole, et al., 2017). Similarly, an antenatal statistical report indicated that only 3,038 women out of the large number attending a key hospital (University College Hospital, Ibadan) in Nigeria between 2005 - 2007 had been screened for cervical cancer (Arulogun and Maxwell, 2012). Some of the identified barriers were: lack of knowledge, delay in seeking medical care and late referral by healthcare providers, thus affirming the poor implementation and utilization of cervical cancer screening in the country (Anorlu, 2004; Arulogun and Maxwell, 2012).

Previous studies carried out among female nursing students, and healthcare professionals have also shown a lack of knowledge about cervical cancer and screening (Udigwe, 2006; Arulogun and Maxwell, 2012). About 87% of the Nurses in Udigwe's study, knew about cervical cancer, but only 5.7% have had cervical screening despite being health professionals. Therefore, the lack of knowledge among healthcare professionals may impact the kind of guidance they provide to the women regarding cervical screening.

2.13.1 Screening Programs in Nigeria

Medical experts have called on women of reproductive age to observe regular screening by emphasizing the need for early detection and treatment of pre-cancerous lesions which are the best possible protection from the disease (Nwachukwu, 2015). They solicited the help of private sectors within the country in providing a general policy guideline named 'National Cervical Cancer Policy' to help fight the disease (Nwachukwu, 2015). Planned Parenthood Federation of Nigeria (PPFN), Society for Family Health (SFH) and Marie Stopes Nigeria (MSN) are some of the Nigerian sectors that joined forces with NCCP. They carried out a 4-year cervical cancer screening and preventive therapy (CCS & PT) which took effect from 2012 and ended in 2016. The program which also took place in three other African countries: Tanzania, Uganda, and Kenya, was funded by Bill and Melinda Gates Foundation. Maria Stopes International was the principal recipient (IPPF, 2018; Society for Family Health, 2019).

The program aimed to treat at least 2,800 Nigerian women aged 30 – 49 years who have pre-cancerous cervical lesions in 20 sites across the country using the Visual Inspection Acetic Acid method. However, women with advanced lesions were referred to government-owned hospitals for advanced treatment procedure like radiotherapy (Society for Family Health, 2019). The initiative also aimed to provide a total of about 576 new cervical cancer screening sites and about 239 new cryotherapy sites in the four countries where it was carried out (IPPF, 2018). The

Society trained some inter-personal mobilization agents for Family Health to help create awareness of the project using a door-to-door approach.

Though most Nigerian states were covered during the program, only women aged 30 - 49 years were targeted, which could be an issue for concern. Findings from a previous study showed that transmission of the virus is more prevalent among the younger age group due to high fertility rate and unhealthy sexual behaviour (Sowemimo, Ojo and Fasubaa, 2017). However, other sources shared a different opinion and reported that women above 30 years are more sexually active, thus supporting the program's targeted age group (Thomas, et al., 2004; Gage, et al., 2011).

2.14 Summary

It was deduced from this chapter that the Nigerian healthcare system is divided into three levels and is being controlled by the three tiers of government in the country which are the Federal, State, and Local governments. These tiers of government respectively provide tertiary, secondary, and primary levels of care. The primary level of care was designed to be the first point of call before referral to other levels of care. However, some identified factors such as inadequate/poor supply of infrastructure to the health facilities and proximity negatively affect the health system and make referral to other levels of care very difficult. More so, healthcare workers who are also the first point of call, lack adequate knowledge of cervical cancer which explains the increase in incidence and mortality rate of the disease in the country. Although some screening programs are carried out in different parts of Nigeria, the lack of well-implemented policies and guidelines in the control of cervical cancer compared to those in developed countries such as US and UK also contribute to the increased mortality rate of the disease in the country.

Chapter 3 - Cervical Cancer Knowledge and Health Beliefs

3.1 Introduction

A literature review recognises a research gap and presents findings by examining, synthesizing, and critically analysing the available information from different studies on the relevant subject area (Im and Chang, 2012). Therefore, this chapter specifically reviews previous studies that explored cervical cancer awareness/knowledge and the role of health beliefs in cervical screening attendance. The theoretical framework guiding the study was reviewed in detail. To successfully search for relevant literature which is often viewed as a daunting and difficult process (Coughlan and Cronin, 2017), the researcher accessed widely known and mostly peer-reviewed relevant databases (Wright, Golder and Lewis-Light, 2015) such as CINAHL Plus; PubMed; MEDLINE, and ScienceDirect using the Anglia Ruskin Research Online (ARRO) search engine. The inclusion criteria for selecting hit studies was that they must be conducted in English Language, targets only women, full-text articles, carried out within the last ten years (2010 - 2020) and has a main focus on either “cervical cancer awareness/knowledge” (Review 1) or “health beliefs and its role on cervical screening attendance” (Review 2). The above means that articles, which do not meet the required criteria for selection, were excluded. Findings from this research were compared with that of the selected hit studies to note uniformity or difference in participants' responses.

3.2 Literature Review on Cervical Cancer Awareness/Knowledge

After a comprehensive global search and review of studies that explored cervical cancer awareness/knowledge, a total of 405 hit articles were collated. Keywords used for searching and narrowing down articles were, “cervical cancer”, “awareness”, “knowledge”, and “rural or community women”. Boolean Operators such as “AND” and “OR” were used to connect the above keywords (Coughlan and Cronin, 2017). Articles were finally reduced to 27 hits after

applying the inclusion criteria as earlier stated of which about 25 of the studies were conducted in developing countries. Appendix D shows a summary of the selected hit articles.

3.2.1 Awareness of Cervical cancer

A questionnaire was used to test the awareness of cervical cancer among women in different countries. In some of the studies, a validated toolkit 'Cervical Cancer Awareness Measure questionnaire' (Cervical-CAM) developed by the UCL Health Behaviour Research Centre was used to assess and measure awareness of the disease among women in India, Pakistan, and Tanzania (Siddharthar, Rajkumar and Deivasigamani, 2014; Mabelele, et al., 2018; Hirani, et al., 2020). However, it was observed that awareness was measured using two simple terms. While some studies clearly stated if the women were 'aware' of the disease (Eze, et al., 2012; Siddharthar, Rajkumar and Deivasigamani, 2014; Arora, et al., 2017; Abiodun, et al., 2017; Gatumo, et al., 2018; Yahya and Mande, 2019; Reichheld, et al., 2020), others reported if they have 'heard' about it (Ndikom and Ofi, 2012; Getahun, et al., 2013, Akinlaja and Anorlu, 2014; Olowokere and Ojo, 2014; Assoumou, et al., 2015; Ebu, et al., 2015; Ifediora and Azuike, 2018; Kasa, Tesfaye and Temesgen, 2018; Mabelele, et al., 2018; Agui, et al., 2020; Gyamfua, et al., 2020; Hirani, et al., 2020; Kadian, et al., 2020; Mengesha, Messele and Beletew, 2020). Findings from the above studies were analyzed descriptively, nevertheless; one of the Nigerian studies analyzed data into themes of which the one relating to this review centred on 'Awareness of cervical cancer as a disease entity' (Yahya and Mande, 2019).

In one of the Kenyan studies (Gatumo, et al., 2018), awareness was measured among women in two different communities (Tharaka Nithi and Isiolo). Findings showed that women in Tharaka Nithi were three times more likely to have heard of cervical cancer than women in Isiolo. Some of the identified reasons that may have contributed to increased awareness among women in Tharaka Nithi community were high literacy level, high health professional density, a higher

number of healthcare facilities and low poverty level. However, the above findings were expected and could be argued as participants from Tharaka Nithi (n = 318) were two times more in number than those from Isiolo (n = 133) and thus explained the huge difference in the demographics and awareness rate. Similarly, a recent Indian study recruited women from two different backgrounds. About 800 women were recruited from the urban area and 700 from the rural area (Kadian, et al., 2020). Majority of the women were educated and working, but as expected, urban women (57.1%) were significantly more likely to be aware of cervical cancer ($p = 0.004$) compared to rural women (49.7%). Although, the study did not mention the reason for the increased awareness among urban women, previous studies have shown that those in the urban area have more easily accessed hospitals, good roads, and awareness programs compared to those in the rural area (Akande, 2004; Moshi, et al., 2019). Also, women in the urban area were in excess of 100, which might have increased their response rate and contributed to the increased awareness among urban women.

In developing countries such as Ethiopia; Ghana; Kenya; Nigeria; Pakistan, and Tanzania, previous studies have shown that more than 60% - 83% of the women were aware of cervical cancer disease (Getahun, et al., 2013, Olowokere and Ojo, 2014; Ziba, et al., 2015; Gatumo, et al., 2018; Kasa, Tesfaye and Temesgen, 2018; Mabelele, et al., 2018; Gyamfua, et al., 2020; Hirani, et al., 2020; Mengesha, Messele and Beletew, 2020). In one of the Tanzania studies, the existence of a national cervical cancer screening program was mentioned and thus explained why majority of the women reported that they have heard of the disease (Mabelele, et al., 2018). Nonetheless, the above figures were surprisingly observed to be higher in a Gabonese study were 91.6% of the women reported being aware of the disease. Study findings showed that most of the women were literates as 31.4% and 63.7% were either in secondary school or university level respectively which explains the high increase rate (Assoumou, et al., 2015). The above statistics affirm the report from a study on quality education which states that although

increased access to education is very important, the provision of schools helps in the transfer of knowledge and improves teaching of skills, which thus increases the literacy level of the population as they can read, write and understand (Roser, Nagdy and Ortiz-Ospina, 2013).

Although the above studies arrived at the same conclusion that women were aware of cervical cancer disease which is a step in the right direction, their findings are in contrast to other studies done in some developed and developing counties such as China; Ghana; India, and Nigeria where >50% of the women reported not to have heard of cervical cancer which implies that they have not been well-informed about the disease (Eze, et al., 2012; Ndikom and Ofi, 2012; Simayi, et al., 2013; Ukpo, 2013; Akinlaja and Anorlu, 2014; Siddharthar, Rajkumar and Deivasigamani, 2014; Ebu, et al., 2015; Arora, et al., 2017; Abiodun, et al., 2017; Ifediora and Azuike, 2018; Agui, et al., 2020; Reichheld, et al., 2020). In studies where women had little or no education, the awareness of cervical cancer was very low. Findings from different studies carried out in Nigeria affirm the above statement. In one of the Nigeria studies, only 25% of the women had post-secondary education (Eze, et al., 2012). Similarly, in a different Nigerian study, about 82% of the women were educated up to a secondary level only (Akinlaja and Anorlu, 2014). Based on the above findings from the two studies above, it was rather disappointing to note from another Nigerian study that more than 55% of the participants who were all secondary school students mostly between the age of 15 - 19 years (94%) have not heard of cervical cancer despite their access to education (Ifediora and Azuike, 2018). The above findings confirm the importance of high-quality education with emphasis on ‘quality’ to help improve the literacy level of the population and subsequently, disease awareness (Roser, Nagdy and Ortiz-Ospina, 2013).

One of the identified reason for lack of awareness in studies carried out in Nigeria was that cervical cancer is not routinely discussed in the healthcare clinics which explains why the women are poorly informed about it (Ndikom and Ofi, 2012; Abiodun, et al., 2017). A Chinese study

supported the above assertion, and associated lack of cervical cancer awareness to lack of health education (Simayi, et al., 2013). It is therefore not surprising to note that some studies have concluded that the main reason for low uptake of cervical cancer screening is low awareness of the disease due to lack of proper health education (Ndikom and Ofi, 2012; Abiodun, et al., 2017; Yahya and Mande, 2019). Report from an Indian study affirms the above and states that awareness of cervical cancer is low despite the introduction of an NCCP because the women lack full information about the disease (Siddharthar, Rajkumar and Deivasigamani, 2014). The above findings explain why health education is a critical component in any cervical cancer comprehensive program and a proven strategy for disease prevention and control (Simayi, et al., 2013; Abiodun, et al., 2017).

3.2.2 Knowledge of Cervical cancer

Based on the report from a Nigerian study, women who are aware of cervical cancer are generally believed to have knowledge of the disease risk factors, symptoms and possible preventive measures (Ifediora and Azuike, 2018). Surprisingly, the reviewed studies in developed and developing countries assessed women's knowledge of cervical cancer using the terms mentioned above. Data was mostly collected through a closed-ended questionnaire and analysed descriptively using a point-based score or range of numbers to categorise the women's knowledge from either poor to good, above average or adequate (Suneetha and Rao, 2011; Getahun, et al., 2013; Akinlaja and Anorlu, 2014; Olowokere and Ojo, 2014; Siddharthar, Rajkumar and Deivasigamani, 2014; Assoumou, et al., 2015; Moshi, et al., 2019; Agui, et al., 2020; Gyamfua, et al., 2020; Kadian, et al., 2020; Reichheld, et al., 2020).

Previous studies carried out in developing countries such as Ghana and Tanzania showed a very low percentage as only 9.7%, and 10.4% of the women have good knowledge of cervical cancer disease respectively (Moshi, et al., 2019; Gyamfua, et al., 2020). One of the Nigerian

studies even reported a lower percentage of knowledge (2.5%) among the women (Akinlaja and Anorlu, 2014). Although, >79% of the women in an Ethiopian study were aware of cervical cancer, only 31% of them had average knowledge of it (Getahun, et al., 2013). Similarly, >90% of the women in a Gabonese study were aware of cervical cancer, but surprisingly, a similar percentage had a general poor knowledge of the disease. The authors highlighted that cervical cancer had been selected as a priority disease in Gabon, but the country has no cervical cancer-related information program mostly for students as >94% of the participants were either in secondary school or at University level, and thus explains the poor knowledge of the disease among the population of interest (Assoumou, et al., 2015). A recent Indian study also further explored the difference in knowledge between women in the urban and rural area. Study findings showed that 55% of rural women have poor knowledge of cervical cancer (Kadian, et al., 2020). Although the reason for increased knowledge among the urban population has been explained earlier in the awareness section, the general knowledge of cervical cancer among women from the countries mentioned above was regarded as low and could be attributed to some of the factors previously mentioned in chapter 2 that affect the healthcare system mostly in developing countries (Obansa and Orimisan, 2013).

Findings from studies carried out in Ethiopia, Ghana, India, Nigeria and Tanzania, have shown poor knowledge of cervical cancer risk factors and symptoms among the women (Ukpo, 2013; Siddharthar, Rajkumar and Deivasigamani, 2014; Ebu, et al., 2015; Papri, et al., 2015; Ziba, et al., 2015; Abiodun, et al., 2017; Ifediora and Azuike, 2018; Kadian, et al., 2020; Mabelele, et al., 2018; Mengesha, Messele and Beletew, 2020). Some of the studies stated that about 60% - 80% of the women lack knowledge of disease risk factors and its possible signs and symptoms (Ukpo, 2013; Mabelele, et al., 2018; Mengesha, Messele and Beletew, 2020). However, it was observed that >50% of the women in one of the studies managed to recognise the above when presented with a list of possible risk factors and symptoms (Mabelele, et al., 2018). Similarly, a

report from an Indian study showed that the women were aware of the risk factors when it was listed out for them but were not fully aware that these risk factors are related to cervical cancer (Kadian, et al., 2020). Although the above studies did not state reasons to support the findings, it could be possible that the women made an educated random guess based on the options provided hence the overall lack of knowledge. The above findings on lack of knowledge were also applicable in a recent Ghanaian study among approximately 75% and 95% of the women, respectively. Study findings showed that 75% of the women did not view cervical cancer screening as a preventive measure which explains their lack of knowledge as they would have been more informed during the screening process (Gyamfua, et al., 2020). Surprisingly, in Ethiopia, approximately 60% and 64% of the women were knowledgeable of the disease symptoms and knew it was preventable, respectively. Though the above information was relieving, it was rather shocking to observe that about 69% of the women lack knowledge of the disease risk factors (Getahun, et al., 2013). According to the authors, the country is yet to have a national policy to address issues relating to cervical cancer disease and does not have an organised educational or screening program hence the inadequate knowledge among the women.

Furthermore, about 62% of the women in a Nigerian study agreed that cervical cancer affects the cervix; nevertheless, it was surprising to note that 53% of them did not agree that the disease is an abnormal growth that can spread to other parts of the body (Olowokere and Ojo, 2014). The above viewpoint might be the reason why approximately 59% of them had poor knowledge of the disease and could not identify some of the eminent disease risk factors (Olowokere and Ojo, 2014). In some of the above studies, it was noted that most of the women who had knowledge of cervical cancer were either married, educated, aged <40 years, and belonged to a health profession (Gatumo, et al., 2018; Assoumou, et al., 2015; Gyamfua, et al., 2020).

In one of the studies carried out in the UK, 65% and 75% of the women said they could not recall any cervical cancer risk factor or symptom respectively (Low, et al., 2012). The above finding was surprising as the UK is one of the developed countries with policies aimed at creating public awareness on cervical cancer; therefore, the women were expected to have increased knowledge of the disease (Ellison, 2013). Although the study hypothesised that women from white ethnicity would predict higher cervical cancer symptom which it eventually did based on the study findings, only a small percentage of non-whites (9%) participated in the study (Low, et al., 2012) which creates a gap as to what is known about the disease among women from this ethnicity, and thus emphasises the importance of continuous reinforcement of cervical cancer-related education among women of all ages and background (NHS Improvement, 2010; Olowokere and Ojo, 2014; Siddharthar, Rajkumar and Deivasigamani, 2014).

A Structured Teaching Program (STP) was adopted as a post-corrective measure to increase Indian women's knowledge of cervical cancer from moderate to good (Suneetha and Rao, 2011). The study which was carried out among married women in the urban and rural area initially used pre-test questions to ascertain how knowledgeable the women are about the disease. Findings showed that women from both areas had similar knowledge score of 12%. However, after the introduction of the STP, the post-test knowledge score showed an increase in knowledge among the women. Women from the urban area had more knowledge of the disease (80%) compared to those in the rural area (55%), which was rather expected. Study findings showed a noticeable difference between the pre and post-test knowledge score among women in the rural area (2.6) and those in the urban area (3.04) which means that the STP was effective in increasing the knowledge of cervical cancer among the women (Suneetha and Rao, 2011).

Similarly, a study carried out in China showed an increase in cervical cancer knowledge among Chinese women from 6.4% to 25.5% after a one-time educational intervention was carried out (Simayi, et al., 2013). Also, in one of the Kenyan studies carried out in two communities, Tharaka Nithi and Isiolo, cervical cancer knowledge was observed to be higher in Tharaka Nithi due to the cervical cancer awareness program that has been ongoing since 2010 but is yet to be implemented in Isiolo community (American Cancer Society, 2016). Therefore, the above statistics affirm the recommendation from a previous Nigerian study that suggests an aggressive public awareness education and broad-based advocacy program to help increase the awareness/knowledge of the disease among the intended population (Eze, et al., 2012). Also, the STP, which has proven effective in increasing the awareness/knowledge of cervical cancer among Indian women, should be incorporated by other countries (Suneetha and Rao, 2011; N I, et al., 2016). Although cervical cancer knowledge was observed to increase in women after the introduction of cervical cancer control and educational programs, one of the Indian studies highlighted that the low knowledge level was due to the under-resourced or over-burdened primary healthcare facilities (Siddharthar, Rajkumar and Deivasigamani, 2014).

Based on the above findings, it was deduced from studies carried out in some of the countries that about 77% (Ethiopia), 65% (Ethiopia), >90% (Gabon), 98% (Ghana), 69.7% (Ghana), 59% (Nigeria), 55% (India), 70% (India), 80% (India), and 85% (India) of the women have poor knowledge of cervical cancer (Getahun, et al., 2013; Olowokere and Ojo, 2014; Assoumou, et al., 2015; Ebu, et al., 2015; Kasa, Tesfaye and Temesgen, 2018; Agui, et al., 2020; Gyamfua, et al., 2020; Kadian, et al., 2020; Reichheld, et al., 2020). One main reason for the above was ‘low public awareness’ as the disease has not yet received much attention even though it is the most prevalent among women especially in developing countries (Kasa, Tesfaye and Temesgen, 2018).

3.2.3 Significant factors that influence awareness/knowledge of cervical cancer.

Some of the significant factors observed to influence awareness/knowledge include age; marital status; income; education; occupation; source of information, and parity (N I, et al., 2016; Kasa, Tesfaye and Temesgen, 2018).

Age

Report from a Nigerian study showed that knowledge of cervical cancer was more among younger women, but the study did not state which age group the younger women belonged to which limits the interpretation of findings (Olowokere and Ojo, 2014). The above finding contrasts with a previous Nigerian study (Ukpo, 2013) that showed that older women (>45 years) were more knowledgeable of cervical cancer than younger women (<44 years). However, it was observed from previous studies carried out in Ethiopia, Gabon, India and Tanzania, that women >30 years are more likely to have knowledge of cervical cancer (Assoumou, et al., 2015; Kasa, Tesfaye and Temesgen, 2018; Moshi, et al., 2019; Reichheld, et al., 2020). The above finding(s) is rather surprising as women <30 years are expected to be more knowledgeable of the disease. The main reason behind this assertion is that exposure to HPV mostly occurs among females between 20 – 25 years; therefore, cervical cancer-related educational programs is expected to target young females before they break into the above age bracket or become sexually active (Ifediora and Azuike, 2018).

Marital status

Previous studies carried out in Gabon and Ethiopia showed that married women were more likely to have knowledge of cervical cancer than unmarried women (Assoumou, et al., 2015; Kasa, Tesfaye and Temesgen, 2018). The reason for the above in one of the studies was attributed to socio-cultural variations (Kasa, Tesfaye and Temesgen, 2018). Also, according to one of the Turkish studies, cervical cancer affects a woman's sexuality which could result to

problems among married couples and thus explains why married women aim to increase/update their knowledge about the disease (Duran, 2011).

Education

Studies carried out in Ethiopia, Ghana, India, Nigeria, and Tanzania showed that women with formal education were more likely to be knowledgeable of cervical cancer compared to those with no formal education (Getahun, et al., 2013; Akinlaja and Anorlu, 2014; Ziba, et al., 2015; N I, et al., 2016; Arora, et al., 2017; Moshi, et al., 2019; Gyamfua, et al., 2020). Similarly, a recent Ghanaian study showed that educated women were more likely to be aware of cervical cancer than uneducated women (Gyamfua, et al., 2020). Authors from the above studies concluded that the more literate the population is, the more likely they are to have knowledge about the disease, which further explains why women in developed countries with high literacy levels have more knowledge of cervical cancer. Therefore, educating women on cervical cancer will help reduce the disease's incidence and mortality rate (Ukpo, 2013).

Previous knowledge of an affected victim

Women in Ethiopia and Tanzania who had seen or have knowledge of someone with cervical cancer were more likely to have knowledge of the disease than women who have not (Getahun, et al., 2013; Moshi, et al., 2019). Based on the above finding, it could be inferred that knowing someone who has cervical cancer increases the knowledge of women as they aim to know more about the disease especially from those already affected (Moshi, et al., 2019).

Residence

Previous studies have shown that women residents in urban areas are more knowledgeable of cervical cancer than rural residents (Kadian, et al., 2020). A significant association was observed in one of the studies carried out in Tanzania which support the above findings and showed that women who reside in the urban area were two times more likely to have knowledge of cervical

cancer disease compared to those in the rural area due to the availability of health information and easy access to healthcare services (Moshi, et al., 2019). It could also be possible that the availability of health information means the healthcare workers in the urban area are more informed than those in the rural area; hence the increased awareness among women in the urban area.

Income/Social class

Gabonese women who earn salaries were more likely to have good knowledge of cervical cancer disease (Assoumou, et al., 2015). Similarly, an Indian study revealed that women of a high social class who earn high salaries were more likely to have knowledge of cervical cancer than their counterparts (Arora, et al., 2017). High social class may imply attaining a higher educational level, leading to a better understanding of the disease (Patel, 2018). Although the above studies did not explain the reason(s) behind the findings, cervical cancer screening in some countries is believed to be expensive (Ukpo, 2013; Catarino, et al., 2015) and thus explains why the women try to avoid cervical cancer-related topics for fear of unknown outcome which could be another reason for low awareness/knowledge of the disease. Therefore, one of the above studies concluded that increasing the women's social class or salary will help increase the knowledge of cervical cancer (Arora, et al., 2017).

Occupation

Findings from an Indian and Kenyan study showed that women who were employed were more likely to be knowledgeable about cervical cancer than unemployed women (N I, et al., 2016; Gatumo, et al., 2018). Although the studies did not provide any reasons for the above findings, it was surprising to note in one of the studies that about 76% of the women are housewives, making it difficult to grade their source of income (N I, et al., 2016). On the other hand, it is possible that the women have or work on home farms and thus not considered employed.

Nevertheless, being employed means the women have a source of income and thus agrees with the explanation in the above sub-section that women who earn salaries have more knowledge of cervical cancer (Assoumou, et al., 2015).

Source of Information

Studies conducted in India showed that awareness/knowledge of cervical cancer was dependent ($p < 0.05$) on the source of information (Suneetha and Rao, 2011; N I, et al., 2016). In most of the studies, the women were informed about the disease through social media, family, friends/neighbours, and schoolteachers (Olowokere and Ojo, 2014; Ifediora and Azuike, 2018; Gatumo, et al., 2018 Kasa, Tesfaye and Temesgen, 2018; Gyamfua et al., 2020; Kadian, et al., 2020; Reichheld, et al., 2020). Some of the studies carried out in Ethiopia, Nigeria and India showed that the common source of information was the media and the most used was the national media such as television or radio (Getahun, et al., 2013; Agui, et al., 2020; Mengesha, Messele and Beletew, 2020). However, a Nigerian study mentioned the possibility of the media missing some important information about cervical cancer which could be one reason for lack of awareness as the women do not have adequate information on the disease (Yahya and Mande, 2019).

Participant's from previous Nigerian studies stated that they had not been well informed about cervical cancer by the health workers as it is not part of the routine health talk (Ndikom and Ofi, 2012; Ukpo, 2013) and only 28% of the women in a Gabonese study reported to have been informed by a medical worker (Assoumou, et al., 2015). However, some of the studies carried out in Nigeria reported that women were informed about the disease through health talks and hospital staff (Akinlaja and Anorlu, 2014; Abiodun, et al., 2017). Most of the authors, therefore; suggested that implemented programs and educational strategies by the nursing profession, ministry of health, community health nurses and other concerned health bodies will help

encourage women to use the services provided in different clinics, intensify efforts aimed at increasing cervical cancer awareness, help achieve good health at low cost and improve the women's quality of life (Simayi, et al., 2013; Olowokere and Ojo, 2014; N I, et al., 2016; Kasa, Tesfaye and Temesgen, 2018; Mabelele, et al., 2018; Kadian, et al., 2020). Previous studies recommend the involvement of religious institutions and the integration of awareness campaigns into the academic curricula of secondary school students (Al-Naggar, Low and Isa, 2010; Mulatu, et al., 2017; Ifediora and Azuike, 2018).

3.3 Literature Review on the Role of Health Beliefs in Cervical Screening Attendance

A total of 780 hit articles were collated after a comprehensive search and review of studies that explored the role of health beliefs in cervical screening attendance. Articles were searched and narrowed down using keywords like, “cervical screening attendance”, “health beliefs or attitudes” and “rural or “community” women. The above keywords were connected using Boolean Operators such as “AND” and “OR” (Coughlan and Cronin, 2017). Articles were finally reduced to 13 hits after applying the exclusion and inclusion criteria. Appendix E shows a summary of the selected hit articles.

3.3.1 Cervical Cancer Health Seeking Behaviour

According to Kasl and Cobb, health behaviour is an activity undertaken by individuals who perceive themselves to be healthy but aim to prevent a disease or detect it during the asymptomatic stage (Kasl and Cobb, 1966 cited in Patel., 2018). Based on the above definition, cervical cancer health screening behaviour in this research refers to the women’s belief(s), attitude, and perception in relation to cervical screening attendance for early prevention or detection; therefore, all selected hit articles in this review explored the above terms. To affirm the above a study carried out in Ghana showed that the knowledge of cervical cancer increased cervical cancer screening behaviour among the women (Annan, Oppong Asante and Kugbey, 2019). Therefore, the knowledge of cervical cancer may equate seeking safe health needs and preventive measures. However, findings from the reviewed studies showed that the presence of some identified factors which are listed and explained below influenced the women’s attitude towards cervical screening attendance (Ma, et al., 2013; Marván, Ehrenzweig and Catillo-López, 2014; Marlow, Waller and Wardle, 2015; Aldohaian, Alshammari and Arafah, 2019; Darj, Chalise and Shakya, 2019; Marlow, et al., 2019). It is also possible that these factors affecting the women’s screening behaviour are not independent as there may be some interactions between them, making them a bit complex (Patel., 2018). Based on the above assertion, interventions

aimed at improving screening uptake among the women should involve multiple strategies addressing some or all identified factors.

A) Demographic factors

Age

Age has been identified as an important factor that affects cervical screening attendance, even though there have been many discrepancies in findings from different studies. An increased likelihood was observed between younger women and cervical screening attendance in one of the studies carried out in China (Leung and Leung, 2010), however; previous studies carried out in England have shown the reverse (Waller, et al., 2009; Marlow, Wardle and Waller, 2015). The above was rather surprising because younger women were expected to have more knowledge of cervical cancer which is believed to influence cervical screening attendance as observed in a Tanzania study (Moshi, et al., 2019). Similarly, a previous Scottish study showed that younger women identified cervical cancer risk factors more than the older women, thus affirming the above finding (Neilson and Jones, 1998 cited in Patel., 2018). Nevertheless, the above studies did not provide reasons for the findings, which makes it difficult to categorically explain the correlation between younger or older women and cervical screening attendance.

Education

Previous studies have shown a significant association between education and cervical screening attendance (Leung and Leung, 2010; Liu, et al., 2017). A Chinese study showed that women who have attended cervical screening had higher educational level than those who have not been screened (Liu, et al., 2017). The above simply means that educated women were more likely to attend cervical screening than their counterpart. Findings from a different Chinese study affirmed the above by reporting that educated women are more likely to gain new or up-to-date information by themselves through easier and faster means (Leung and Leung, 2010). However, education among Chinese women was relatively low and explained why most of them prefer a face-to-face intervention than reading information off a pamphlet as they do not understand it

(Zhang, Li and Xue, 2015). Findings from a UK study showed that women who speak limited to no English were more likely not to attend cervical screening which further supports the above findings (Marlow, Wardle and Waller, 2015). Therefore, education has been deemed an important factor when studying the association between women's health beliefs and demographical characteristics (Reis, et al., 2012).

Marital status

About one-third of Vietnamese American women believe that having cervical cancer will change their lives and threaten their relationship with their spouse, however; the above belief did not motivate them to take any health action such as getting a Pap-smear test (Ma, et al., 2013). Though the above study did not provide any reason, findings from a study carried out in Nepal reported that women who reside in a male-dominated area often find it difficult to attend cervical screening. One of the reasons mentioned is that decision-making, including those relating to women's health, is mostly done by the men (Darj, Chalise and Shakya, 2019). The above finding is rather surprising as it restricts the women's ability to express their feelings which should not be so.

B) Psycho-social factors

Psychological barriers

The beliefs surrounding cervical screening services have resulted in poor uptake of screening practices irrespective of the programs and interventions implemented to increase disease awareness in countries where its prevalence and incidence are higher than expected (Anderson, 2009; Ackerson, 2010). Findings from studies carried out in Somali, Turkey and U.K showed that fear of pain, embarrassment and unknown outcome of test result were major barriers to cervical screening attendance as they affect a woman's physical and emotional state of mind (Abdullahi, et al, 2009; Waller, et al, 2009; Reis, et al., 2012; Marlow, Waller and Wardle, 2015). Previous studies cited in Patel, (2018) stated that it is possible that the women lack adequate knowledge of the difference between 'cancerous' and 'pre-cancerous' which explains their fear

of cervical screening (Wilkinson, Jones and McBride, 1990; Fylan, 1998). However, the above findings were expected as cervical screening examination, and its procedure is often considered by women as sensitive and intimate, respectively (Patel, 2018).

Risk perception

A health action is motivated by susceptibility. If women perceive themselves susceptible to a health condition like cervical cancer, the tendency and severity of the treatment or course of action is reduced (Champion and Skinner, 2008; Glanz, Rimer and Viswanath, 2008). The women's perceived susceptibility and seriousness of the disease in a South African study were observed to be significantly correlated to their perceived benefits, motivation, and barriers to cervical screening (Hoque, et al., 2014). Findings from a Nigerian study showed that about 67.2% of the women did not perceive themselves susceptible to cervical cancer even though 79.2% recognised the seriousness of the disease (Ukpo, 2013). Similarly, a study carried out in Saudi Arabia showed that women who have a positive family history of cervical cancer and those with low education believe that they were more susceptible to the disease (Aldohaian, Alshammari and Arafah, 2019). Surprisingly, findings from previous studies showed that the likelihood of not attending screening was high among women who perceived themselves to be healthy (Leung and Leung, 2010; Ma, et al., 2013; Bayu, et al., 2016; Cetisli, Dila and Işık, 2016). In one of the Turkish studies, the women believed that health promoting lifestyles such as healthy eating and physical activity would protect their overall health and prevent all types of cancers (Cetisli, Dila and Işık, 2016). Therefore, it could be inferred that women who perceive themselves at risk of the disease were more likely to attend cervical screening than their counterparts. Although the studies did not provide a reason for the above findings, it was rather expected as It is possible that the women are not able to make the right decision with regards to cervical screening attendance because they lack adequate knowledge of the disease.

Experience

Later studies carried out in Mali, UK, and Nepal reveals that the women had a low perceived risk of cervical cancer as they believed it to be caused by sex outside marriage and that diagnosis was either discomforting, painful or shameful (Marlow, Waller and Wardle, 2015; Bayu, et al., 2016; Darj, Chalise and Shakya, 2019). The above viewpoints might result from an extremely negative experience identified by two UK studies to be a huge factor in screening attendance (Marlow, Waller and Wardle, 2015; Marlow, et al., 2019).

C) Socio-cultural factors

Health-examiners characteristics

The healthcare examiner's gender is one factor observed to influence women's attitude to cervical screening attendance. A Saudi Arabian study showed that lack of access to a female health professional was a barrier to cervical screening attendance (Aldohaian, Alshammari and Arafah, 2019). Previous studies carried out in Egypt among women who share similar characteristics with Saudi women (Arabic and Islamic culture) also reported that approximately 77% of the women preferred a female healthcare examiner (Yakout, Moawed and Gemeay, 2016). The above finding was also applicable in one of the Turkish studies (Reis, et al., 2012). It could be that the women are influenced by their past experiences or cultural, personal, and religious belief. Nevertheless, the above finding(s) was expected as it is also possible that the women may feel embarrassed being examined by a male healthcare practitioner because they believed female examiners might have a better understanding and be more empathetic as well (Paz-Soldán, et al., 2010; Ma, et al., 2013).

Similarly, previous studies carried out in Nepal and UK showed that the reason women did not attend cervical screening is that they feared their health could deteriorate and amount to complications due to cross-contamination from the unsterilized instrument and inappropriate behaviour of the healthcare examiner which was interpreted as negligence and lack of competence (Darj, Chalise and Shakya, 2019; Marlow, et al., 2019). The above assumption is

rather surprising; however; it might be possible that the screening procedure was not properly explained to the women. The women's belief about their health, such as 'knowing the cause of cervical cancer', will help predict their health behaviour, which requires taking necessary steps to prevent the disease like attending cervical screening to be well informed. Therefore, it is very important for healthcare examiners to understand the women's beliefs and preferences so they can adequately inform and help them make an informed decision regarding their health (Kennedy, et al., 2017).

Other studies carried out in Malawi, Nigeria, US and Zimbabwe, mentioned poor service delivery, lack of comfort/privacy, and lack of courtesy among healthcare providers which further supports the above findings (Lyttle and Stadelman, 2006; Ezem, 2007; Fort, et al., 2011; Pomerai, Muchekez and Nyachowe, 2015). The above findings could result to lack of faith in modern medicine thereby increasing the women's trust in traditional medicine which is believed to be readily available at little or no cost thus preventing the women from attending screening clinics even when made available to them (Wolffers, 1998; Razzak and Kellermann, 2002). An established relationship between the healthcare examiner and the women could help build trust and allay the women's fears (Black, et al., 2011). Some of the factors mentioned above may prevent the women from getting quality care when needed and, thus explains the increased rate in the advanced stage of cervical cancer due to late diagnosis (McFarland, 2003; Ojo, 2014). Therefore, there is an urgent need for healthcare practitioners to be actively informed, well experienced and competent in discharging their duties so they can effectively communicate the importance of screening to the women. More so, it is necessary to ensure that the women's confidentiality is maintained by healthcare examiners (NMC, 2008; Department of Health, 2012).

Fatalistic Beliefs

Rural women believed that cervical cancer was either due to bad luck (35%) or fate (42%) while others believed they would get the disease if it were part of their destiny irrespective of the screening tests (Marván, Ehrenzweig and Catillo-López, 2014; Aldohaian, Alshammari and

Arafah, 2019). The above view affirms the statement from a Nigerian study which reported that cervical cancer is viewed as a “secret disease” in some African cultures because it affects the reproductive tract which is often regarded as a private thing (Balogun and Omotade, 2018). Surprisingly, a study carried out in Nepal reported that the women feared being referred to as an adulterer when seen at the screening clinic (Darj, Chalise and Shakya, 2019). The main reason for the above belief was that having multiple sex partners is one of the risk factors of cervical cancer which means anyone seen at the screening clinic is assumed to be unfaithful to their partner. It can therefore be inferred that women who shared the above beliefs were less likely to attend screening or have a Pap-smear test compared to those who do not thus increasing the trend of the disease as most women lack the courage to seek medical help when faced with an unknown ailment involving their reproductive organ (McFarland, 2003; Nwankwo, et al., 2011; Ma, et al., 2013).

Cultural practices and Religious beliefs

People’s belief and culture play a significant role in the acceptance and uptake of healthcare programs, although it can also pose as a threat. Religion and cultural beliefs were the two main barriers to cervical cancer screening highlighted by participants in a previous study carried out in the US (Montgomery, et al., 2010). Some of the barriers previously explained above, such as preferring a female healthcare examiner, maybe due to cultural or religious influence. The difference in culture and diversity among women explains the need for healthcare practitioners to be better informed so they can know the best educational program suitable for the women. A Nigerian study report urges the stakeholders and health authorities to create appropriate and cultural-related intervention strategies to help increase awareness/knowledge of cervical cancer (Ukpo, 2013). Culturally sensitive information will help the women make an informed decision, overcome their physical, emotional, and psychological discomfort, reduce cervical screening barriers and promote cervical cancer awareness and preventive measures (Korfage, et al., 2011; Reis, et al., 2012).

Attitudes

Previous studies carried out in China, Ethiopia, and Ghana have shown that the women's health attitude regarding cervical screening attendance was influenced by their knowledge of the disease (Leung and Leung, 2010; Bayu, et al., 2016; Annan, Oppong Asante and Kugbey, 2019). The above conclusion was also supported in a different study were the women believed that if they have prior knowledge about the disease, they can monitor their health situation better (Eshetu, et al., 2019). Although the disease was perceived as serious and that Pap-smear test is needed for early diagnosis, other reviewed studies revealed the lack of positive health attitude towards cervical screening among the women due to the previously mentioned barriers and others such as; lack of time; finance; language difficulties when scheduling test, and lack of knowledge of screening location or procedure involved in the test (Ma, et al., 2013; Liu, et al., 2017). In a Turkish study conducted by Duran, (2011), some of the highlighted beliefs that pose as a barrier to cervical screening were; "*We Turks don't go to the doctor unless we're in serious pain (4), "If I'm not in pain, I think there's probably no need (10), "If I have a problem, I go straight to the doctor (11)* of which the study concluded that negative attitude prevents the women from adopting protective health behaviours (Duran, 2011).

D) Economic factors

Finance

One major barrier to cervical screening attendance mentioned in a previous Nigerian study is lack of money as the women were worried about the expensive cost of the screening (Ukpo, 2013). A previous study carried out in Nepal affirms the above and further reports that the women expressed concern about the cost of screening, and unexpected cost from its outcome such as surgery (Darj, Chalise and Shakya, 2019). The above affirms that cervical screening is not offered free in the countries named above. Women from most African countries lack the health insurance or welfare benefits from their employers or the government which means that the burden from medical or healthcare expenses falls directly and completely on the patient(s)

or their families (Ukpo, 2013). The above view makes it difficult for women to come for cervical screening even after hearing of the disease and would do anything to avoid incurring the cost for treatment. Surprisingly, the above finding also affirms the lack of knowledge about cervical cancer because if the women are made to understand how serious the disease is, they will know that attending cervical screening can help reduce long-term medical expenses. One of the studies, therefore recommended that cervical screening should be free or have a 50% discount to help increase attendance (Darj, Chalise and Shakya, 2019). More so, implementing policies that address cervical cancer as a public health priority will reduce cost reduction (Barot, 2012; Kolawole, 2012).

Geographical barrier

Previous studies carried out in Nepal have shown that women resident in rural areas were less likely to attend cervical screening compared to women in the urban area due to lack of screening facility at the village health clinics (Darj, Chalise and Shakya, 2019). However, the above finding was expected as some of the women in the rural area need to walk long distances under unfavourable conditions such as bad roads, to access the nearest cervical screening centre which could have a huge impact on their time. Studies carried out in Malawi; Nigeria; US, and Zimbabwe affirmed the above assertion and mentioned bad transportation system and lack of time as barriers to screening attendance (Lyttle and Stadelman, 2006; Ezem, 2007; Fort, et al., 2011; Pomerai, Muchekez and Nyachowe, 2015). With regards to lack of time, it could be due to childcare; work, or other family issues. If work-related, the women may not be willing to lose income as a result of taking time off work to attend cervical screening (Waller, et al., 2009). More so, the lack of time and proximity might be the reason why women in the rural area are forced to turn to traditional medicine which is readily available to them for minor ailments and only visit the primary healthcare facilities when the situation is beyond traditional medicine (Asowa-Omorodion, 1997; Razzak and Kellermann, 2002).

3.4 Justification of Study 1

'Awareness' based on the above review, can be defined as the women's perception or self-consciousness about the existence of the disease, cervical cancer while 'Knowledge' refers to their understanding with regards to the disease risk factors, symptoms and possible preventive measures. Therefore, it can be concluded from this review that most women are aware of cervical cancer disease but have not shown much knowledge of it.

3.4.1 First literature review

It was observed that participants from the reviewed studies, especially those carried out in Nigeria, were selected from different backgrounds, such as schools and hospitals. Though the authors justified their rationale for selecting the participants, their findings cannot be generalizable to women in the rural setting who happen to be at the grass-root of most implemented programs thereby creating a knowledge gap as to what is known about the disease among the rural population.

All the Nigerian studies reviewed in this section though focused on awareness/knowledge of cervical cancer among women, they did not examine their impact on screening participation. Likewise, the women's willingness in utilizing or attending screening services aimed at reducing the spread of the disease based on their knowledge was not considered which creates a further gap in knowledge (Eze, et al., 2012; Ndikom and Ofi, 2012; Ukpo, 2013; Akinlaja, and Anorlu, 2014; Olowokere and Ojo, 2014; Abiodun, et al., 2017; Ifediora and Azuike, 2018; Yahya and Mande, 2019). Some of the above studies mentioned certain factors that prevent the utilization of screening services and not the willingness to take part in those services (Ndikom and Ofi, 2012; Akinlaja, and Anorlu, 2014)

Based on the above review(s), this research focused on the knowledge gap and thus assessed the awareness/knowledge of cervical cancer among South-east rural women in Imo State which includes how they were informed and their willingness to take precautionary measures to avoid

contracting the disease. The assessed knowledge was further used to determine the impact on screening participation to know if the women's knowledge influenced screening uptake as seen in previous studies (Darj, Chalise and Shakya, 2019; Moshi, et al., 2019) and thus answers the first research question of this study.

3.4.2 Second literature review

Based on the above reviews, efforts need to be made so that factors which prevent women from attending screening are considered in-depth when implementing any cervical cancer-related program among the target population (Hoque, et al., 2014; Marván, Ehrenzweig and Catillo-López, 2014; Aldohaian, Alshammari and Arafah, 2019). Policy decision-makers, healthcare providers and even researchers need to understand the target population so they can provide intervention(s) that are culturally and linguistically accepted by the women (Ma, et al., 2013). Previous studies agree with the above statement by adding that interventions/implemented strategies aimed at encouraging cervical screening attendance ought to be culturally acceptable, affordable, and accessible to the women (Darj, Chalise and Shakya, 2019; Eshetu, et al., 2019). Likewise, health professionals need to be adequately trained so they can communicate the need for screening to the women and encourage repeat attendance using educational interventions at social settings (Marlow, Waller and Wardle, 2015; Liu, et al., 2017; Marlow, et al., 2019). However, Hoque, et al., (2014) suggests that the media should be used to propagate the need for screening not only to the women but also to society.

The above views formed the basis of selecting a model that will help assess the women's health belief/attitude towards cervical cancer and screening attendance in this study. Although the studies explored the role of health beliefs in cervical screening attendance by reviewing some of the factors that prevent women from utilizing screening services, there is still a knowledge gap at to what is known about the perception of ISN rural women regarding their health belief towards cervical cancer and screening which is the second research question of this study. The

above finding will help both the government and healthcare workers to understand how serious the women perceive the disease and their readiness to prevent it.

3.5 Theoretical Framework

There are different types of individual-led Health Belief Theories (HBT). Noar and Zimmerman (2005) highlighted some of these namely; Social Cognitive Theory (SCT) by Bandura (1986a), Trans-Theoretical Model (TTM) by Prochaska and Diclemente (1986), Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1980), Theory of Planned Behaviour (TPB) by Ajzen (1985) and the Health Belief Model (HBM) by Rosenstock (1974) later reviewed after a decade by Janz and Becker (1984). These theories are specific to health and help to explain participation in health-related behaviours exhibited by people, which is why they are the most widely, especially by researchers.

3.5.1 Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

The TPB model is a model of reaction and reflections. It focuses on an individual's prediction of behavioural intentions by explaining their Attitudes, Behavioural and Control beliefs, perceptions and Subjective norms as seen in Figure 14 (Ajzen, 2011). The TPB, which is an extension of the TRA, concentrates more on the motivational factors that determine an individuals' likelihood of performing specific behaviour(s). Some of these behaviours range from drinking water to avoid being thirsty to arranging the bed at night before sleeping to avoid anxiety, stress or even to maintain a restful sleep environment thereby using past behaviours to predict future behaviours (Ajzen, 2011; Glanz, Rimer and Viswanath, 2015). The TPB though similar to the HBM model and can be adopted as an alternative model, does not consider other influential motivational; economic, or environmental factors such as fear or past experience that may encourage an individual into adopting a particular behaviour which is one advantage of the HBM model (LaMorte, 2019). Also, the four stipulated constructs of the HBM model adopted in this research: *perceived susceptibility; severity; benefits, and barrier,* were not specified in the TPB

thus explaining the study's choice of the HBM over the TPB. Nevertheless, the women's behaviour or intentions was integrated in the study objectives as a secondary component but not the study's primary objective, which is carefully covered by the HBM. Furthermore, some likelihood questions were asked to determine the women's intended attitude and belief concerning the disease.

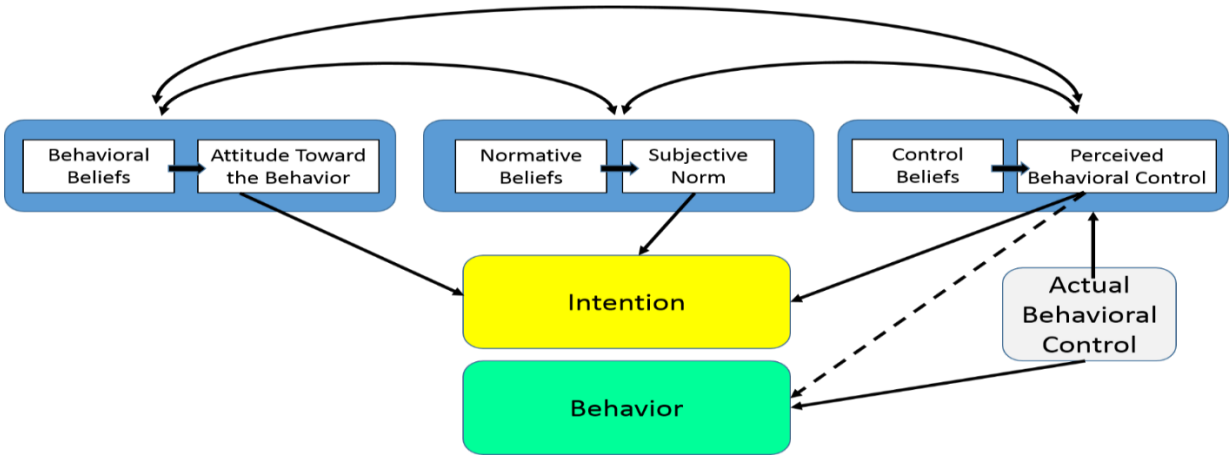


Figure 14: The Theory of Planned Behaviour Model

(LaMorte, 2019)

3.5.2 The Social Cognitive Theory (SCT)

The SCT model focuses on personal and social change of individuals with a special interest in their behaviours, thoughts and motivation (Bandura, 1986a). This theory provides a basis for intervention strategies and explains how people acquire and maintain vividly certain behavioural patterns (Bandura, 1997). Therefore, the model enables the researcher to investigate how technological changes influence humans alongside the processes governing personal and social change. More so, this model's key constructs emphasise how people learn through their own experiences and observe actions and result(s) of those actions in others (Glanz, Rimer and Lewis, 2002). These influential changes are based on three main factors: Environment, People and Behaviour, as seen in Figure 15. They operate as interacting determinants of each other

(Bandura, 1986b). The above factors lie outside the main scope of this research as it did not intend to investigate the change of health behaviour among women nor their experience as victims to cervical cancer, but to assess women's knowledge of the disease and its screening. Also, the SCT model's constructs do not help the researcher understand participants' likelihood of contracting the disease, its severity, benefits of adopted measures, and barriers to screening, which are the main intents of adopting a model in this research.

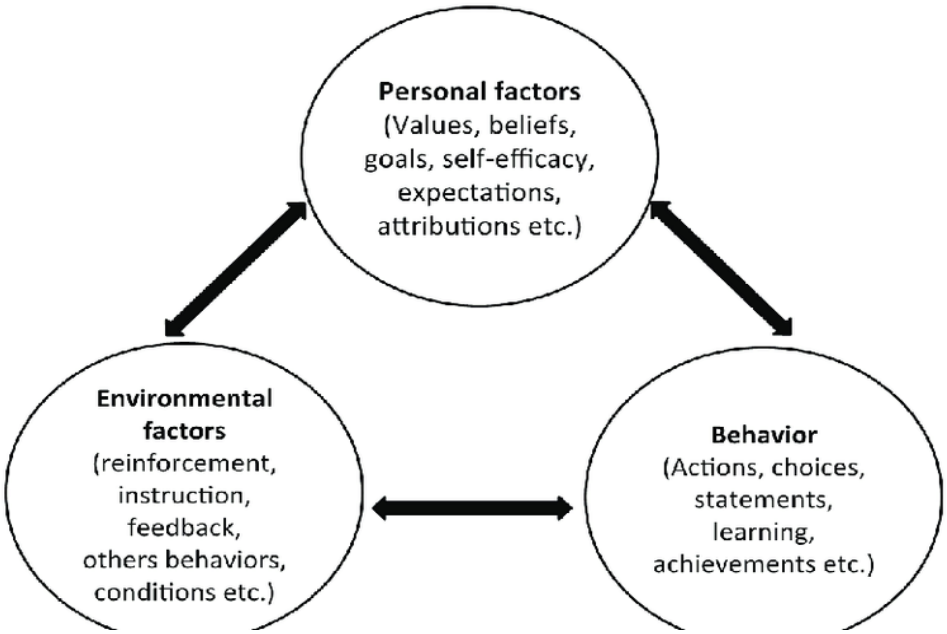


Figure 15: Social Cognitive Theory.

(Becker, et al., 2012).

3.5.3 The Trans-Theoretical Model (TTM)

The TTM model often referred to as the model of change, applies to varieties of addictive behaviours that individuals are willing to change which includes understanding how individuals change such diverse behaviours and the commonalities of change that determine their success or failure in behaviour modification (Prochaska and Diclemente, 1986). Therefore, this comprehensive model of change covers the full course of change, which starts when the individual becomes fully aware that they have an existing problem, that is their readiness to adopt a new behaviour, to the point at which the problem no longer exists. One major advantage

of this model is that it helps the policy decision-makers create and implement public health intervention strategies tailored to the needs or level of knowledge of the target population at various stages (LaMorte, 2019). However, the model does not consider the environment in which change occurs nor does it specify a set for time for an individual to remain in a stage before progressing to the next level (LaMorte, 2019). The main constructs of this model which are; pre-contemplation; contemplation; preparation (determination); action; maintenance, and termination (relapse) as shown in Figure 16, would have been adopted if the study aimed to modify health behaviours or proffer solutions to addictive behaviours such as over-eating; cocaine dependence; heroin addiction; compulsive gambling; sex addiction (promiscuity); smoking, and alcohol abuse.

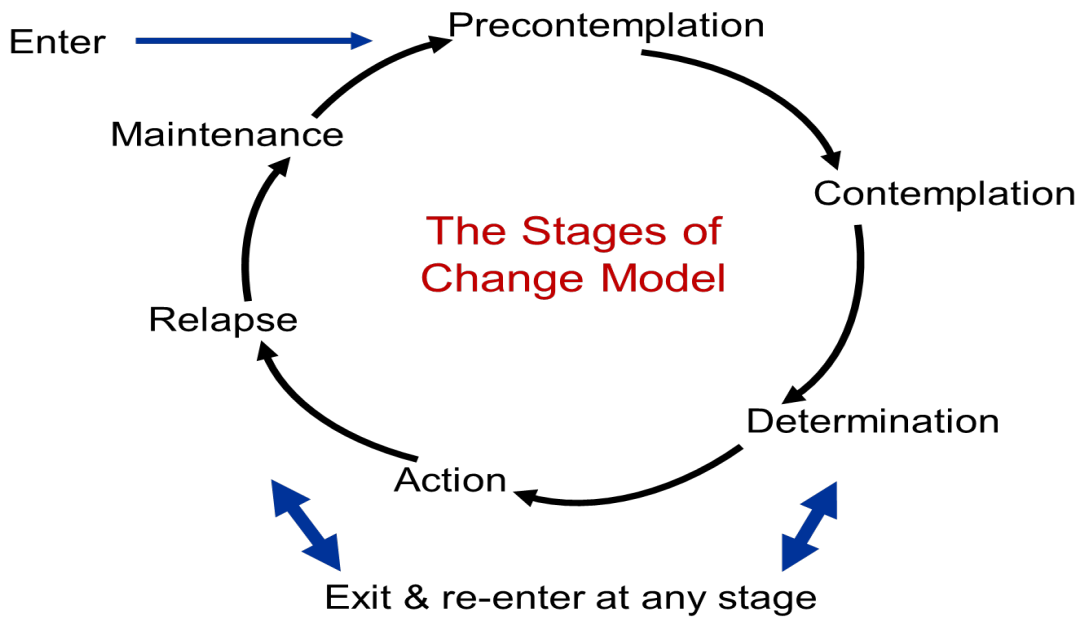


Figure 16: Trans-Theoretical Model

(LaMorte, 2019)

3.5.4 The Health Belief Model (HBM)

The HBM is a psychological model that focusses on people's health behaviour which explains why it was adopted amongst the others as the model guide for this study. This model attempts to predict health behaviours, takes into account decision-making process, intended or alternate

actions taken in a given health situation and also focuses more on the attitudes and beliefs of individuals in relation to their health which is what this study is all about (Maiman and Becker, 1974). The HBM was developed in the 1950s and updated in the 1980s by three social psychologists namely; Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels, who worked with the U.S Public Health Services (Ukpo, 2013; Boskey, 2019). It was developed in response to a failed free Tuberculosis health screening program and has ever since been used by some authors and researchers in their study which deals with health promotion, disease prevention programs and health behaviours such as medical compliance; vaccination; health screening; sexual and smoking behaviours (Denny-Smith, Bairan, and Page, 2006; Giles and Garland, 2006; Ukpo, 2013; Donadiki, et al., 2014).

The HBM model suggests that it is unlikely for an individual to seek preventive care or attend screening tests and examinations if they are not ready to take such actions (Kegeles, 1967). In other words, there must be a state of readiness which could be defined if the individual believes that they are susceptible to the disease and that the disease could result in serious or adverse effects if contracted. The individual must be made to understand certain actions that need to be taken and trust that these actions will either reduce the likelihood of contracting the disease or the severity of the disease if already contracted (Kegeles, 1967). In a broader sense, the individual needs to believe that the threat of taking action is nothing compared to the threat of contracting the disease (Chipiro-mupepi, 2001). Therefore, it could be inferred that if one does not have knowledge of the Pap-Smear test and its benefit or take necessary action towards getting screened which includes knowledge of screening location, they will not seek the service.

HBM Core Assumption

The development of the HBM as stipulated by the Resource Centre for Adolescent Pregnancy Prevention (ReCAPP, 2019), is based on the understanding that individuals would take health-related actions if only they:

1. Feel that the negative condition can be avoided.

2. Have a positive expectation that the recommended action will help them avoid the disease.
3. Believe that they can successfully carry out a recommended health action comfortably and with confidence.

The above three assumptions were taken into consideration when choosing this model. The researcher, therefore, assumed that the women would take health-related actions if they:

1. Feel that cervical cancer disease can be avoided.
2. Have a positive expectation that the recommended action, that is attending a screening program or taking a Pap-Smear test to help in the early detection of cervical cancer will help them avoid the disease.
3. Believe that they can successfully and confidently identify the risk factors and symptoms of cervical cancer.

The HBM is a widely used motivation framework which is effective for developing health educational strategies and for promoting healthy behaviours or actions that will help combat a negative or perceived threat to health. The model has been extensively used for testing health behaviours with regards to breast cancer and screening but is limited in the explanation and evaluation of the women's beliefs in relation to cervical cancer and its screening (Guvenc, Akyuz and Açikel, 2010). In this study, cervical cancer disease is a negative health outcome which is preventable. The desire to prevent the disease can be used to promote, encourage and motivate sexually active women into adopting some health behaviours like going for regular cervical screening. The key element of the HBM is to avoid a negative health consequence which means that any health action taken must aim to avoid a negative health outcome. ReCAPP explained this with an example by stating that a health action such as increase or frequent exercise done to feel better; lose weight or look good, does not fit the aim of the HBM model as the individual was not motivated by a negative health consequence even though it could reduce the risk of a heart attack (ReCAPP, 2019). Similarly, practising safe sex by using condoms as a health action

to prevent unwanted pregnancy does not fit the aim of the model even though it could help prevent HPV which is a sexually transmitted virus that could subsequently lead to cervical cancer (a negative health outcome), because; again, the individual was not motivated by the negative health outcome (ReCAPP, 2019).

This model was initially formed based on four concepts which are: p*erceived susceptibility*; p*erceived severity*; p*erceived benefits,* and p*erceived barriers* as seen in Figure 17, of which these concepts were built in order to account for people's readiness to act. Two other concepts were added which are: *cues to action* and *self-efficacy* in order to activate that readiness in people and also their confidence in successfully performing an action (Glanz, Rimer and Lewis, 2002; Leventhal, Brissette, Leventhal, 2003; Ukpo 2013). However, to achieve this research aim, the researcher focused only on the four initial constructs of the model.

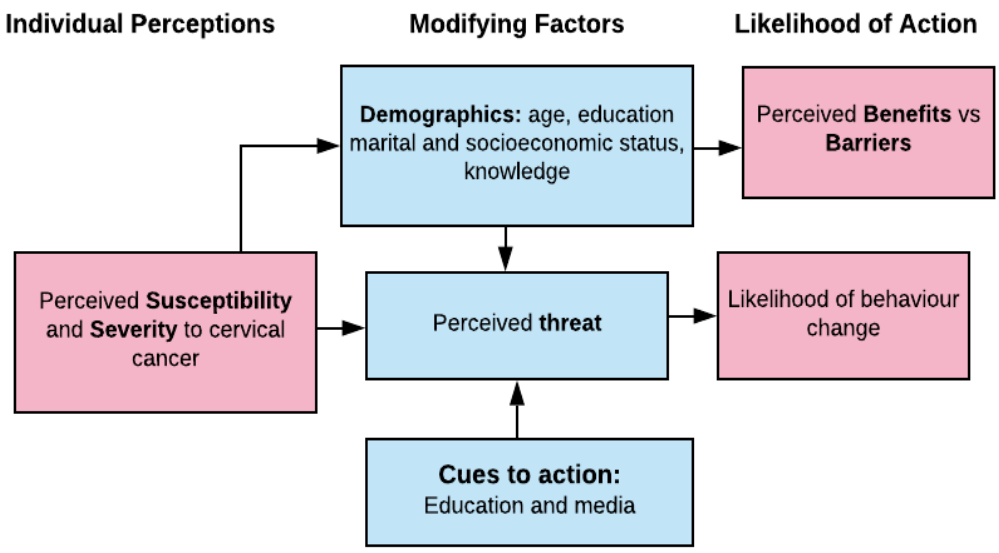


Figure 17: The Health Belief Model (modified by researcher)
(Roth, et al., n.d)

Justification of the Adopted Model

This study adopts a psychological approach that focused more on individuals' behavioural change with respect to their health and thus, explains why the HBM was deemed suitable as it was proposed to explain and predict health-related behaviours (Patel, 2018). However, this model has its limitations. It assumes that everyone has access to an equal amount of information regarding a disease. It does not also suggest a strategy that will help change health-related actions. Likewise, the model does not take into consideration individual factors that may influence an individual's acceptance of a health behaviour (LaMorte, 2019). Nevertheless, it was adopted in this research based on its ability to explain the health preventive behaviour of an individual rather than their behaviour during the time of the disease (Ben-Natan and Adir, 2009). The HBM model has been used in previous studies to assess some health behaviours such as drug use or abuse; smoking; alcohol consumption; attitude to vaccination or screening, and eating habits (under or over) of which the list is inexhaustible (Grodner, 1991; Minugh, Rice and Young, 1998; Tavafian, 2012; Boroumandfar, Shabani and Ghaffari, 2012; Akey, Rintamaki and Kane, 2013; Ma, et al., 2013; He, et al., 2015; Merghati-khoei, et al., 2017; Aldohaian, Alshammari and Arafah, 2019; Eshetu, et al., 2019; Upadhyay, Lord and Gakh, 2019; Szabó and Pikó, 2019; Kocoglu-Tanyer, Dengiz and Sacikara, 2020; Tipton, 2020).

The model was also adopted based on the four initial main constructs relevant to this study. They helped the researcher determine if there was a link between knowledge about cervical cancer and how rural women use screening services. The above statement agrees with Tavafian's statement that the HBM is used widely to determine the relationship or association between health beliefs and health behaviours and to inform interventions (Tavafian, 2012). Another benefit of using these constructs is to know if there is any link between the knowledge of cervical and increase in screening participation. If women are aware of their susceptibility; severity; benefits, and barriers to cervical cancer, will it influence their decision making in terms of screening participation or are there other determinant factors that influence

their knowledge of the disease thus preventing them from participating in screening programs? The importance of the HBM was highlighted in Ukpo's study (2013). The study stated that the model was created originally to identify the reasons behind the lack of participation in preventive health programs or its services, even when there is little or no cost attributed to participation in the available program(s).

Four Constructs of the HBM Relevant to This Study

The four constructs relevant to this study are:

1. Perceived Susceptibility
2. Perceived Severity
3. Perceived Benefits
4. Perceived Barriers

The above constructs and how they relate to this research are explained in depth below; however, the other constructs that are interwoven but do not form the primary basis for this study were not explained.

Perceived Susceptibility

Perceived susceptibility is a central concept in health-related information models such as the HBM. Several fears from an individual's point of view are identified using this concept. Perceived susceptibility refers to an individual's opinion or perception of the risk or chances of getting or contracting a health condition or disease, which is why it is also referred to as perceived vulnerability (Witte, 1992). If the rural women in this study perceive themselves to be susceptible to cervical cancer, the chances or likelihood of taking precautionary measures such as going for a Pap-Smear test, will increase. Therefore, based on the HBM prediction, the women are more likely to utilize and participate in cervical cancer screening programs and recommendations if they perceive themselves to be susceptible to the disease (Glanz, Rimer and Viswanath, 2008). Likewise, if the women do not believe they are at risk of having the disease, they will be reluctant

to adapt the required health behaviour to avoid it. Boskey, (2019) concurs by stating that people will not change their health behaviour or adopt a new one until they perceive they are at risk. Previous studies have shown that women mostly from developing countries do not perceive themselves to be at risk to cervical cancer which explains their reason for not obtaining a Pap-Smear test (Basu, et al., 2006; Mutyaba, Mmiro and Weiderpass, 2006; Winkler, et al, 2007, Ibekwe, Hoque and Ntuli-Ngcobo, 2010). A common belief is that the Pap-Smear test is an unnecessary diagnostic procedure instead of a preventive measure (Tavafian, 2012).

Perceived Severity

Perceived severity also viewed as perceived seriousness, refers to an individual's perception or opinion of the degree of seriousness of a health condition and its consequences (Tavafian, 2012). According to Tavafian, this considers the effect of the health condition on the personal and social life of the individual and its consequences, which includes pain; disability, and finally death. A different study further explained this by stating that the probability of changing one's health behaviour to avoid a negative health outcome depends on how serious they perceive the health outcome to be (Boskey, 2019). The study gave an example that practising safe sex using a condom to prevent STD is less likely to be taken seriously than when it is said to prevent AIDS because people consider AIDS to be more serious than STD (Boskey, 2019). In this context, this means that if the women perceive cervical cancer to be a serious threat to their health and a deadly disease which advances according to the stage with little or no survival rate, then they will be motivated to take precautionary measures and necessary actions to avoid acquiring it which includes going for cervical screening to ensure early diagnosis and immediate treatment if diagnosed early. Tavafian's assertion agrees with the above statement. A study carried out among Quebec women to determine the perceived severity of cervical cancer showed that ≈57% of the women were scared of developing the disease at some point in their life. Also, it was noted that 93% of the women believed that cervical cancer has serious consequences (Sauvageau, et al., 2007). Despite the huge percentage, most women still believe that cervical cancer is not preventable, which explains their lack of interest in its screening test (Ibekwe,

Hoque and Ntuli-Ngcobo, 2010). Saslow, et al., (2002), however, suggests that the best way to prevent the adverse outcome of cervical cancer is for women to have personal knowledge regarding the importance of the Pap-Smear test.

Perceived Benefits

Perceived benefit(s) is all about believing in the effectiveness of a health action to reduce the risk or seriousness of a negative health outcome. If the women perceive themselves to be susceptible to a serious or severe health problem, the influence on their behaviour change will be based on their personal belief on the perceived benefits of the required action irrespective of the perceived susceptibility or severity of the disease (Glanz, Rimer and Viswanath, 2008). Therefore, this behaviour change will consider different health actions and how, where, and when to take such actions alongside the expected positive outcomes. One of the Nigerian studies affirmed the above by stating that Nigerian women will take immediate action if they perceive that the recommended cervical cancer preventive measure such as going for a Pap-Smear test can help them avoid cervical cancer (Ukpo, 2013). However, it has been recorded that people find it difficult to change a behaviour or adopt a new one if it is not going to benefit them (Boskey, 2019). Nonetheless, if the women are not made aware to fully understand the importance of these preventive measures and its benefits, they will find it difficult to adopt them.

Perceived Barriers

One of the main reasons people refuse to adapt or change to a positive health behaviour is that they perceive it to be a hard option (Boskey, 2019). In developing countries such as Nigeria, there are numerous barriers facing the population, thereby preventing them from getting preventive or therapeutic services. Findings from a study conducted in Nigeria showed that some of these barriers include lack of trained healthcare staff especially in rural areas; inadequate hospitals, and lack of organized local or national health agencies (Ukpo, 2013). The study went further to highlight the expensive cost of cervical screening examinations as it seems to be unaffordable to most rural women who are considered poor. The expensive cost of cervical

screening was supported by a different study conducted among physicians in Korea, which aimed to understand Korea's current cervical screening practices. The researchers reported that the physicians highlighted cost as a major factor for selecting a liquid-based cytology test instead of a Pap-Smear test and, thus explains how expensive the Pap-Smear test is (Chung, Kim and Kang, 2006).

Rural women find it difficult to afford most regular medical services that have been made readily available to most women in the urban area and those in developed countries. Tavafian (2012) views this as a non-conscious cost-effective analysis meaning that the women weigh the expected benefit of a health action over the perceived barrier. In other words, they understand how important the recommended health actions are but are hindered by lots of factors that include finance; stigma; time, and unpleasant or negative side effects. However, if the women are convinced to believe and understand that the anticipated benefit of a health action outweighs the barriers or cost of taking up that action, then the likelihood of them obtaining a screening test will increase.

Another barrier as highlighted by previous studies is that most women perceive the Pap-Smear test to be painful while others view it to be embarrassing especially if a male healthcare provider does the procedure. The above barrier has been evidenced to lower the rates of cervical cancer routine screening test among women (Boyer, et al., 2001; Abdullahi, et al., 2009; Ackerson, 2010). Abdullahi and colleagues presented some negative experiences in their study that the women considered as barriers to screening. These include bleeding; pain; lack of trust on the sterilization process of screening equipment; inexperienced health staff who do not allow them to ask questions or explain the procedure very well, and fear of the result (Abdullahi, 2009). Also, a different study highlighted previous history of trauma as another main factor that women perceive as a barrier to screening. The trauma was related to domestic violence, sexual abuse or past medical procedures (Ackerson, 2010).

Furthermore, there is restriction to healthcare services caused by poor transportation system and bad roads. Perceived barrier(s) is all about an individual's opinion about the cost of the recommended health action. According to ReCAPP (2019), this includes the tangible and psychological effect of the cost of action on the individual(s) and their families. For the barriers to reduce and prevent a negative health outcome, they need to be identified and communicated to the public. Thus, this research assumes that if Nigerian women perceive some of the earlier hindrances as barriers to screening, they might show eagerness in taking the necessary precautionary measures to prevent themselves from getting the disease.

3.6 Research Questions

1. What is the impact of cervical cancer awareness on screening participation among rural women ≥18 years?
2. What is the perception of ISN rural women with regards to cervical cancer and screening?
3. How effective is (are) the implementation strategy(s) in reducing cervical cancer disease and increasing screening participation in Imo state?

3.7 Aim and Objectives

The primary purpose of this research was to assess the awareness/knowledge and health beliefs of rural women regarding cervical cancer, their impact on screening participation, and the perception of relevant strategy implementation among health stakeholders living in Imo state, South-eastern, Nigeria. Six objectives divided into two sections: primary and secondary were developed to help achieve the study's aim.

Primary objective

1. To assess the awareness and knowledge of cervical cancer and screening among ISN rural women ≥18 years

Secondary objectives

2. To evaluate and understand the determinant factors that influence cervical cancer and screening participation among ISN rural women.
3. To examine ISN rural women's health belief regarding cervical cancer and screening using the HBM.
4. To critically examine and appraise the effectiveness of the implementation strategies aimed at reducing cervical cancer in Imo state.
5. To evaluate the efforts made by the government in reducing cervical cancer and increasing screening utilisation among ISN rural women.

3.8 Overview of Study 1 and 2

This research aimed to assess the awareness/knowledge and health beliefs of rural women regarding cervical cancer, their impact on screening participation, and the perception of relevant strategy implementation among health stakeholders living in Imo state, South-eastern, Nigeria. A mixed-method approach (explained below) was adopted based on the above aim, which entails dividing the research into two studies. However, findings from both studies were amalgamated and interpreted based on reviews from previous studies.

Study 1 focused on assessing the awareness/knowledge and health beliefs of ISN rural women with regards to cervical cancer and their impact on screening participation. The quantitative research method was chosen to reach a large number of women and compare findings with other relevant studies. A questionnaire was used as the research instrument to collect information from women ≥18 years. Data was analysed using a statistical software. Chapter 4 explored this section of the research in detail. Study 2, on the other hand, focused on understanding the perception of relevant strategy implementation among health stakeholders in Imo state. The above-entailed gathering information from health authorities and clinicians in selected local governments and thus explains why a qualitative research method was adopted. An interview method was used to collect information from the representative health stakeholders

and later analysed using software specific for qualitative analysis. The second part of this research was explained in detail in chapter 5. Figure 18 shows a summary of the study design, including data collection, recruitment, and analysis.

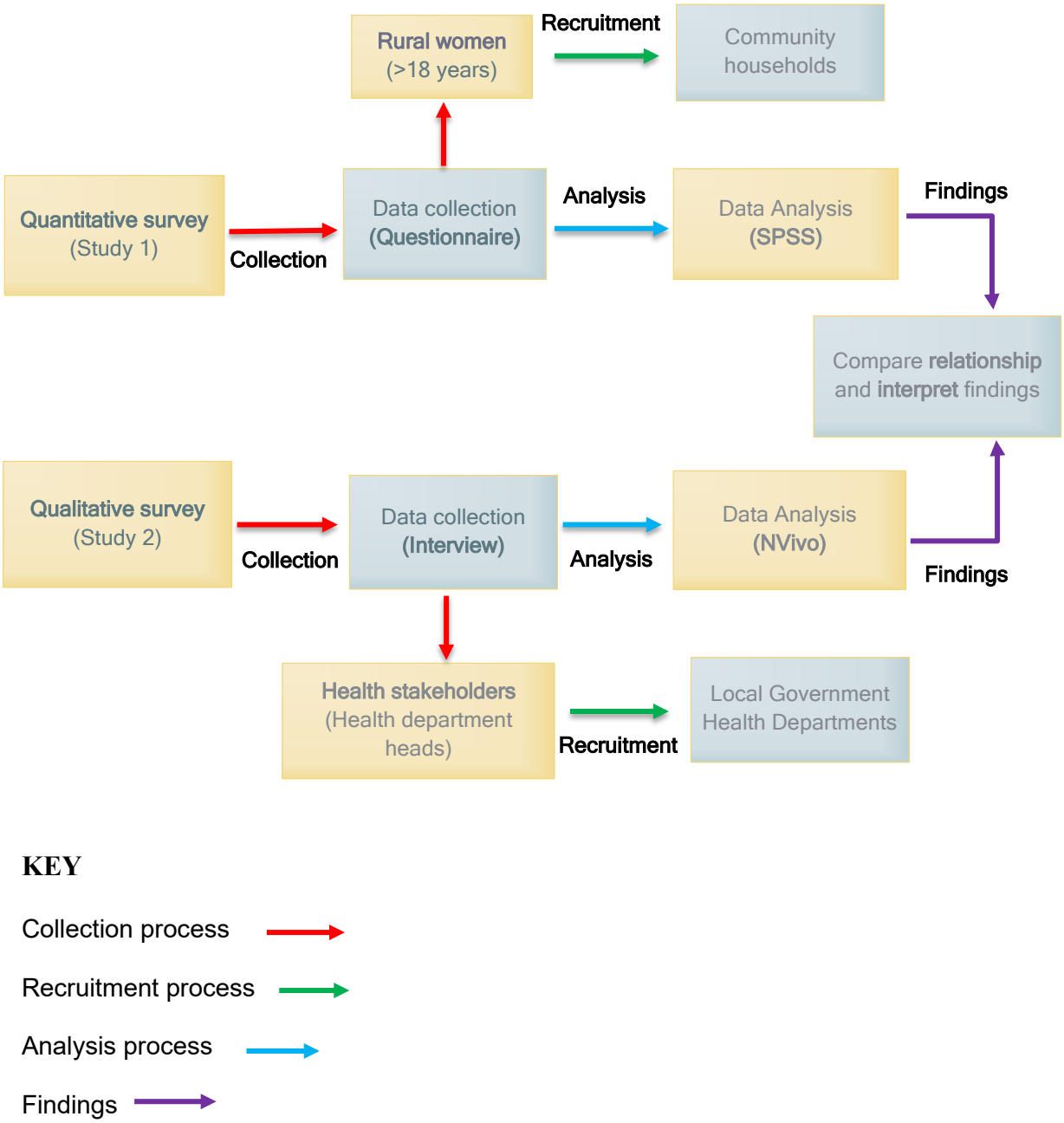


Figure 18: Study design (Developed by Researcher)

3.8.1 Mixed-Method Research Approach

Mixed-method research has been in existence since the 1950s but was formally in use during the late 1980s of which a lot of researchers have adopted this method (Creswell, 2003; Creswell and Plano Clark, 2007; Dunning, et al., 2007). Although mixed-method articles receive more citations due to the combination of both the quantitative and qualitative research methods, it also has its limitations which includes time, expertise and use of extra resources (Molina-Azorín, 2010; McKim, 2016). Creswell and Plano Clark, (2011) attribute the extra time needed to conduct mixed-method research to data collection and analysis of two different types of data. McKim, (2017) adds that in most cases, researchers often require additional funding to purchase more materials for the study, extra space for data collection either through the administration of surveys or interviews and also research assistants to help in the collecting and analysis of data. The above limitations emphasize the importance for researchers to self-reflect and evaluate the need to adopt mixed-method research before conducting a study considering the huge demand it poses on researchers (McKim, 2017). However, to confidently select a mixed-method research, it is expedient for the researcher to have good knowledge of both the qualitative and the quantitative research methods.

Irrespective of the highlighted limitations found in mixed-methods, it has its peculiar advantage over single methods. A study conducted within the business field to determine the value of mixed-method research showed that it assisted in knowledge creation, increased validity of study findings, and informed collection of the second data source (Hurmerinta-Peltomäki and Nummela, 2006). The authors arguably stated that mixed-method studies have a deeper and broader understanding of the subject under investigation than studies with a single approach. Another benefit of mixed-method is integration component which means that readers are more confident on the result and conclusions drawn from the study (O'Cathain, Murphy and Nicholl, 2010). Previous earlier studies support this by stating that mixed-method research is the only way to be certain of findings and its interpretation (Sieber, 1973; Coyle and Williams, 2000;

Morse and Chung, 2003; Tashakkori and Teddlie, 2003). The strengths mentioned above explain why the researcher adopted this method in assessing the awareness/knowledge of cervical cancer among rural women while understanding the effectiveness of implementation strategies aimed at reducing the spread of the disease and increasing screening participation in Imo state. In a mixed-method study, the combination of at least a quantitative and qualitative analysis is important as it is needed to conduct a mixed-method analysis (Creswell and Tashakkori, 2007). Therefore, this research adopted both research methods and findings were amalgamated after analysis.

3.8.2 Study Paradigm

Research paradigm is the world's general perspective of breaking down the complexity of the real world (Patton, 1990). It could be inferred from the above definition that research paradigms are a set of established models that are guided by a set of beliefs; values, and ethics on how the world should be studied and understood (Schwandt, 2001; Lincoln and Guba, 2006). These models or philosophical assumptions such as ontology; epistemology, axiology and methodology help to define how the world works, how knowledge can be extracted, the types of questions and the methodologies required in answering those questions in order to make useful meaning of the collated data and contribute to a solution (Dill and Romiszowski, 1997; Chilisa and Kawulich, 2012; Rehman and Alharthi, 2016; Kivunja and Kuyini, 2017).

Ontology is "the nature of our beliefs about reality" (Richards, 2003, p. 33). Researchers have assumptions about reality and thus have ontological questions that often lead them to inquire what type of reality exists, how it exists, and what can be known about it (Rehman and Alharthi, 2016). Researchers who believe in a single verifiable truth, value freedom and have an objective/unbiased detachment that helps them to discover how things really are and how they work. On the other hand, researchers who believe in socially constructed multiple realities often reject the concept that human beings need to be studied as objects of natural science which explains why they get involved with the participants in order to understand the phenomena in

their contexts (Rehman and Alharthi, 2016). The latter is similar to this study because it looked at cervical cancer disease as a social problem with constructed multiple realities that affect the existence of women.

Epistemology is a philosophical assumption that studies the nature of knowledge, its justification, and the process of acquiring, validating and communication to other human beings (Cohen, Manion and Morrison, 2007; Rehman and Alharthi, 2016). In other words, it is all about how we come to know the truth about a phenomenon after considering the relationship between what is new and what is known (Kivunja and Kuyini, 2017). These epistemological questions enable the researcher to consider whether the study is objective or subjective, including their reliability, validity, causality, and generalizability (Patton, 2002). This study, therefore, focused on the empirical knowledge of cervical cancer and screening among rural women. Epistemological questions centred on the nature and forms of knowledge in relation to the disease, how knowledge was acquired, and the strategies implemented in disseminating that knowledge to the women. The above view on knowledge can only be proven through a concrete source of evidence, hence the research which considers the researcher's view of the problem, how it was investigated, and the methods adopted to help achieve the research and answer the research questions.

Axiology is another philosophical assumption that enables the researcher to think about possible ethical issues in the study and how to minimize risk/harm to participants. The researcher ought to have regard for the participants involved in their study by considering their values and what needs to be done to respect those values in terms of cultural and moral issues. According to Kivunja and Kuyini (2017), questions should centre more on how pragmatic the research methods are, the right or wrong behaviour in conducting a study, will the outcome of undertaken action cause more benefit than harm? Will study participants be treated equally or will discrimination and favouritism apply? What type of information will be revealed by participants? How accurate is it? How will it be stored and accessed to maintain confidentiality and

anonymity?. To ensure this research meets the ethical standard, ethics approval was obtained from both the Nigerian government and the Anglia Ruskin ethics committee. Further permission was sought from the heads of the four randomly selected LGs and the gateway community heads of the selected villages. Psychological risk was anticipated as the topic is a sensitive one. To minimize the above risk, participants were allowed to voluntarily take part in this research with an option to either take a break if they feel a negative impact or opt-out completely at any time with all their information removed on request.

Methodology is a philosophical assumption that considers how the researcher asks certain methodological questions that help them study the world using appropriate approaches to systematic inquiry (Chilisa and Kawulich, 2012; Rehman and Alharthi, 2016). According to Ellen (1984, p.9), a methodology is “an articulated, theoretically informed approach to the production of data”. It can also be viewed as the “strategy, plan of action, process or design” that informs one’s choice of research methods” (Crotty, 1998, p.3). The above view was supported by a different study which also stated that methodology is a broad term that encompasses the research design, methods and procedures adopted in a research project, and enables the researcher to gain knowledge about a research problem (Kivunja and Kuyini, 2017). The above includes the type of participants; data collection; research instrument used; data analysis; assumptions made; limitations encountered, and how they were minimised. Therefore, this research adopted a mixed-method approach and was divided into two studies to help the researcher collect the appropriate data needed to answer the research questions and contribute to knowledge.

The research adopted a paradigmatic paradigm which is all about emancipation and empowerment of both the researcher and participants rather than a hierarchical power as advocated by the interprevist (Chilisa and Kawulich, 2012). This paradigm adopts the ontological view that social reality, though historically bound, is constantly changing and is dependent on some factors that include cultural; social, or even political factors (Neuman, 1997). Reality is

believed to have multiple layers which start from the surface that is visible and easily observed to the deep structures that are hardly observed (Chilisa and Kawulich, 2012). The above simply implies that we all have different but unique interpretations of reality (Kivunja and Kuyini, 2017). This paradigm's epistemological assumption is that knowledge is true if only it can be turned and put into practice to empower and transform human lives (Chilisa and Kawulich, 2012). The adopted methodology is that of mixed-methods which allows for the combination of both the quantitative and qualitative research methods alongside their different procedures for data collection and analysis. The reason for the above is because the paradigm aims to destroy false knowledge, myths, and misconceptions while empowering people, on the other hand, to help transform a society (Chilisa and Kawulich, 2012; Kivunja and Kuyini, 2017). The research is usually of great benefit to people, so the paradigm's axiology is value-laden, which means that researchers choose and commit themselves to a position of value because they view their study as a moral and political activity (Kivunja and Kuyini, 2017). The above view helps them achieve objectivity through reflection and examination of their own values to ensure they are fit to carry out the study (Chilisa and Kawulich, 2012).

The transformative and pragmatic stance; are the two main forms of the paradigmatic paradigm. These approaches have helped solve the paradigm wars and overcome the inherent problem posed by the multiple paradigms that require the integration of paradigms which yield to different assumptions (Hall, 2012). The paradigmatic represents an umbrella of research designs influenced by different theories and philosophies that have a common goal of emancipating and transforming a community (or communities) through group actions (Mertens, 2009; Chilisa and Kawulich, 2012). This paradigm lays emphasis on the lives and experiences of relegated or marginalised groups such as women; children; people with disabilities; ethnic minorities, and the poor or members of a certain community group (Mertens, 2003).

Justification of Paradigm

Although the two paradigmatic paradigms have been successfully in mixed-method research, the pragmatic paradigm is mostly considered and has gained significant support by mixed-method researchers as the best suitable method due to its ability to focus more on solving practical problems in reality rather than an assumption of knowledge and its nature (Maxcy, 2003; Johnson and Onwuegbuzie, 2004; Morgan, 2007; Feilzer, 2009). Pragmatism focusses on multiple data collection methods which help the researcher have a holistic and deep view of a particular problem, thus making it more oriented towards the real world (Cara, 2016). The pragmatic paradigm formulated by James and Dewey in the 19th century was evaluated and critiqued by Russell (1910, 1945). He argued that this approach makes it difficult for the researcher to determine what works. Though a criticism, it was also expected that for a mixed-method design to be adopted, its practicality and usefulness which are based on the purpose of the research and the research question(s) should have been pre-determined by the researcher (Hall, 2012). Therefore, it can be inferred that the success of a mixed-method design is totally dependent on the completion of the research, which includes interpretation of findings. The above statement means that the pragmatic paradigm does not influence the choice of a mixed-method design nor justify it. The pragmatic approach was, therefore; chosen over the transformative based on the notion that the purpose of the study did not focus on the marginalization of a certain group over another, but was specifically targeted at assessing the awareness/knowledge of women on cervical cancer and their health beliefs, which is a practical issue while looking at possible efforts made by the government in reducing the spread of the disease, hence the research questions. Similarly, this research investigated both objective and subjective truth about cervical cancer disease and screening utilization, which required gathering information from both the target population; women ≥18 years using a questionnaire tool, and interviewing relevant health stakeholders. However, it is needful to say that none of the paradigms mentioned above can fully incorporate the current mixed-method research as a whole which was why Bergman (2011), suggests bringing in a new generation of theoretical

considerations that will not only accommodate the mixing of quantitative and qualitative research methods but will also allow researchers to investigate all range of topics and adopt justifiably methods.

3.9 Ethics approval

Ethical consideration is of utmost importance, especially in studies that involve human beings such as this one. Suppose human subjects are identified as participants in a study, excellent clinical and good research practices with human right principles need to be urgently considered to ensure maximum protection of the participants. Some of these principles include participant's willingness to participate in the study; maintenance of privacy, and full information on the study's potential risk if any (Katzenellenbogen, Joubert and Abdool-Karim, 1999). Though the list is inexhaustible, the provided information helped the participants in this research to make decisions to either participate in the study or not. These ethics principles were grouped into three major headings: (a) Beneficence, (b) Respect for human dignity and (c) Justice (Polit and Hungler, 1999).

3.9.1 Principle of Beneficence

The principle of beneficence focuses on freedom from exploitation, risk-benefit ratio, and harm. In this research, no physical risk was observed among participants in both study 1 and 2. However, the researcher considered the fact that the distressing research topic which is on cervical cancer may sound embarrassing to some participants due to recall of past experiences of a loved one, relative or friend who might have suffered or died from the disease. To help reduce emotional or psychological trauma, participation in each of the studies was voluntary with an option to opt-out anytime without reasons. This information was explicitly stated in the participant's information sheet although; participants in study 1 who might want to continue after a break were allowed to do so. Voluntary Community Mobilizers (VCM) were trained to support distressed women and provide them with opting out options as they are not obligated to participate in the study. To minimise the risk among participants in study 2, interviews were

conducted privately and individually. The only stated risk to be encountered in this research was that of psychological discomfort due to the topic or nature of questions while the benefit(s) includes but not limited to, the knowledge of the disease risk factors and symptoms, awareness of barriers to cervical screening, and participation in screening programs. The information gathered in this research is of great use as it identifies rural women's views regarding the disease and what the government can do to help increase awareness and improve participation in screening programs.

3.9.2 Principle of Respect for human dignity

The right to self-determination and full information are the main aspects of this principle. The study participants are human beings with rights to either agree or refuse to participate in the study without any infringement on their human rights or dignity. The researcher took precautions to respect each participant and ensure that they were clarified in any area of uncertainty. The participant information sheet provided all the information needed. All documents and forms were clearly written in the English language, which is the main language for communication in Nigeria. It was not possible translating the questionnaire to the native language (Igbo) because most of its meanings were lost when translated back to English. However, >90% of the population are literate in English, which served as an added advantage. To further help with this, one criterion for recruiting a VCM is their ability to be fluent in the Igbo language as they also served as interpreters in relaying the purpose of the questionnaire in the Igbo language before it was distributed to the women. The above measure was to help the women make informed decision to take part in the study voluntarily. Also, to avoid misleading data or incorrect conclusions, the questionnaire was spaced out to accommodate any information the participant wants to relay while the interviewees were allowed to freely express themselves to avoid unconsciously withholding necessary information due to interruptions.

3.9.3 Principle of Justice

The principle of justice focuses on the participant's right to fair treatment and privacy. Participant's lifestyle, culture, religious and personal belief were put into consideration. Questionnaires were distributed on non-market days to ensure the women are able to participate if available at home. On the other hand, the interviews were done individually to avoid contrasting ideas and ensure freedom of speech by the participants. Collated data was treated anonymously and with utmost confidentiality.

The first step taken in this research to protect the rights of study participants was to gain permission from both the university and the Nigeria federal government. The step was duly considered, reviewed, and approved after successfully completing relevant training such as, 'Good Clinical Practice' and 'Nigerian National Code for Health Research Ethics'. A participant invitation letter, information sheet, consent form and a proposal request were all sent to the Faculty of Health, Education, Medicine and Social Care Research (HEMS) Ethics Panel and the National Health Research Ethics Committee of Nigeria (NHREC). The study got approval under the terms of Anglia Ruskin University Research Ethics Policy with approval number *FMSFREP16/17125* while the NHREC approval number was *NHREC/01/01/2007-15/10/2017B* which helped to improve the internal validity of the study. The questionnaire was then piloted to ensure it maintains its consistency, avoid distortion of questions, and help participants understand and answer questions accurately.

3.10 Summary

This chapter focused on literature reviews exploring cervical cancer awareness/knowledge and health beliefs. It was, therefore divided into two sections. The first review showed that most women are aware of cervical cancer but do not have adequate knowledge of the disease. Some of the significant factors that influenced the awareness/knowledge of cervical cancer were age, education, marital status, income, religion, and source of information. Most of the studies recommended using educational strategies to increase awareness/knowledge of cervical cancer

among women. On the other hand, the second review focused on cervical cancer health seeking behaviour and highlighted some factors that influence women's screening behaviour. Some of these factors include demographic; psycho-social; socio-cultural, and economic factors. Recommendation from most of the authors includes reviewing the above factors and implementing cervical cancer-related programs that are tailored to the needs of the women.

Based on the findings from both reviews, the HBM was chosen as the theoretical framework guiding this research. Three research questions were, therefore formulated to ensure that the research meets its set aim and objectives. The principles that served as a guide, and the steps taken to get ethical approval was also explained. The research received ethical approval from both the Nigerian Federal Government and Anglia Ruskin University Ethics Committee. Also, a signed written permission letter was gotten from the four local governments selected for the research. Furthermore, verbal consent was received from each community's traditional leaders, where study 1 was carried out.

Chapter 4 - Study 1: A Quantitative Study Exploring Knowledge and Health Beliefs among rural women in Nigeria.

4.1 Introduction

This chapter focuses on the primary and most weighted part of this research; therefore, it was referred to as 'Study 1'. It explored ISN rural women's knowledge and health beliefs regarding cervical cancer and screening using a quantitative research approach. The study setting, adopted design, sample size and sampling procedure, recruitment process, fieldwork (data collection), analysis and other related headings were described in detail.

4.2 Study aim

The study aimed to assess the awareness/knowledge and health beliefs of rural women (≥18 years) regarding cervical cancer and their impact on screening participation.

4.3 Study Setting and Justification

The researcher chose Imo state, Nigeria, as the field of study. Imo state is one of the 36 states in the country and, one of the five South Eastern zones in Nigeria. Compared to other states, the literacy rate of women in Imo State is about 96.43%, which is highest in the country, as seen in Figure 19 (Amzat, 2017). Imo State was chosen amongst other states because the researcher has lived and interacted with members of the community and can speak and understand the Igbo language, which makes it easy to access the research sample. More so, the researcher has worked as a Midwife in some of the State's community healthcare centres, which allowed for critical observation and interaction with the women on a one-to-one basis. The verbal result of the interaction and anecdotal information received helped to form the basis for the study and enabled the researcher to have an in-depth understanding of the barriers to screening and possible interventions that can help the government proffer solution that will be beneficial not just to Imo state women but to other women mostly at the community level in different states.

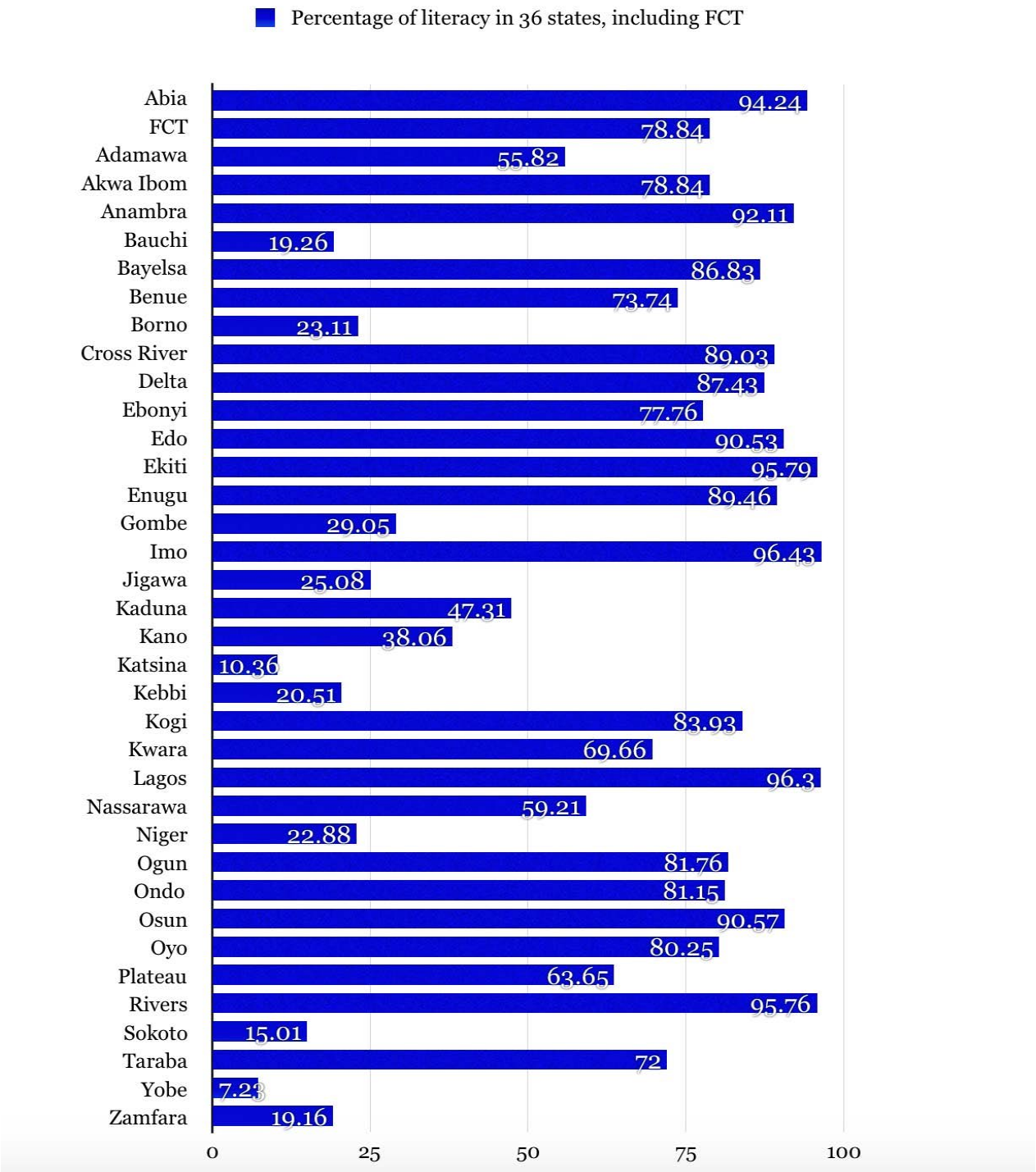


Figure 19: Literacy level of the States in Nigeria including FCT[4]

(Amzat, 2017)

[4] Federal Capital Territory as seen in p.21

Imo state comprises of 27 local governments with an estimated population of about 4 million people based on the 2006 population census and a projected population of about 4.5 million in 2010. However, this study based its findings on the reported population drawn from the last conducted census in 2006 because most of the information and intervention was based on the 2006 population (National Bureau of Statistics, 2011). As of the last census, Imo state population makes up 2.8% of the Nigerian population (National Bureau of Statistics, 2011). According to the National Bureau of Statistics and Annual Abstract of Statistics (AAS), women including female children make up nearly half (1.4%) of Imo state population whereas women aged 15 and above make up ≈29% of the Nigerian population (National Bureau of Statistics, 2011). It was difficult reporting age of women from 18 years as the population census graded women using a 5year space interval (e.g., 15-19, 20-24… 80-84 and 85+). It was also difficult getting this information from the local governments recruited for the study due to insufficient records.

The four randomly selected LG's were Aboh Mbaise; Ideato South; Mbaitolu, and Njaba. Their predominant language is the Igbo language, although there is a slight variance in accent and cultural norm, which makes each LG unique to the other.

Aboh Mbaise is viewed as the 1st LG based on chronology. The last conducted census 2006 in the country showed that Aboh Mbaise LG has a population of ≈195,000 people, making up 5% of Imo State population (National Bureau of Statistics, 2011). Ideato South is the second randomly selected LG and ranks 6th on the table with about 160,000 people, contributing to ≈4% of Imo State's population. (National Bureau of Statistics, 2011). Mbaitolu ranks the 11th LG with a population of about 237,000 people contributing to 6% of the State's population. The last LG that was randomly selected was Njaba. This LG ranks the 13th in the state with a population of ≈143,000 people and makes up 3.7% of the State's population (National Bureau of Statistics, 2011).

4.4 Research Method/Design

Based on the study's aim, a quantitative descriptive design was adopted in examining the awareness/knowledge level and health beliefs of ISN rural women on cervical cancer, barriers to screening uptake and determinant factors that influence the utilization and participation in cervical screening programs. The study findings helped answer the research questions, which are:

- What is the impact of cervical cancer awareness on screening participation among rural women ≥18 years?
- What is the perception of ISN rural women with regards to cervical cancer and screening?

Data from the study was collected through a cross-sectional design from a representative subset of the population. Findings from the study were tested against certain social demographic variables such as age; education; marital status; religious background, and occupation, which were presumed to have a positive or negative impact on women's awareness/knowledge in order to determine how these independent variables influence cervical screening utilization and participation in the communities. Previous authors have also adopted the cross-sectional designs in their studies (Denny-Smith, Bairan and Page, 2006; Abotchie and Shokar, 2009; Demirtas and Acikgoz, 2013; Eshetu, et al., 2019). As with this research, the above studies aimed to assess women's knowledge, beliefs, risk behaviours, and perception of cervical cancer and screening, hence the comparison.

4.4.1 Sample Size Calculation

In calculating the sample size for this study, the researcher considered the research design and objectives, size of the population, expected response or drop-out rate, possible outcome of response from the questionnaire, level of accuracy, the type of analysis needed to measure those outcomes and the estimated effect size (Kadam and Bhalerao, 2010; Peters, 2017;

Scruggs, 2017). Based on the above, this study's sample size was calculated using the standard power-based general formula because the size of the population could not be determined (Creative Research System, 2012). The sample size calculated using Formula 1 and 2 below was the minimum number of rural women expected to participate in the study.

Formula 1:

$$ME = \frac{z\sqrt{\hat{p}(1-\hat{p})}}{n}$$

The above formula also translates to

Formula 2:

$$n = \frac{\hat{p}\,(1 - \hat{p})z2}{ME2}$$

Where:

Z = Z value 1.96 for 95% confidence level

p̂ = Percentage of selecting a choice often expressed as a decimal 0.5 (50%)

ME = Confidence interval/margin of error of 0.05

Therefore:

$$\boldsymbol{n} = \frac{\mathbf{0.5}\ \boldsymbol{x}\ \mathbf{0.5}\ \boldsymbol{x}\ \mathbf{1.96}\ \boldsymbol{x}\ \mathbf{1.96}}{\mathbf{0.05\ x\ 0.05}} = \frac{\mathbf{0.9604}}{\mathbf{0.0025}} = \mathbf{384.2}\ (\mathbf{Approx\ 384})$$

In determining sample size, the researcher needs to make room for expected errors as there is always a probability of encountering some errors because no sample is perfect (Vishwakarma, 2017). This expected error from the above formula is known as 'Margin Error' or 'Confidence Interval', denoted with a symbol "*ME*". According to Vishwakarma (2017), fixing a 5% level of significance allows the researcher to interpret the study findings using a 95% confidence. The margin of errors of +/-5% also helps the researcher to assume that if the research is conducted

on the entire population, about 45% (40 – 5) to 55% (50 + 5) of the relevant population will be involved (Creative Research System, 2012). The above calculation results showed that a minimum of 384 women were required and that the researcher is 95% certain that the true percentage of the population is between 45 - 55%. The same sample size is consistent with that of a similar study carried out among ISN women living in the urban area, which is another justification for using the sample size (Ukpo, 2013).

The study expected at least a 50% response rate because participants though literate enough (94% literacy level) might choose not to answer the questionnaire as they are not under any obligation to participate in the study. Also, the possibility of having missing values, incomplete questionnaires or withdrawals were considered because the sample population is in the rural area with belief systems that might influence the women's participation in the study. To achieve a high response rate, the help of VCMs were solicited in the distribution of the questionnaire due to their vast knowledge of the communities and household locations. More so, participants were assured of their confidentiality in order to encourage participation. Burgess (2001), reiterates the importance of confidentiality in research as this encourages replies from participants. Similarly, the target sample was modified and increased to ensure the study achieves the required response rate, which implies multiplying the sample size by 2:

$$\mathbf{384 \times 2 = 768}$$

Therefore, the researcher aimed to target double the original sample by sending out 768 to 800 questionnaires to obtain a minimum of 384 responses. The above number was evenly distributed amongst the four LG's. However, the probability of having a non-answer error was also considered, which implies that participants might choose not to participate in the study nor answer the questions correctly. The above issue might be difficult to avoid and explains why the questionnaire was developed in a semi-structured way to enable more in-depth discussion. Some of the questions were grouped categorically while some such as the knowledge-based questions were left open-ended to help the researcher assess the knowledge of women about

cervical cancer based on the information provided. Nevertheless, incomplete questionnaires with less than 50% completion rate were excluded from the study, and the researcher kept recruiting participants until the required sample size was achieved.

4.4.2 Research Instrument: Questionnaire

Data on the knowledge of cervical cancer, cervical screening, and health beliefs among rural women in Imo State, Nigeria, was collected using a 32-item questionnaire. A questionnaire is a set of standardized questions or items which allows the selected study participants to answer or write their responses to the researcher's printed questions regarding one or more specific topics following a fixed scheme (Lavrakas, 2008). Questionnaires collect information by engaging research participants in a special kind of conversation. This conversation could either occur via the telephone, mail, online (web links) or face-to-face with certain rules that help distinguish it from usual conversations. The questions must be relevant to the research aim and should be understandable to research participants. Nevertheless, participants are given the sole opportunity to make the decision of participating in a study (Olsen and St. George, 2004).

The researcher adopted a semi-structured questionnaire instrument in order to allow participants to express their opinions about cervical cancer and screening freely. The above survey instrument helps the researcher to collect information from a larger population to ensure generalization of findings (Burgess, 2001). The open-ended questions allow participants to answer the questionnaire in more depth, enabling the researcher to obtain and understand the views of study participants (Burgess, 2001). The undertaken steps used to formulate the final version of this study's questionnaire are represented in order of hierarchy in Figure 20 below.

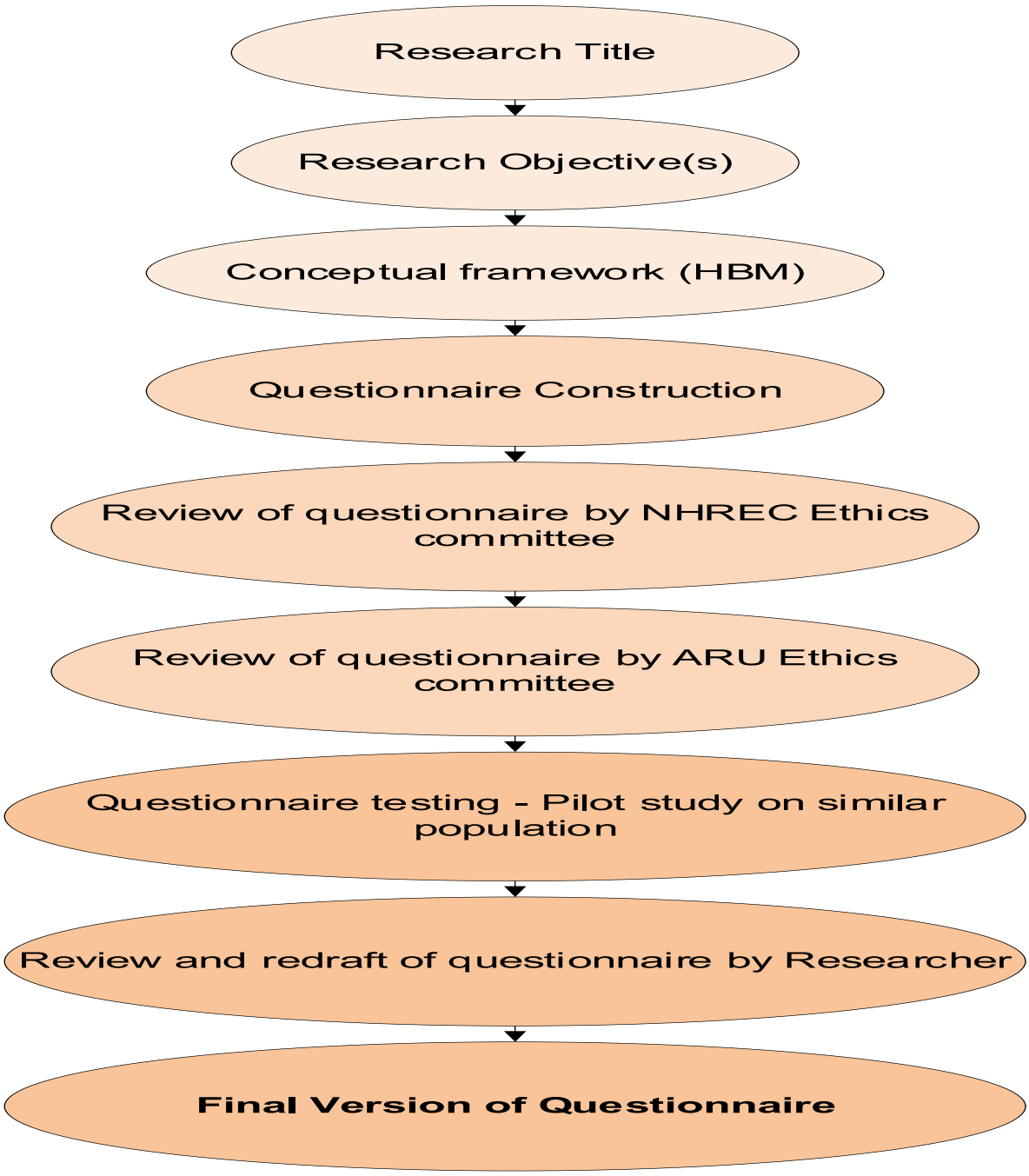


Figure 20: Stages of questionnaire development

(Developed by Researcher-Visio)

4.4.3 Justification for adopting questionnaire.

Most of the previous studies carried out in Nigeria either used new or modified questionnaires tailored to the research aim and thus made it difficult for the researcher to find a validated

questionnaire related to cervical cancer, specifically in Nigeria. However, for the purpose of this study, after a vigorous search, questions were adapted from two Nigerian studies which focused on “Nigerian women’s knowledge of cervical cancer” (Ukpo, 2013) and “Cervical cancer awareness and cervical screening uptake” (Eze, et al., 2012). Questions were chosen based on what the study intended to find out and was divided into three sections, A, B and C. It is important to note that the two Nigerian studies aimed to assess the knowledge of cervical cancer among ‘Igbo’ women which is similar to this study's aim and explains why their questionnaires were adopted. However, the inclusion of health stakeholders based on the recommendation of one of the studies (Ukpo, 2013), made this study distinct from previous studies carried out within the same region.

The questionnaire was piloted before it was used for the main study; however, before being adopted for this study, the questions were compared and modified based on the study’s aims and objectives. One benefit of compiling and using pre-existing questions is to observe if the questions will yield the same response when conducted among similar participants at a different point in time (Hyman, Lamb and Bulmer, 2006). The questions adopted from the two Nigerian studies were also based on two criteria:

Similarity of study participants: Eze and colleagues (2012) recruited female participants from an antenatal and gynaecological clinic of a secondary hospital while Ukpo’s (2013) study recruited women from the capital city of Imo state. However, the similarity between their participants and that of this study is that they are all Igbo women who speak the same language and share similar cultural/societal beliefs.

***Theoretical framework*:** The theory of the study by Ukpo (2013) was based on the four-main constructs of the Health Belief Model which are: perceived susceptibility; perceived severity; perceived benefits, and perceived barriers. The adoption of the HBM model formed the basis for the questionnaire development as some of the questions were adapted from the study. Some

quantitative studies in different countries have also designed their questionnaire based on the above constructs, which has proven useful and successful (Denny-Smith, et al., 2006; Giles and Garland, 2006). The same theoretical framework was adopted in this study to understand participant's perceived susceptibility and severity to cervical cancer, benefits of available screening services and perceived barriers to cervical screening participation.

Section A comprises of participant's demographic information; section B investigates the awareness/knowledge of cervical cancer and screening, while section C relates to the initial four constructs of the Health Belief Model (HBM). These sections have been discussed in detail below. The survey questions were a mixture of closed and open-ended questions, and was designed to either have multiple response options (ticking all appropriate answers) or a 'Yes', 'No' and 'Prefer Not to say' question. However, participants also had the choice of writing down answers that are not represented in an item (in the questionnaire this is indicated as 'Others - please specify'). Coding of the open-ended questions was difficult and time-consuming as expected. Nevertheless, based on the women's response, the main points were deduced, manually grouped under a category, and then assigned a code when inputted into the analytical software. Coding was done in a progressive format starting with 0, 1, and so on for descriptive purposes. Responses to all closed-ended questions were also coded in a progressive format. However, answer options 'Prefer not to say' and 'Unsure' or 'Other' were coded with negative numbers; '-98' and '-99' respectively to differentiate between definite (certain) and indefinite (uncertain) responses. Some of the categorical variables with many response options were transformed. Transformation of data entails aggregating and converting data from one format to another depending on the analysis (Alley, 2018; Friedman, 2020). The reason for the transformed data in this study was to ensure that data-driven informed decisions are made with regards to the perception of cervical cancer and screening among ISN rural women. Therefore, some of the data responses were reduced and recoded into a different variable set for ease of analysis. The questionnaire questions used for the study can be found in Appendix F.

Section A: Socio-Demographic Data

This section comprised of 6 main items which are the study's independent variables with a specific focus on participant's baseline data. These variables were chosen to help the researcher co-relate the awareness/knowledge and health beliefs of women in relation to their demographics and ensure the right participants are recruited for the study. The questions in this section were taken from Eze, et al., (2012) and Ukpo's study (2013) to help the researcher have background knowledge of the recruited participants. Questions 1 – 5 were all closed-ended questions and were coded in a progressive format starting from 0 except for uncertain responses which were coded with negative numbers as previously highlighted.

The study recruited only women ≥18 years. The age restriction, which was assessed with question 1, was based on the approved adult age in Nigeria. The age restriction helped eliminate third-party consent from parents or guardians as the study recruited only women who are accountable for their actions and decisions. Women who indicated to be <18 years (option A) were excluded from the study. Therefore, coding which was done in a progressive format started from option B which implies that women who indicated that they were between 18 - 28 years were coded as 0, those between 29 - 39 were coded as 1 while those >39 were coded as 2. The format for presenting age in the two Nigerian studies was adopted in this study; thus, age was grouped as a categorical variable for ease of analysis.

Questions 2 - 5 focused on participants' marital status, educational level, religious background, and geographical location. The above questions helped ascertain the baseline characteristics of participants and ensure that the study targeted women from different backgrounds irrespective of their marital, educational or religious status. Question 2 assessed the women's marital status using options like, single; married; divorced/separated, and widowed. Likewise, the women's educational level was assessed using question 3. Response options include none; primary education; secondary education, and university education. On the other hand, question 4 focussed on the women's religious background, which includes Pentecostal; Roman catholic;

Anglican; and Muslim. However, question 5 was treated as a constant because it was phrased to ensure that the women have lived in the study area for at least five years and can provide information on existing cervical cancer awareness or screening programs within their place of residency. The above means that only participants who answered 'Yes' (agreed that they have lived at their place of residence for at least five years) were recruited for the study. Question 6 on the other hand, relates to occupation and was left open-ended as adopted from the study by Eze, et al., (2012) so the women do not feel restricted in their response as there are several types of occupation in the rural area. Participants who worked under the government were grouped as 'Civil servants', those who said they were 'stay at home mothers' or were not doing any paid jobs were grouped as 'Housewives' while those with different job title like 'chemist' or 'nutritionist' with about 2% responses, were grouped as 'Others'. Therefore, the different occupations were arranged into categories and coded progressively, just like the close-ended questions, for ease of analysis.

Section B: Awareness and Knowledge Information

The awareness/knowledge of cervical cancer was assessed using 16 items (question 7 to 22) and was formulated to help the researcher understand and measure the awareness and knowledge of rural women on cervical cancer, its risk factors, preventive screening measures and determinant factors that prevent screening utilization and participation. Question 7 was adopted from the two Nigerian studies used as a guide for this study. However, questions 8, 10, and 22 were chosen from Ukpo's study (2013) while questions 9, 11, 13, 16, 17, 18, and 20 were chosen from that of Eze, et al., (2012). Nevertheless, some of the questions such as question 12; 14; 15; 19, and 21 were formulated and added by the researcher as supporting questions to understand further the awareness/knowledge of cervical cancer among the women.

Question 7 was used to evaluate the women's awareness of the disease. Similarly, question 8 assessed the women's knowledge of cervical cancer risk factors. In Ukpo's study (2013), each cervical cancer risk factor was asked as a separate question; however, this study left the

question open-ended to see how many risk factors the women can recall. Initially, all the listed risk factors were categorised and grouped based on the women's response of which the percentage of response was also considered. E.g., responses such as 'Multiple sex partners' and 'Promiscuity' were grouped under a category and assigned a coded. A multiple response analysis of all the correct listed risk factors relating to cervical cancer were then identified. The variable was later grouped into a dichotomous response showing 'No knowledge' and 'Some knowledge'. Women who correctly listed all cervical cancer risk factors were grouped under 'Some knowledge'. Those who listed one or more risk factors, and those who do not know any of the disease risk factors were grouped under 'No knowledge'.

Question 9 was based on knowledge of who the disease affects most. It was rephrased from 'Are you aware that it affects only women?' to 'Who does cervical cancer affect the most?' in order to avoid leading questions and to know if the participants knew that the disease affects only women. Question 10, on the other hand, assessed the women's knowledge of cervical cancer symptoms. The question was designed to have multiple options on the various cervical cancer-related symptoms with a dichotomous response of either 'Yes' or 'No' coded as 0 and 1. A multiple responses analysis was used to group the women into a dichotomous response option which means that women who correctly identified all cervical cancer symptoms were under the 'Yes' group while women who identified one or more of the symptoms were grouped under 'No knowledge'.

Question 11 aimed to know if the women could identify one affected by cervical cancer disease while question 12 was used to understand how the women were able to identify the affected victim(s) by listing some of the observable signs as this will help in the assessment of the women's knowledge about the disease. The above question was open-ended; therefore, responses such as 'breast sore' and 'loss of weight' were grouped as one category due to low response. Besides thy were not considered a sign of cervical cancer. All the listed responsive were coded progressively from 0.

Question 13 aimed to know if the women were aware that cervical cancer could be prevented while question 14 and 15 assessed the women's knowledge of preventive measures in order to find out if the women knew what to do to protect themselves from the disease and if they also knew that the disease could lead to death. Question 14 was designed as an open-ended question; therefore, women's response such as 'avoid early sex', and 'teenage marriage' were categorized as one due to their similarity.

Like question 7, question 16 was used to assess the women's awareness of cervical screening test. Based on the information from the above question, the women were further asked in question 17 and 18 if they have attended a cervical screening program or the things that prevent them from attending one. Question 18 which was left open-ended, allowed the women to freely list some of the barriers they think prevented them from attending cervical screening and was also cross-checked with question 32 to ascertain and affirm uniformity of response. Responses like 'Lack of money' and 'High charges' or 'Distance' and 'Not knowing a screening location' were respectively grouped under a category as they were worded differently but meant the same thing.

Instead of asking the women what type of cervical screening test they have heard of just like in Eze, et al., (2012) study, question 19 aimed to find out from the women what type of test they think is suitable for cervical cancer diagnosis. The reason for the above was to avoid being suggestive or asking a leading question. Similarly, the women were asked in question 20 if they have heard of clinics that do screening tests so as to know if they have knowledge of cervical screening clinics around them. Furthermore, questions 21 and 22 were used to determine if the women received information about cervical cancer and where the information was received. Responses to the questions above were all coded using a progressive number format. The above questions were chosen so as to know the preferred way of communicating cervical cancer-related information to the women.

Section C: Perceived Susceptibility, Severity, Benefits and Barriers

The theoretical model guiding this study, as previously discussed is the HBM. This section; therefore, consisted of 10 items (questions 23 to 33) and was designed to reflect the four constructs of the HBM model in order to have an in-depth understanding of how Nigerian women perceive cervical cancer disease in terms of their susceptibility; severity; benefits, and barriers. All questions pertaining to the above constructs were adopted from the study by Ukpo (2013) except for question 30, which was from the study by Eze, et al., (2012). However; questions 29 and 31 were formulated and added by the researcher. As with the other questions, non-Likert-type scale responses were coded in a progressive format starting from 0 while options with negative responses such as 'Not sure' and 'Prefer not to say' were coded with negative numbers, -98 and -99 respectively.

Perceived susceptibility to cervical cancer was assessed using question 23. The question was used to assess how likely the women think they can get cervical cancer. Scaled responses ranged from 1 (very likely) to 4 (not likely). Based on the response, higher scores meant that the women had a greater perceived susceptibility to cervical cancer. The above question was also recoded into a dichotomous variable. Women who perceive themselves susceptible to cervical cancer were grouped under 'High susceptibility' with a code of 0 while those who perceive that they are not susceptibility to the disease were grouped under 'Low susceptibility' and coded as 1. The regrouped and recoded variable helped ascertain the percentage of the women's general susceptibility to cervical cancer.

Similarly, the perceived seriousness of cervical cancer outcome was assessed using question 24. The question aimed to obtain information on how deadly the women perceive the disease. A 5-point Likert-type scale was used to range the women's response from 1 (strongly agree) to 5 (strongly disagree). Higher scores meant that the women have greater perceived seriousness of cervical cancer. The above question was also recoded into a dichotomous variable. Women who perceive cervical cancer as a serious disease were grouped under 'High severity' with a

code of 0 while those who perceive it not to be severe were grouped under, ‘Low severity’ and coded as 1. The regrouped and recoded variable was used to note how severe the women perceive the disease.

Questions 25 - 28 were used to assess the women’s knowledge of cervical cancer preventive and screening measures alongside their benefits. Although questions 25 and 26 focused on HPV Vaccination which was not included in the study's aim, the question was to help assess women’s knowledge on a preventive measure different from the Pap-smear test. Nevertheless, questions 27 and 28 focused on the cervical screening test and its benefits and was used during analysis. Question 28 was regrouped and recoded into a dichotomous variable. Women who knew the benefit of the Pap-Smear test were grouped under ‘Early disease detection’ and coded as 0 while other responses were grouped under ‘Do not know’ and coded as 1 to know how many women knew the direct perceived benefit of the Pap-Smear test.

Questions 29 and 30 were used to evaluate the preferred way of accessing the nearest cervical screening clinic and how long it takes to get to one. The above questions aimed to understand if the women know the whereabouts of a screening clinic or have attended one. On the other hand, question 31 assessed the women’s willingness to attend a cervical screening program if made available to them locally. Responses to the above question were also coded using a progressive number format depending on the number of options.

Perceived barrier(s) to cervical screening was assessed using mostly question 32, although information from question 18 was also included depending on the percentage of response. The question was also designed to have multiple options with a dichotomous response of either ‘Yes’ or ‘No’ (coded as 0 and 1) on the various barriers to preventive cervical screening measures. The barriers which scored >50% were perceived to be higher and recommended as barriers that need to be considered when implementing any cervical cancer-related program.

4.4.4 Testing of Research Instrument

Testing the research instrument helps maintain its reliability and validity; and ensures that future errors are avoided in the main study. A study is viewed to be reliable if the research instrument measures accurately and consistently the information it tends to measure if the study is repeated among the same or similar population (Gerries and Lacey, 2006). Therefore, to determine this study's reliability, the researcher piloted the questionnaire among the intended same sample population, which are rural women in Imo state ≥18 years. The pilot study helped ensure that participants understand and interpret questions similarly and within a specific timeframe. However, the pilot study participants were not included in the main study as they may change their behaviour or response if involved in the real study. On the other hand, validity ensures the study instrument measures the variables it intends to measure (Katzenellenbogen, Joubert and Abdool-Karim, 1999). Therefore, to maintain this study's validity, the questionnaire was piloted among rural women who share the same social demographic characteristics with the intended population.

Pilot Study

Pilot studies are small scale studies carried out on a small but similar sample of the intended study to help detect flaws such as grammatical errors; incoherence or lack of understanding among participants, which could be corrected before the main survey with a larger sample. Burgess (2001), stressed the need for a pilot survey to help the researcher detect a range of possible answers by converting a question to either open or closed-ended and test analysis procedures by performing a trial analysis. The plan was to recruit 30 - 40 women for piloting; however, the questionnaire was piloted among 30 women using a door-to-door approach. The anticipated time for completing the questionnaires was 20 minutes; however, it took up to 1 hour to complete and return the questionnaire. Returned questionnaires were checked for consistency, completeness, correction, misinterpretation, and grammatical errors. The pilot study helped the researcher to adapt questions relevant to a wider range of people and minimise

errors on answers of which the actual study achieved. To determine the reliability and validity of the data collected, the questionnaire was piloted among 30 women from different communities in one of the recruited LG after ethical approval has been gained. The completed collated questionnaires were read carefully to note any confusing question(s) that might have been misinterpreted or incorrectly placed answers. Mental health women, severely ill or those with a cognitive disability known to the VCMs (who are members of the community) were excluded as the study required participants to have the mental ability to make decisions and provide consent. After the raw data was reviewed, 30 questionnaires passed the inclusion criteria without any misinterpretation or modification and were used for the trial analysis.

After piloting the questionnaire, it was observed that using a door-to-door approach was difficult due to the scattered settlement of the houses, thus explaining why the researcher opted for an alternative with the larger intended population. The alternative required gathering women ≥18 years together in an agreed venue which also helped ensure that they were given an equal chance of participating in the study. Regarding the questionnaire, all the questions had an added response option of 'prefer not to say' which was previously not there as it was observed that some closed-ended questions were left unanswered. Likewise, question 1, which was initially left open-ended for participants to mention their exact age, was converted to a categorical question. The women mentioned in the extra comment section that they were not comfortable mentioning their age even after being told that their response was anonymized, hence the change. Also, it was noted that most of the women ticked all the boxes relating to cervical cancer symptoms in question 10. The question was not changed but modified to include some non-related cervical cancer symptoms such as 'sore throat' and 'conjunctivitis' to ensure that the women were not ticking the boxes by chance. Furthermore, questions 23 and 24 were rephrased and changed to a Likert scale response type as the women noted a misinterpretation in the comment section provided. More comment space was added for open-ended questions to avoid

a cluster of information as noted from the pilot study, which made it difficult for the researcher to read, understand and analyse the women's responses.

4.4.5 Sampling Procedure

Study 1 adopted a multi-stage sampling method which is a combination of two sampling techniques from the sample selections. The two combined in this study were: Simple Random Sampling and Cluster sampling. Multi-stage sampling is a more complex form of cluster sampling. However, it helps make data manageable by dividing large clusters into smaller groups at different stages of the data collection process. Though this method is not as effective as true random sampling, it reduces financial burden on the researcher and is less time-consuming. More so, this type of sampling technique makes it easier for researchers to select members of the sample from a subgroup using another type of probability sample (Dudovskiy, 2016).

A Simple Random Probability Sample was adopted amongst other sampling methods because of its straightforwardness. Besides, it is often viewed as the most popular random sampling method. "The logic behind simple random sampling is that it removes bias from the selection procedure and should result in representative samples" (Gravetter and Forzano, 2011, pp. 146). This type of approach gives each member of the population the opportunity to be included in the sample. However, to effectively apply this method in an appropriate manner, the sample size needs to be at least more than 100 of which this study recruited 436 women. The simple random sampling method is sub-divided into two main types, namely: the lottery and use of generated random numbers using software or random tables. Both were intended to be used for the study, but only the lottery method was deemed suitable due to some changes which required immediate attention and adjustment at the household level. It was difficult to get household statistics or a comprehensive list of all the houses in the villages from the LG because the country is yet to have another census after the last one done in 2006. Besides, there has been

a huge development of buildings and migrations from the urban area to the rural area. The above reasons made it difficult to assign numbers to the houses randomly.

The lottery method

It is expected that every woman ≥18 years in Imo state has an equal chance of participating in the study. However, a sample of the population was randomly selected from the four local governments within the state as it will be impossible for the researcher to recruit all women within the selected age group. The lottery method which entails writing numbers in separate pieces of paper, was used to randomly select four local governments out of the 27 LGs in Imo state. N = 27 represents the sum of all LGs and is referred to as the sampling frame while n = 4 LG's was referred to as the sampling unit. These pieces of papers with the LG names alongside their allocated numbers were folded and mixed into a box. This procedure involved rigorous shaking of the names and numbers before the researcher drew samples randomly from the box by randomly choosing folded pieces of papers under blindfolds. The selected LG alongside their randomly assigned numbers based on chronological order was: Aboh Mbaise = 1, Ideato South = 6, Njaba = 13 and Mbaitolu = 11. The selection process helped to reduce sampling, recruitment and researcher bias. This process was also applied in selecting the four districts but also the four villages and four communities from each LG. Figure 21 shows the four LG's alongside their four randomly selected villages and communities from where women were recruited.

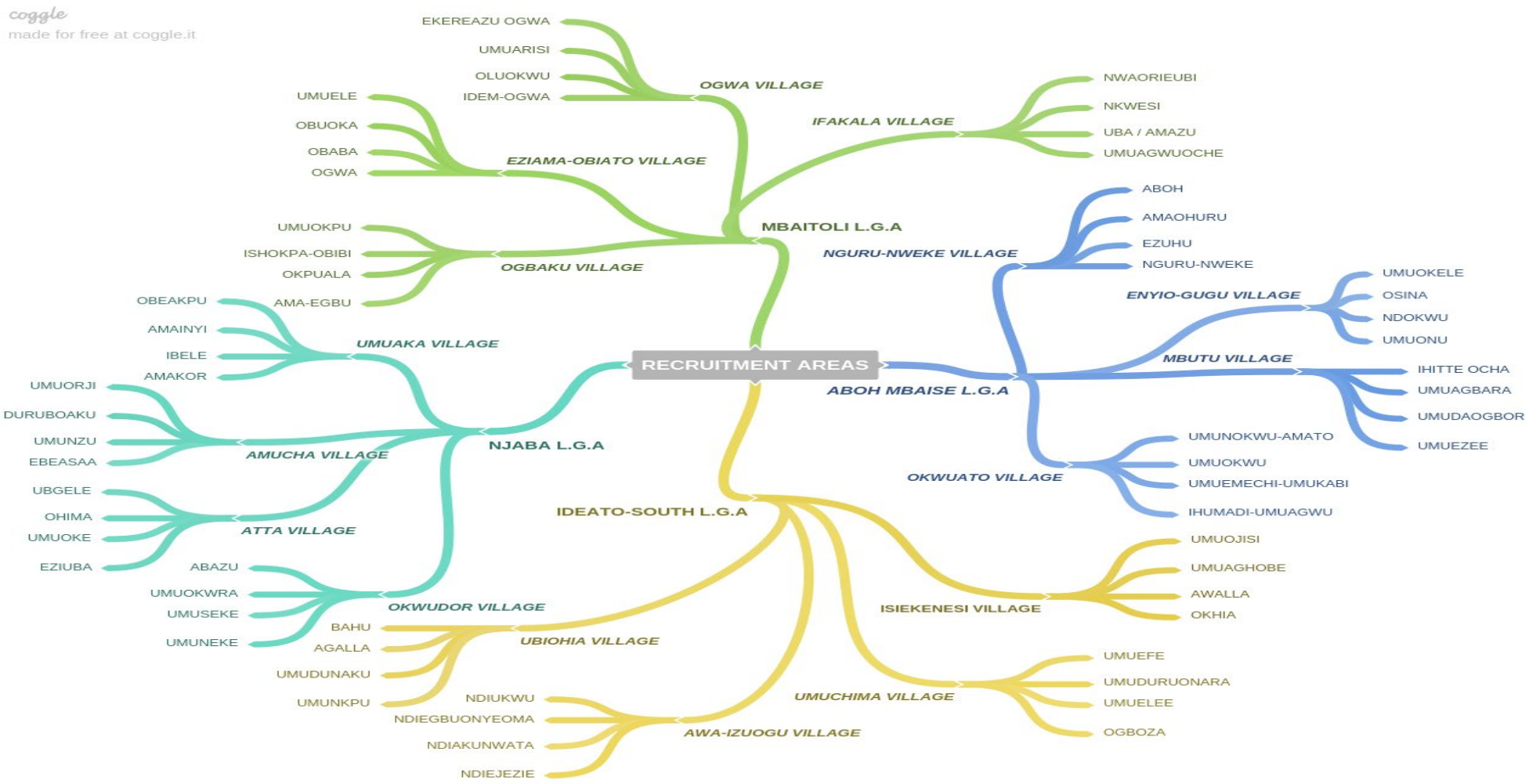


Figure 21: Participant's catchment and recruitment area.

(Developed by Researcher, Coggle.com

The local governments, villages and communities were selected using the Simple Randomization Sampling method. Each community formed a cluster from which women were recruited. The SRS method was not used at the household level due to the scattered settlement of some of the houses within the selected villages. Four local governments, four villages and four communities were selected from Imo state using the Multi-Stage Sampling method while women were gathered at a place where the questionnaire was distributed. Figure 22 shows a graphical representation of the adopted sampling procedure.

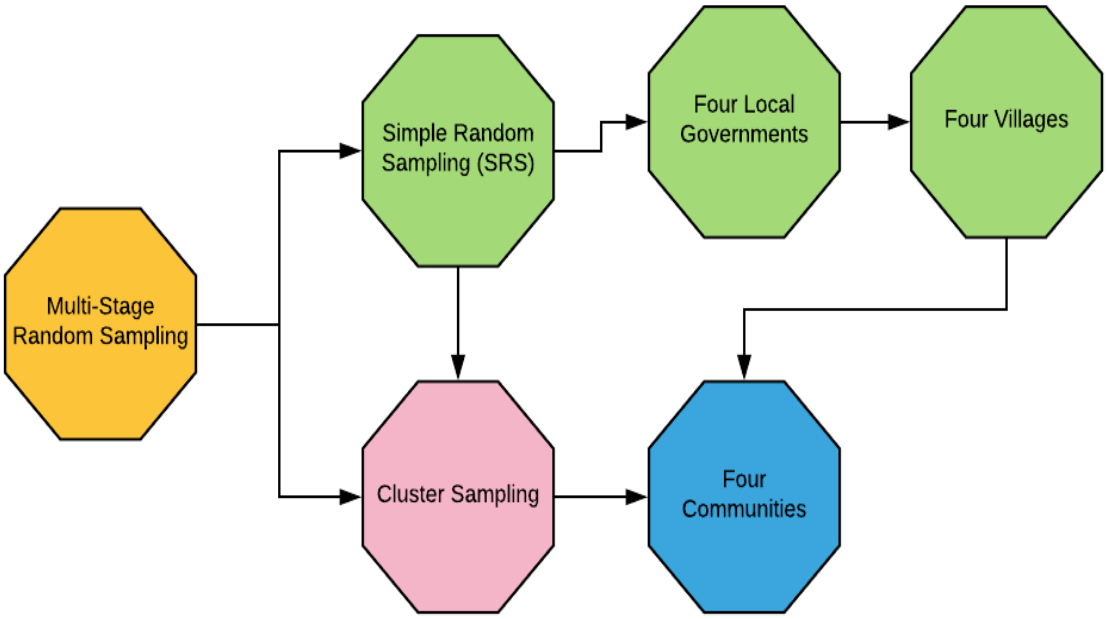


Figure 22: Graphical representation of the procedure

(Developed by Researcher, Lucidchart)

4.5 Recruitment

There were difficulties associated with recruiting women using a door-to-door approach due to the scattered settlement of some of the houses thus explaining why the researcher chose multi-stage cluster sampling method, which entails recruiting women from the randomly selected clusters or communities. This method was deemed beneficial and helped ensure that the women had an equal chance of participating in the study.

After due approval from the gatekeepers, the recruited villages were successfully visited to maintain the validity of the sample, and only women who came to the community town centres were recruited for the study. The above method helped to prevent the VCM's from approaching the same participant twice. However, to reduce repetition and maintain confidentiality, the researcher allocated a number to each questionnaire and ensured participants read and understood the rules/regulations guiding the study, which includes not more than one participant per questionnaire. Since the women were gathered at the town centre to complete the questionnaire, the VCM's read out the participant's information sheet again to the hearing of all the women. Women with special needs (e.g., eye or ear defects) were considered and special provision was made in case of any, but none was identified. Women who agreed to participate in the study were asked to complete and sign two attached consent forms. These signed forms were detached and returned to the research assistant (VCM) before participation was allowed for ethical reasons. The participants were also given a copy as proof of participation.

4.6 Data Collection

Data collection was undertaken during the Christmas period, one of the busiest annual festive seasons in Nigeria. During this period, it is expected that people return home to their villages for the celebration, and thus allows the researcher to target more women. However, this posed a problem as most female market traders from rural areas had to travel to buy produce during the festival season, making it difficult to target the sample population successfully. In order to ensure

that the women had an equal chance of participating in the study, the community town crier was used to pass information around the villages before the arrival of the VCM's. The rural area is a traditional setting with little or no internet access and explains why important messages, meetings, imminent troubles, and conferences are disseminated using traditional communication media such as the town crier. The town crier passes useful information from the village head to members of the community in the early hours of the morning (before the cock crows) preceded by the sound of the gong to ensure that information is not being missed by community members (Lawal, 2019). Therefore, the town crier informed the women to gather at the community town hall on a non-market day. The adopted method gave the women in the selected villages and communities, the equal chance of participating in the study. Barreiro and Albandoz (2001) affirmed this and stated that all participants in the sample should have the same probability of being selected for the study to avoid selection errors. Though the women were given an equal chance of participating in this study, some of them might be working on the agreed day or time, have children or relative to care for or may not be around during the announcement. However, the above issues are based on personal reasons that the researcher cannot influence but were considered a limitation.

The number of questionnaires distributed during the fieldwork was increased to 800 to reduce the chances of having a non-answer error or incomplete questionnaires. The above statement explains why 200 questionnaires were evenly distributed to the four local governments. This approach also helped reduce the number of times the VCMs, and the researcher has to travel to the communities in-case of reduced response as the LGs were far from each. More so, the plan to continue recruitment until the minimum response is achieved was put into consideration. This adopted measure helped increase the sample size to 100% as the study recruited more than the required minimum number. Data collection was done by the VCMs to allow the researcher to carry out data collection for study 2 simultaneously. The community women were gathered at the community town centre during the allocated timeframe at their different local governments and villages. The participant's information sheet and consent form in Appendices G and H were handed to the women

to read and sign while the VCMs verbally and openly explained both in English and Igbo language, what was required of each participant which included not writing names on the questionnaire but initials and signature. Participants were also informed that they all have the same questionnaire in order to reduce tension amongst them. Upon signing and returning of the consent form to the VCM, the women were given the questionnaire and a pen. VCMs were duly trained and asked not to provide any information that directly or indirectly provided answers to the questionnaire questions. It was observed that the time frame for completing the questionnaire was the same as that of the pilot study. Participants took a minimum of 30 minutes and a maximum of 1 hour to complete and return the questionnaire; however, the study did not provide any incentives, which was stipulated in the participant information sheet given to the women before data collection. The researcher monitored the VCMs at their various locations on different days as it was not possible to collect data from the different communities in one day. Data collection was done within three weeks, and the questionnaires were collected by the researcher within the same time frame. During each monitoring visit, the VCMs were also evaluated on the transferable skills provided by the researcher during training to ensure they were complying with the research rules of ethics of which none defaulted. The researcher collated completed questionnaires during each monitoring visit or after the data collection process.

Out of the 800 questionnaires distributed to rural women, 645 questionnaires were returned by the VCM to the researcher. During researcher's review, it was noticed that 209 of these questionnaires were either incomplete with two or more of the major questions missing (like question 10 and 32 relating to symptoms and barriers respectively), had less than 50% completion rate or did not meet the inclusion criteria of which they were excluded from the study. The total number of complete questionnaires that met the inclusion and exclusion criteria was 436. Therefore, the researcher successfully recruited 436 women which is more than the aimed sample size of 384 women. Therefore, a 100% maximum sample size and more than 50% return rate were achieved, thus improving the study's validity and generalizability.

The VCM's were paid a minimum of [5]₦15,000 (£25) for the training, distribution, and collection of the questionnaires which means a total of ₦120,000 (£200) for the eight VCMs recruited. The payment was made after the questionnaires were returned of which the researcher travelled to collect them to avoid undue expenses on the VCMs. The case scenario below with different questions was presented by the researcher to the VCMs after the training in order to test their knowledge on what has been taught during the training. The above test aimed to ensure that the VCMs fully understand what is expected of them during the fieldwork. The dialogue in table 2 below ensued between the VCMs and the researcher who acted on behalf of the women.

Table 2: Case Scenario

Researcher (Acting on behalf of the participant): Good afternoon madam, I do not understand this question here, can you please explain it for me? **VCM's Response:** I will explain or interpret the question in a language the woman will understand but not answer the question.
Researcher: Thank you. I know the symptoms of cervical cancer but cannot seem to remember if sore throat is one of them. What do you think? Which one is the answer? **VCM's Response:** Am sorry, but I am not allowed to disclose the answer. I can only help after you return the questionnaire.
Researcher: In that case, I can use my phone and check the answer online. Right? **VCM's Response:** The study was designed to test your knowledge because we want to know what you know about this disease, so if you use your phone to check the answer then our aim is defeated.
Researcher: In that case, where should I write my name?

[5] Naira

VCM's Response: No one is supposed to know that you are the one completing the questionnaire so we will not need your name, but you can put your initials or use the participant number on top of the questionnaire.

Researcher: I see. What if I no longer want to continue answering the questions, must I finish it since I have already started?

VCM's Response: No. You are free to leave anytime as it is not a must to participate in the study.

Source: Developed by Researcher

4.7 Data Analysis

The questionnaire helped the researcher to assess participant's level of understanding on the subject area and also test for association between variables of interest using standard and advanced features of the Statistical Package for Social Sciences (SPSS)[6]. This statistical package was adopted for correlation and interpretation of the association between variables to help determine their significance in relation to the study purpose.

Primary Objective

1. All the questions aimed at assessing the knowledge of women regarding the disease. However, specific reference was made to questions 7 - 17, 19, 23 - 28 and 32, and was used to assess, examine, and evaluate the awareness/knowledge of cervical cancer, cervical screening and health beliefs among the women, including the four constructs of the HBM.

[6] SPSS was acquired by IBM (International Business Machines) in 2009 therefore the current version which is 2014 version is officially called the IBM SPSS statistics (Quintero, et al., 2012).

Secondary Objectives

2. Questions 18, 31, and 32 were used to answer this objective, which aimed to evaluate and understand the determinant factors that influence cervical cancer and screening participation among these women.
3. The HBM model constructs in section C of the questionnaire were used to examine the women's health beliefs in relation to cervical cancer and screening.
4. To critically examine and appraise the effectiveness of the relevant strategy implementation in Imo state, questions 20 - 22 was reviewed and analysed in-depth.
5. The efforts made by the government in reducing the spread of the disease and increasing screening utilization among the women was determined using questions 22, 29 and 30.

Before analysis, data was first reviewed and statistically adjusted to represent the target population (Penczak, 2020). The above includes grouping responses of qualitative variables, open-ended questions, and misinterpreted data for effective coding. The raw data was first coded and represented manually on an excel spreadsheet before being exported to the SPSS software when network coverage improved. On SPSS, data was coded and analysed using a progressive format as previously explained. A descriptive analysis of all the 32 item questions was carried out to determine the percentages and frequencies of participants' responses and was further represented using tables and figures. Also, inferential statistics was adopted in making general conclusions and comparisons pertaining to the study population. Inferential statistics allows the researcher to make some generalizations about the overall population from which the study sample was selected (Gravetter and Wallnau, 2005).

A correlational analysis measured the strength (strong or weak) and direction (positive and negative) of the relationship between some of the study variables (Gaur and Gaur, 2009). Kendall's tau_b (for ordinal variables) and Spearman's test (for non-scale variables) was used in reporting non-parametric analysis that violates one or more assumptions of Pearson's test (Pallant, 2016). Therefore, the analysis between the women's age and their perceived susceptibility was reported

using Kendall's tau_b test while age, education and perceived severity were reported using the Spearman's test. The Spearman's test was also used to report analysis between distance and attendance to a screening program. The analysis helped to assess the strength and direction of the relationship between the selected variables.

The variables in this study are explanatory variables, mostly nominal and ordinal. Therefore, a binomial logistic regression analysis was used to predict and explain the relationship between a dependent variable and one or more independent variables using the odds ratio (Gaur and Gaur, 2009; Sperandei, 2014; Pallant, 2016). The above explains why it was difficult doing a linear regression which is best suitable for quantitative variables such as the intervals or ratio (Statistics Solutions, 2019). The included variables in this analysis were: awareness of cervical cancer and social demographics such as 'Marital status', 'Education' and 'Religion'. Regression analysis was used to test if the women's awareness of cervical cancer was predicted by the selected socio-demographics above. In running this analysis using SPSS v20, the socio-demographics were recoded into a dichotomous response and entered into the logistic regression as categorical variables. The 'Predicted Probability' was of Membership for 'Yes' (those who were aware of cervical cancer). The selected categories used for analysis were 'married women', 'educated women' and 'have a religious background'. These variables were coded as 1. The above means that the analytical report excluded the reference category of women who were not married, educated, or have a religious background (all coded as 0). Age and occupation were excluded because they have more than one response option, and it was not possible recoding them into a dichotomous variable. Also, the study did not aim to predict the relationship between younger and older women with regards to their awareness of cervical cancer which explains why it was not necessary grouping age in particular, into a dichotomous response option.

At first, a Univariate analysis of each of the socio-demographics and awareness of cervical cancer was done. A reference category table was generated from the above analysis to show the frequency of distribution and the variables' parameter coding. A backward stepwise multivariate

regression analysis method was then used to add all considerable independent variables. These variables were later subtracted one after the other, starting with the least significant variable to see if there was a change in result. Religious background was the least significant (p >.005) and was the first to be subtracted. However, in the next analysis, both 'Education' and 'Marital' status were significant (p = <.001) and were used to interpret the logistic regression analysis outcome.

Cross Tabulation Analysis (CTA) was used to determine uniformity among the participant's response. Transformation of the variables which has been explained earlier made it difficult to cross-tabulate all independent variables against a dependent variable. However, some of the CTA was based on the findings from the reviewed studies to determine uniformity as previously highlighted. Besides, the CTA included a Chi-square test. The Pearson Chi-square test was used to determine the association or relationship between categorical variables. However, in reporting analysis that involved a Chi-square test, likelihood ratio was used to report analysis from grouped variables that have >20% of cells with expected count <5. Nonetheless, because the sample size in this study is <1000, the Fisher's exact test result was used instead of the Likelihood ratio, to report analysis were >20% of the cells have expected count <5 for a 2 x 2 table with dichotomous outcome response that violates the assumption of Pearson (McDonald, 2014). The selected variables and their justification are explained below.

1. Awareness of cervical cancer disease and Influence on screening participation

In some of the reviewed studies, findings showed a relation between awareness and screening attendance. However, some of those studies were carried out in the urban area known to have more access to cervical screening services than the rural areas. Therefore, the above variables were used to determine if awareness of cervical cancer had any impact on cervical screening attendance among ISN rural women, hence the first research question. The variables were grouped into two outcome response, 'Yes' and 'Other'. Findings were interpreted based on the 'Yes' response in order to know how many women who heard of the disease participated in screening.

2. Marital status and Influence on screening participation

Findings from the literature showed that decision-making regarding a woman's health in a male-dominated area was made by the man which restricts the woman from freely expressing herself. Some studies have shown that married women are likely to have more knowledge of cervical cancer than unmarried women, but not much is known about screening participation. Therefore, the above variables were cross-tabulated based on the above finding to determine if the women's marital status had any impact on cervical screening attendance. The variables were also grouped into two outcome response, 'Married' and 'Others'. Findings were interpreted based on the 'Yes' response in order to know how many married women have participated in cervical screening.

3. Educational level and Identification of affected victims

Education has been evidenced to be one of the significant factors that influence awareness/knowledge of cervical cancer. Educated women seem to have more knowledge of the disease than their counterpart. However, it is yet to be deduced from previous studies if the women can also identify affected victims based on their educational level. The independent variable, 'Education' was grouped into two outcome responses, 'Educated' and 'Others' in order to observe if educated women are more likely also to identify affected victims.

4. Occupation and Willingness to attend screening if available.

Occupation was cross-tabulated with the willingness to attend screening based on the notion that employed women are more concerned about their source of income than attending cervical screening as noted from the review. The different occupations stated by the women in this study were civil servant; housewife; trader; teacher, and others such as chemist; farmers; nurses; students; bankers; caterers; lab technicians; public health officers, and health nutritionist. Aside from grouping occupations with small percentages as 'Others', the other listed major occupations were left the same. The CTA was used to determine the relationship between occupation and willingness to attend screening, and also which type of occupation is most likely to attend screening if made available using the 'Yes' response option.

5. Age and knowledge of Direct Perceived Benefit

Knowledge of women regarding the benefits of the pap-smear test was cross-tabulated with age to ascertain what age group has more knowledge. Previous studies have shown a significant relationship between age and knowledge of cervical cancer based on the literature review. However, not much was observed on age and benefits of screening; hence this analysis in order to determine which age group is likely to have more knowledge. Therefore, question 28 was reduced into two options and recoded as 'Early Disease Detection' and 'None' (which means no benefit). The above two options were then cross-tabulated against the different age groups.

6. Religious background and Perceived Barriers to Screening

Findings from the literature review showed that religion was a barrier to screening. More so, women in the rural area have been evidenced to have strong religious beliefs that may impact on cervical screening participation. ISN rural women's religious background was, therefore, cross-tabulated with perceived barriers to screening to ascertain if there is a relationship between the variables and to know if they are dependent on each other (statistically significant). The CTA was not used to determine the direction in this analysis and therefore, could not inform if women with religion had more perceived barriers to screening or not. The likelihood ratio was used to report this analysis instead of the Chi-square because all cells in the analysis were >20% with expected count <5 and thus violates the assumption of Pearson.

4.8 Study Findings

4.8.1 Section A – Study Demographics

The study demographics in this section referred to the baseline information and characteristics of the women recruited for this part of the research. The information gathered in this section provided enough information for the researcher and also helped in assessing the women using the inclusion and exclusion criteria required for participation in the study. Participant's response to how long they

have lived in Nigeria was removed because it's constant. The demographic information has been represented in table 10 with their percentages and frequencies.

Age of Participants

Figure 23 shows the descriptive statistics of the women's age (Mean age = 35.62; SD = 13.071). From table 3, women aged 18 - 28 years participated more in the study, with a percentage of about 35.3% (n = 154).

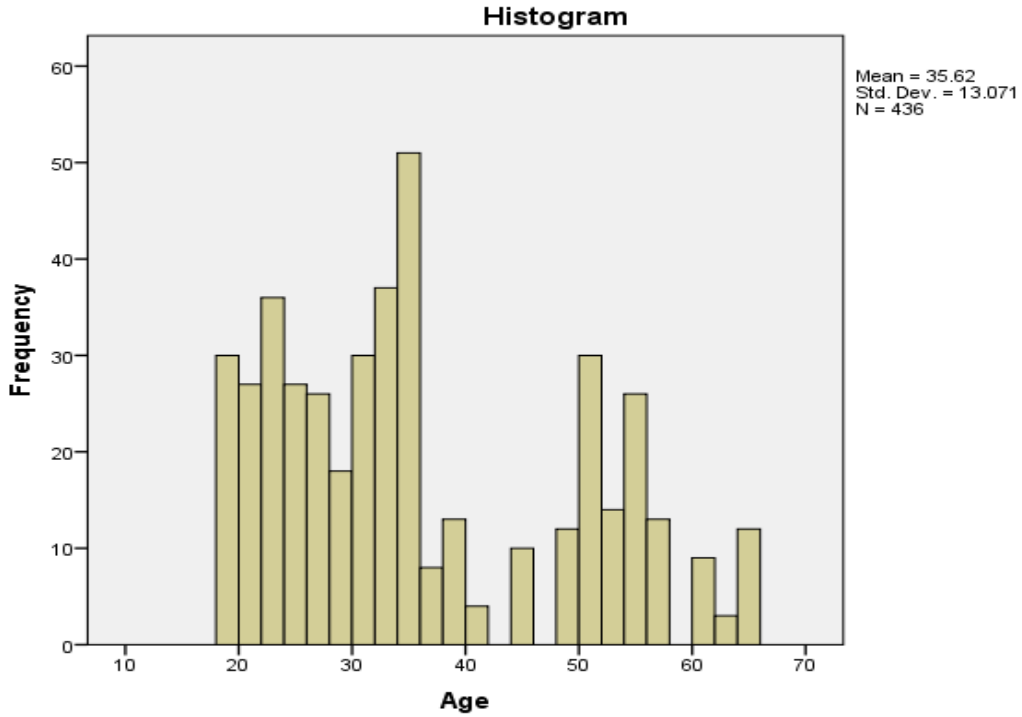


Figure 23: Age Distribution of the women.

(Developed by Researcher, SPSS).

Marital Status

About, 65.8% (n = 287) of the women participated more in the study, as shown in table 3. About 17.7% (n = 77) of the women indicated they were single while 10.8% (n = 47) said they were divorced, separated or widowed (4.6% n = 20).

Level of Education

Most of the women refused to state their level of education (34.6% n = 151). However, almost one-third of the sample, about 32.8% (n = 143) indicated secondary education as their highest level of education. Other options that were not listed were grouped under 'Others' for ease of analysis, as shown in table 3.

Religious Background

Most women, 41.3% (n = 180) were Pentecostals, followed by almost a similar percentage of about 40.8% (n = 178) who were Roman Catholics. Other options that were not listed were grouped under 'Others'. This information has been represented in table 3.

Occupation

Nearly ½ of the women, about 40.6% (n = 177) were civil servants while the least percentage of about 5.3% (n = 23) were teachers as seen in table 3. However, more than 1/5th of the population 20.4% (n = 89) had different occupations grouped under 'Other' for analytical purposes as they were of small percentages.

Table 3: Participant's Characteristics (n = 436)

Demographic Characteristics	**Number of Participants (%)**
Age Group	
18 - 28	154 (35.3)
29 - 39	138 (31.7)
Above 39	144 (33.0)
Marital Status	
Single	77 (17.7)
Married	287 (65.8)
Divorced/separated	47 (10.8)
Widowed	20 (4.6)
Prefer not to say	5 (1.1)
Educational Level	
None	4 (.9)
Primary education	46 (10.6)
Secondary education	143 (32.8)

Demographic Characteristics	Number of Participants (%)
University education	88 (20.2)
Others[7]	4 (.9)
Prefer not to say	151 (34.6)
Religious Background	
Pentecostal	180 (41.3)
Roman Catholic	178 (40.8)
Anglican	62 (14.2)
Others[8]	6 (1.4)
Prefer not to say	10 (2.3)
Occupation	
Civil servants	177 (40.6)
Housewives	84 (19.3)
Traders	63 (14.4)
Teachers	23 (5.3)
Others[9]	89 (20.4)

4.8.2 Section B – Awareness and Knowledge Information

This section refers to the questions asked to determine cervical cancer knowledge and screening among the women.

Awareness of Cervical cancer

More than half of the women, 54.1% (n = 236) said they are aware of cervical cancer leaving only 38.8% (n = 169) of the women who indicated not having knowledge.

Knowledge of Cervical cancer Risk factors

The list of risk factors was generated based on the women's response. Table 4 shows that most of the women said they do not know of cervical cancer risk factors (60.1% n = 262). Only 20% (n = 67) of them listed "Multiple sex partners/promiscuity" as the main risk factor of cervical cancer under

[7] Diploma or an NCE (Nigeria Certificate in Education, a teaching qualification)
[8] Muslim, Jehovah Witness and Later Days Saint
[9] Chemists, Farmers, Nurses, Students, Bankers, Caterers, Lab technicians, Public health officers and Health nutritionist.

the sub-table relating to correct listed risk factors. Grouped response of the correct identified risk factors showed that only 7.7% of the women correctly identified all CCA risk factors (Table 5) listed in sub-table 4.

Table 4: Knowledge of Cervical Cancer Risk factors

Listed Cervical Cancer Risk factors	Number of Participants (%)
Cause is unknown.	17 (3.9)
Weak Immune system	17 (3.9)
Women with many children	23 (5.3)
Multiple sex partners/promiscuity	67 (15.4)
HPV	44 (10.1)
STD	22 (5.0)
Teenage Pregnancy / Marriage	12 (2.8)
Early sexual intercourse	42 (9.6)
Smoking / Alcohol	54 (12.4)
Use of IUCD[10]	6 (1.4)
Oral contraceptives	49 (11.2)
Washing the vagina with medicated soap	18 (4.1)
Overweight	11 (2.5)
Frequent use of pit latrine	1 (.2)
Hereditary	12 (2.8)
Urinary Tract infection / Vaginal bleeding	11 (2.5)
Premature childbirth / Abortion	21 (4.8)
Lesbianism	5 (1.1)
Pelvic Pain	1 (.2)
Cervical Dysplasia	5 (1.1)
Hormonal replacement therapy	4 (.9)
Poor Hygiene	11 (2.5)
Eating fatty/spoilt food, fruits, and vegetables	8 (1.8)
FGM	13 (3.0)
Do not know	262 (60.1)

[10] Intra Uterine Contraceptive Device (IUCD)

Correct risk factors [a]	Responses (%)
Weak Immune System	17 (5.1)
Women with many children	23 (6.9)
Multiple sex partners/promiscuity	67 (20.0)
HPV	44 (13.1)
STI	22 (6.6)
Teenage Pregnancy or marriage	12 (3.6)
Early sexual intercourse	42 (12.5)
Smoking or Alcohol	54 (16.1)
Oral Contraceptive	49 (14.6)
Cervical Dysplasia	5 (1.5)
Total	335 (100.0)

a. Dichotomy group tabulated at value 1 (Yes responses)

Table 5: Knowledge of correct risk factors.

		Responses (%)
Correct identified risk factors.	No Knowledge	92.3%
	Some Knowledge	7.7%
a. Group	Total	100.0%

Knowledge cervical cancer effects women

More than half of the women, about 59.4% (n = 259) agreed that the disease affects mostly women while a total percentage of about 39.9% (n = 174) had no knowledge that the disease affects only women.

Cervical cancer symptoms

Abnormal and offensive vaginal discharge (77.5%, n = 338), discomfort or pain during sex (76.6%, n = 334), heavy and longer menstrual period (64%, n = 279), and vaginal bleeding between periods or after menopause (50.2% n = 219) were the four most rated among the ten symptoms listed by the women as shown in table 6. All the symptoms are correct except Sore throat and Conjunctivitis.

The knowledge-based analysis of all the correct disease symptoms reveals that >50% of the women have no knowledge of the disease symptoms.

Table 6: Cervical Cancer Symptoms

Symptoms of cervical cancer	**Number of Participants (%)**	
	Yes	**No**
Abnormal and offensive vaginal discharge	338 (77.5)	98 (22.5)
Discomfort or pain during sex	334 (76.6)	102 (23.4)
Vomiting and stooling	180 (41.3)	256 (58.7)
Heavy and longer menstrual period	279 (64.0)	157 (36.0)
Irritation of the vulva/vagina	188 (43.1)	248 (56.9)
Sore throat	130 (29.8)	306 (70.2)
Vaginal bleeding between periods or after menopause	219 (50.2)	217 (49.8)
Blood in stool or urine	104 (23.9)	332 (76.1)
Conjunctivitis (Apollo)	32 (7.3)	404 (92.7)
Abdominal / Pelvic pain	34 (7.8)	402 (92.2)

Knowledge of Correct Cervical Cancer Symptoms		**Responses (%)**
Correct Identified Symptoms [a]	**No Knowledge**	51.9
	Some knowledge	48.1
	Total	100.0

Experience of the disease

Only 10.8% (47) of the women reported knowing someone with cervical cancer.

Identification of affected victim

About 91.1% (n = 397) of the women said they could not identify an affected victim leaving only 8.9% (n = 39) who claimed they could. All listed responses are correct except breast sore (Table 7).

Table 7: Identification of affected victim

Responses	Number of participants (%)
Pap-Smear test result	2 (.5)
Abnormal and offensive vaginal discharge/Irritation of the vagina.	4 (.9)
Discomfort or pain during sex	6 (1.4)
Abnormal vaginal bleeding	9 (2.1)
Longer menstrual period	2 (.5)
Breast sore and loss of weight	6 (1.4)
Abnormal abdominal pains	3 (.7)
Blood in stool and urine/Vomiting and stooling	7 (1.6)
N/A	397 (91.1)

Cervical cancer prevention

About 70.4% (n = 307) of the women think cervical cancer is preventable.

Protection against Cervical cancer disease

About 61.7% (n = 269) of the women do not know what protects a woman from cervical cancer. All the listed responses are correct except; Avoid the use of medicated soap and Washing the vagina with hot water, salt and Dettol (Table 8).

Table 8: Protection against Cervical Cancer

Listed Responses	Number of Participants (%)
HPV Vaccine	21 (4.8)
Faithfulness to one sex partner	55 (12.6)
Safe sex practice / Abstinence	34 (7.8)
Avoid early sex / Teenage marriage	17 (3.9)
Avoid smoking / Alcohol	18 (4.1)
Early detection of the disease	19 (4.4)
Regular screening check-up	58 (13.3)
Frequent cleaning of the vagina	37 (8.5)
Building healthy immune system	11 (2.5)

Listed Responses	Number of Participants (%)
Avoid oral contraceptive pills	7 (1.6)
Hysterectomy	1 (.2)
Avoid the use of medicated soap	3 (.7)
Health Education	10 (2.3)
Washing the vagina with hot water, salt and Dettol	5 (1.1)
Do not know	269 (61.7)

Cervical cancer can lead to death.

About 86% (n = 375) of the women agreed that cervical cancer could lead to death.

Knowledge about cervical cancer screening

Nearly half of the women, 49.8% (n = 217) said they have not heard about cervical cancer screening program.

Attendance to a cervical screening program

More than three-fourth (¾) of the women, 85.3% (n = 372) reported not to have attended a cervical cancer screening program.

Reasons for not participating in screening programs.

Table 9 shows the responses of women with regards to what prevents them from participating in screening programs. Though the women highlighted other factors, lack of information and awareness of the disease stood out with >60% responses (69.7% n = 304).

Table 9: Reasons for not participating in Screening Programs.

Listed preventions	Number of participants (%)
Lack of money / High charges	97 (22.0)
Lack of information/awareness	304 (69.7)
Lack of time	55 (12.6)
Distance / not knowing screening location	82 (18.8)

Listed preventions	Number of participants (%)
Inadequate medical facility	12 (2.8)
Illiteracy	36 (8.3)
Fear of unknown outcome	21 (4.8)
Shame or fear of being seen / No confidentiality.	17 (3.9)
Cultural/religious belief on supernatural healing	10 (2.3)
Screening by male HC professional	10 (2.3)
Poor health policy by the government	19 (4.4)
Stigma	13 (3.0)
Lack of feedback of previous screening	21 (4.8)
Do not know	66 (15.1)

Suitable test for cervical cancer diagnosis

From table 10, it could be deduced that most of the women, about 57.6% (n = 251) do not know that Pap-Smear test is the suitable test for cervical cancer diagnosis.

Table 10: Suitable test for Cervical Cancer diagnosis

Responses	Number of participants (%)
Pap-Smear test	181 (41.5)
Blood test	118 (27.1)
HIV test	14 (3.2)
Not sure	119 (27.3)
Prefer not to say	4 (.9)

Knowledge of cervical screening clinics

Participant's response in table 11 showed that more than half of the women, 64% (n = 279) have not heard of any cervical screening clinic.

Table 11: Heard of clinics that do cervical screening test?

Responses	Number of participants (%)
Yes	125 (28.7)
No	279 (64.0)
Not sure	29 (6.7)
Prefer not to say	3 (.7)

CCA and screening information and where it was received

Nearly half of the women, 44.5% (n = 194) indicated that they have not received any information about cervical cancer and its screening. About 20% (n = 87) of the women who received information said they got it through an awareness campaign and 18% (n = 80) from hospital/health care centre as seen in Table 12.

Table 12: Where Information was received

Responses	Number of participants (%)
Hospital/Health centre	80 (18.4)
Awareness campaigns	87 (20)
Social/Mass Media	42 (9.6)
Others[11]	13 (3.0)
No information yet	194 (44.5)
Not sure	16 (3.6)
Prefer not to say	4 (0.9)
Total	436 (100)

[11] Community meetings, friends, academic research, church meetings, conferences and an NGO named Life Above Poverty Organization (LAPO).

4.8.3 Section C – Perceived Susceptibility, Severity, Benefits and Barriers

This section refers to questions asked to determine the women's likelihood of getting the disease, their perception of disease severity, benefits, and barriers to screening. The adopted four constructs of the HBM were examined in this section.

Likelihood of contracting cervical cancer (Perceived Susceptibility)

In table 13, it could be seen that most of the women, about 31.2% (n = 136) and 17% (n = 74) respectively, think they are "very likely" or "like" to get the disease. However, 17.9% (n = 78) were not sure of their susceptibility as more than ½ of the women, about 50.9% (n = 222) perceive themselves to be less susceptible to cervical cancer.

Table 13: Participant's perception of contracting Cervical Cancer.

Responses	**Number of participants (%)**
Very likely	136 (31.2)
Likely	74 (17.0)
Less likely	66 (15.1)
Not likely	82 (18.8)
Undecided	78 (17.9)
Perceived Susceptibility	**Number of participants (%)**
Low Susceptibility	222 (50.9)
High Susceptibility	214 (49.1)
Total	436 (100.0)

Believe in Cervical cancer as a severe disease.

About 57.6% of the women (n = 251) strongly agree that cervical cancer is deadly, as seen in table 14. Also, more than ½ of the women, about 58.5% (n = 255) perceive the disease outcome to be highly severe.

Table 14: Severity of the disease

Responses	Number of participants (%)
Strongly agree	251 (57.6)
Agree	148 (33.9)
Disagree	10 (2.3)
Strongly disagree	2 (.5)
Neither agree nor disagree	25 (5.7)
Perceived Severity	**Number of Participants (%)**
Low Severity	181 (41.5)
High Severity	255 (58.5)
Total	436 (100.0)

Knowledge of Pap-Smear test and its benefits

About, 57.1% (n = 249) of the women reported that they have no knowledge of the Pap-Smear test, as shown in table 14. About 68.1% (n=297) of the women thought that the Pap-Smear test helps in early disease detection which leaves a total percentage of about 31.9% (n = 139) who claimed not to have knowledge of its benefit (Table 15 and 16).

Table 15: Knowledge of Pap-Smear test

Responses	Number of participants (%)
Yes	161 (36.9)
No	249 (57.1)
Not sure	26 (6.0)

Table 16: Perceived Benefit of Pap-Smear test

Responses	Number of participants (%)
Early disease detection	297 (68.1)
For family planning	22 (5.0)
Prevents HIV	4 (.9)

Not sure	107 (24.5)
Prefer not to say	6 (1.4)

Perceived Benefit (Pap-Smear)	**Number of Participants (%)**
Do not Know	139 (31.9)
Early Disease Detection	297 (68.1)
Total	436 (100.0)

Access to the nearest cervical screening clinic

More than half of the women, 76.4% (n = 333) have not attended a cervical screening clinic. Among the 20% (n = 87) that have attended, about 16.5% (n = 72) said they assessed the clinic through public transport, as seen in table 17.

Table 17: Access to the nearest screening clinic

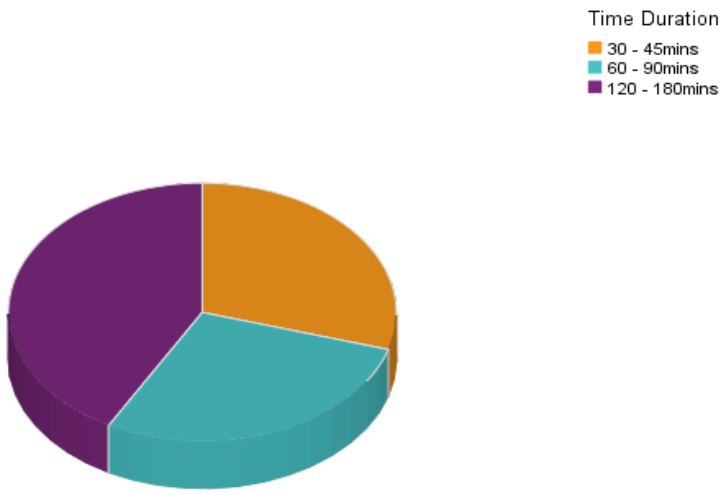
Responses	**Number of participants (%)**
Have not attended one	333 (76.4)
Public transport	72 (16.5)
Private transport	15 (3.4)
Prefer not to say	16 (3.7)
Total	436 (100.0)

Attendance to screening clinic if available

Most of the women, about 89% (n = 388) expressed willingness to attend a screening clinic if made available locally.

Time duration to a cervical cancer screening centre

The pie chart in Figure 24 denotes that most of the women, 81.42% (n = 355), have not attended a screening clinic, so this question does not apply to them. Among the 18.58% (n = 81) that have attended screening, ≈8% (n = 34) said it took them 120 to 180mins (2-3 hours) to get to the nearest screening clinic.



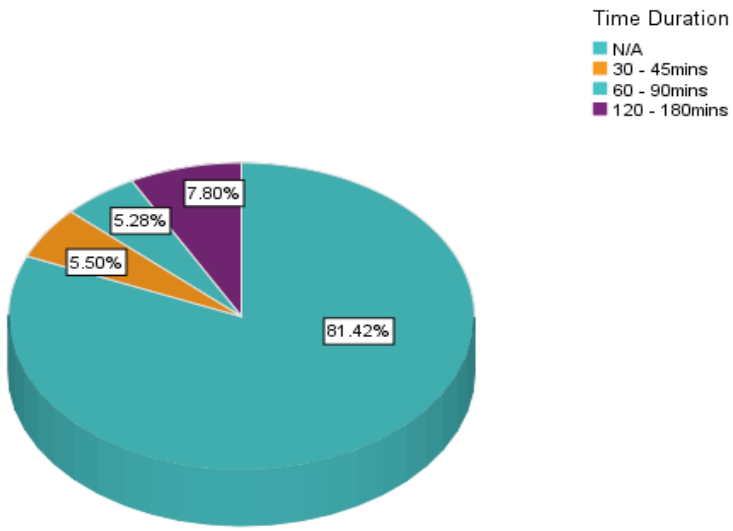


Figure 24: Time duration to Cervical Cancer screening centre.

(Developed by Researcher, SPSS).

Perceived barriers to screening.

The major barriers to screening highlighted by the women were, lack of money (86% n = 375), lack of information/awareness (85.8% n = 374), screening location is far (74.5% n = 325) and lack of knowledge of where screening is done (61.7% n = 269) as seen in table 18.

Table 18: Perceived Barriers to screening

Responses	**Number of participants (%)**	
	Yes	**No**
Lack of money	375 (86.0)	61 (14.0)
Screening location is too far	325 (74.5)	111 (25.5)
Fear of being seen at screening centre	132 (30.3)	304 (69.7)
Lack of information / awareness	374 (85.8)	62 (14.2)
Religion forbids it	31 (7.1)	405 (92.9)
Culture forbids it	39 (8.9)	397 (91.1)
Lack of time	167 (38.3)	269 (61.7)
Do not know where screening is done	269 (61.7)	167 (38.3)
Screening is done by a male HC professional	102 (23.4)	334 (76.6)
Doctors are mean	62 (14.2)	374 (85.8)
I think it will be painful	78 (17.9)	358 (82.1)

4.8.4 Cross Tabulation Analysis

Awareness of Cervical Cancer and Influence on Screening Participation

Only 2.3% of the women who are aware of cervical cancer have attended a cervical screening program, as seen in table 19. However, the Chi-square test result revealed strong statistical evidence of the relationship between the two variables, which means women who are aware of cervical cancer were more likely to attend a screening program. Likewise, women who attended a screening program are more likely to be aware of the disease *(X^2 value =16.119, df = 1, p <.001).*

Table 19: Awareness of cervical cancer disease and Influence on screening participation

		Awareness of CCA Disease (%)	
		Others[12]	**Yes**
Attendance to a CCA program (%)	**Others**[13]	169 (38.8)	226 (51.8)
	Yes	31 (7.1)	10 (2.3)
	Total	200 (45.9)	236 (54.1)

Chi-Square Tests

	Value	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.119[a]	.000

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 18.81.
b. Computed only for a 2x2 table

Marital Status and Influence on Screening Participation

Table 20 shows that only 8.3% (n = 30) of the women who have attended a screening program were married. Findings from the fisher's exact test reveal a strong statistical significance of the relationship between the two variables *(p <.001)*. Therefore, married women are more likely to attend a screening program, and those who attended a screening program are more likely to be married.

Table 20: Relationship between Marital status and Attendance to CCA screening program

		Marital Status (%)	
		Others[14]	**Married**
Attended CCA program (%)	Others[15]	0(0.0)	395(90.6)
	Yes	5(1.1)	36(8.3)
	Total	5 (1.1)	431 (98.9)

Chi-Square Tests

	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test	**<0.001**	**<0.001**

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .47.
b. Computed only for a 2x2 table

[12] Grouped response outcome for No, Not sure and Prefer not to say
[13] Grouped response outcome for No, Not sure and Prefer not to say
[14] Others include Single, Divorced/Separated, Widowed and Prefer not to say
[15] Grouped response outcome for No, Not sure and Prefer not to say

Educational Level and Identification of Affected Victims

Table 21 showed that only 8% (n = 35) of educated women could identify an affected victim. Chi-square test analysis showed a strong statistical significance of the association between the variables *(X^2 value =11.960, df = 1, p = .001)*. The above finding means that educated women were more likely to identify an affected victim. Likewise, women could identify an affected victim are more likely to be educated.

Table 21: Association between Educational Level and Identification of affected victim

		Educational Level	
		Educated	**Others**[16]
Identification of affected victim	**Yes**	35(8.0)	4(0.9)
	No	246 (56.4)	151(34.6)
	Total	281 (64.4)	155 (35.6)

Chi-Square Tests

	Value	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	11.960a	.001

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.86.
b. Computed only for a 2x2 table

Occupation and Willingness to Attend Screening If Available

About 5.3% (n = 23) and 5.7% (n = 25) of the women who work as teachers and traders respectively said they were unwilling to attend screening even if, it is made available to them as seen in Table 22. The likelihood ratio test revealed a strong statistical evidence of the relationship between the variables *(X^2 value = 202.413, df = 4, p <.001)*. Although the selected variables are associated, women who are civil servants were more likely to attend screening if made available to them.

[16] No Education and Prefer not to say response

Table 22: Relationship between Occupation and Willingness to attend available screening

		Willingness to attend available screening	
		No	**Yes**
Occupation	Others[17]	0(0.0)	89(20.4)
	Civil servant	0(0.0)	177(40.6)
	Housewife	0(0.0)	84(19.3)
	Trader	25(5.7)	38(8.7)
	Teacher	23(5.3)	0(0.0)
	Total	48 (11.0)	388 (89.0)
		Chi-Square Tests	
	Value	**Asymptotic Significance (2-sided)**	
Likelihood Ratio	217.694	<0.001	

a. 1 cell (10.0%) has expected count less than 5. The minimum expected count is 2.53

Age and Knowledge of Direct Perceived Benefit

The knowledge of Pap-Smear test as a diagnostic measure that helps in early detection of cervical cancer was more among women aged 18 - 28 years (35.3% n = 154). Chi-square analysis, as seen in Table 23, revealed strong statistical evidence of the association between the two variables *(X^2 value = 56.066, df = 2, p <.001).* The above finding means that women who knew about the Pap-Smear test's benefit were more likely to be between 18 - 28 years. Likewise, women between 18 – 28 years were more likely to know about the benefits of the Pap-Smear test.

Table 23: Association between Age and Knowledge of Direct Perceived Benefit

		Age of Participants		
		18 – 28	**29 - 39**	**Above 39**
Perceived Benefit (Pap-Smear test)	**None**	0(0.0)	0(0.0)	26(6.0)
	Early Disease Detection	154(35.3)	138(31.7)	118(27.1)
	Total	154 (35.3)	138 (31.7)	144 (33.0)
		Chi-Square Tests		
	Value	Asymptotic Significance (2-sided)		
Pearson Chi-Square	56.066[a]	<0.001		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.23.

[17] Chemist, Farmers, Nurses, Students, Bankers, Caterers, lab technicians, Public Health officers and Health Nutritionist

Relationship between Religion and Perceived Screening Barriers

The likelihood ratio results, as seen in table 24, shows that there is strong statistical evidence of the relationship or association between Religion and Perceived Barriers to Screening *(p <.001).* The above means that both variables influenced each other.

Table 24: Relationship between Religion and Perceived Barriers to screening

Perceived Barriers* [18] **Religious Background**	**Likelihood Ratio**[19]		
	Value	**df**	**Asymptotic Significance (2-sided)**
Lack of Money*	280.147	5	<0.001
Screening location is too far*	324.009	5	<0.001
Fear of being seen at screening centre*	325.922	5	<0.001
Lack of information*	285.789	5	<0.001
Religion forbids it*	155.039	5	<0.001
Culture forbids it*	180.927	5	<0.001
Lack of time*	333.579	5	<0.001
Do not know where screening is done*	333.579	5	<0.001
Screening is done by a male care professional*	333.580	5	<0.001
Doctors are mean*	285.789	5	<0.001
I think it will be painful*	409.596	5	<0.001

4.8.5 Logistic Regression Analysis

Table 25 shows all the steps adopted in carrying out the logistic regression analysis between awareness of cervical cancer and selected socio-demographics. The result, as seen in the last table (25D) showed that there is a relationship between the dependent variable (Awareness) and two of the independent variables, Educational level, and Marital status *(p <.001).* The above result means that awareness of cervical cancer was predicted by educational level (refers to educated

[18] Listed Perceived Barrier variables are related to Religious background
[19] Likelihood ratio was used because all cells in the analysis were >20% with expected count less than 5

women) and marital status (refers to married women). However, educational level was more significant.

From Table 25D:

1. It was observed that the odds of being aware of cervical cancer among ISN rural women that have a religious background and those who do not, were the same (OR = 1.908, 95% CI: .628 – 5.801) and the variables were not statistically significant (p = .255).
2. However, awareness of cervical cancer was predicted by educational level and had higher odds of outcome >1 and thus showed a positive association which means that as the women's educational level increases, the odds of being aware of cervical cancer increases too. It was observed that the odds of being aware of cervical cancer among ISN rural women, was four times more among educated women than uneducated women (OR = 4.055, 95% CI: 2.661-6.179) and was statistically significant (p =<.001).
3. Likewise, cervical cancer awareness among ISN rural women was predicted by their marital status, but with lower odds of outcome <1, which shows a negative association. The above means that married women have a 57% (1 – 0.43 = 0.57 (57%)). lower chance of being aware of cervical cancer (OR = .43, 95% CI: .282 -.681). The result was statistically significant (p = <.001).

Table 25: Logistic Regression between Awareness of cervical cancer and Socio-demographics (Marital status, Education and Religion).

A) Reference Category Table

		Frequency and Parameter coding[20]
Religious Background	Have a Religious Background	420 (1)
	No Religious Background	16 (0)
Educational level	Educated	193 (1)
	Not Educated	243 (0)
Marital Status	Married	287 (1)
	Not Married	149 (0)

B) Relationship between awareness of cervical cancer and each selected socio-demographics (A Univariate Analysis)

		Sig.	**Odds Ratio (OR)**	**95% C.I. for OR**	
				Lower	**Upper**
Step 1[a]	**Married**	.019	.620	.416	.923
	Constant	.368	1.159		
Step 1[a]	**Educated**	<0.001	3.349	2.256	4.973
	Constant	<0.001	.491		
Step 1[a]	**Have a religious background**	.496	1.431	.511	4.008
	Constant	.323	.600		

[20] Parameter coding are in brackets

C) Relationship between awareness of cervical cancer and considered socio-demographics (Multivariate Analysis - Backward stepwise method)

		Sig.	Odds Ratio (OR)	95% C.I.for OR	
				Lower	Upper
Step 1[a]	**Educated**	**<0.001**	**4.110**	2.693	6.273
	Have a religious background	.255	1.908	.628	5.801
	Married	**<0.001**	**.429**	.276	.668
	Constant	.125	.416		
Step 2[a]	**Educated**	**<0.001**	4.055	2.661	6.179
	Married	**<0.001**	.438	.282	.681
	Constant	.150	.771		

D) A Multivariate Analysis between Awareness of cervical cancer and only the Significant variables

		Sig.	Odds Ratio (OR)	95% C.I. for OR	
				Lower	Upper
Step 1[a]	**Marital Status**	<0.001	.438	.282	.681
	Educational level	<0.001	4.055	2.661	6.179
	Constant	.150	.771		

4.8.6 Bivariate Correlation Analysis

Correlation between Perceived Susceptibility and Age

The result, as seen in table 26 shows a positively strong relationship between the variables which means that as one variable increases (age), the other (perceived susceptibility) increases as well (rho = 0.580, *p* <.001).

Table 26: Bivariate Correlation between Perceived Susceptibility and Age

			Perceived Susceptibility	**Age**
Spearman's rho	**Perceived Susceptibility**	Correlation Coefficient	1.000	.580**
		Sig. (2-tailed)	**.**	**<0.001**

**Correlation is significant at the 0.01 level (2-tailed).

Correlation between Age, Educational Level and Perceived Severity

As seen in Table 27, the result revealed a positive correlation between Perceived Severity and the independent variables, Age and Educational level. Age had a more positively strong statistical relationship with Perceived Severity (tau_b = .765, *p* <.001) than Educational level (tau_b = .244, *p* <.001).

Table 27: Correlation between Age, Educational level, and Perceived Severity

			Perceived Severity	Age	Educational Level
Kendall's tau_b	**Perceived Severity**	Correlation Coefficient	1.000	.765**	.244**
		Sig. (2-tailed)	.	**<0.001**	**<0.001**
	Age	Correlation Coefficient	.765**	1.000	.117**
		Sig. (2-tailed)	**<0.001**	.	.005
	Educational Level	Correlation Coefficient	.244**	.117**	1.000
		Sig. (2-tailed)	**<0.001**	.005	.

**Correlation is significant at the 0.01 level (2-tailed).

4.8.7 Cross Tab and Bivariate Correlation Analysis

The result from the analysis in table 28 shows that only 9.4% (n = 41) of the women have attended a screening program of which it took a maximum of 3 hours to get to a screening clinic. Spearman's test result shows a very strong positive relationship between Distance and Attendance to screening program (rho = 0.720, *p* <.001).

Table 28: Cross-Tab and Correlation between Distance and Attendance to Screening Program

		Attendance to CCA Screening Program	
		Others[21]	**Yes**
Time Duration	**N/A**[22]	355(81.4)	0(0.0)
	30 - 45mins	24(5.5)	0(0.0)
	60 - 90mins	8(1.8)	15(3.4)
	120 - 180mins	8(1.8)	26(6.0)
	Total	395 (90.6)	41 (9.4)

			Attendance to CCA Screening Program	**Time Duration**
Spearman's rho	**Attendance to CCA Screening Program**	Correlation Coefficient	1.000	.720**
		Sig. (2-tailed)	.	<0.001
	Time Duration	Correlation Coefficient	.720**	1.000
		Sig. (2-tailed)	<0.001	.

**. Correlation is significant at the 0.01 level (2-tailed).

[21] Grouped Outcome Response for No, Not sure and Prefer not say

[22] Not Applicable because the women in that category have not attended screening, were not sure if they have or prefer not to say

4.9 Discussion

This study recruited only women ≥18 years. About 35% of the women between 18 - 28 years participated more in the study (M = 35.62, SD = 13.1). Most of the women who took part in the study were married (65.8%), educated (63.5%) and worked as civil servants (41%). The women were predominantly Christians and belonged mostly to either Pentecostal (41.3%) or Roman Catholic (40.8%).

Awareness/Knowledge of Cervical cancer

This study's finding showed that most of the women have heard of cervical cancer (≈54%). The result was surprising to note from women who live in rural settings with little or no access to healthcare services and thus contradicts the findings from previous studies were the women reported not to have heard of the disease (Eze, et al., 2012; Ndikom and Ofi, 2012; Simayi, et al., 2013; Ukpo, 2013; Akinlaja and Anorlu, 2014; Siddharthar, Rajkumar and Deivasigamani, 2014; Ebu, et al., 2015; Arora, et al., 2017; Abiodun, et al., 2017; Ifediora and Azuike, 2018; Agui, et al., 2020; Reichheld, et al., 2020). The increased awareness of cervical cancer amongst ISN rural women explains why most of them knew that the disease affects only women (≈60%) and can also be prevented (≈70%). It could be inferred that Imo State women are aware that they are the main target of the disease and will, therefore adopt measures to prevent it. Though the above findings corroborate with that of previous studies (Goyal, et al., 2013; Kei, et al., 2016; Oluwole, et al., 2017), they are relatively high compared to that of a previous Nigerian study, also carried out among South-East rural women in a different state, were only ≈38% and ≈32% respectively reported that cervical cancer affects only women and is preventable (Eze, et al., 2012). Therefore, more awareness programs need to be done in the South-East region to empower the women into taking responsibilities about their health needs and ensure uniformity of awareness within the region as the disease is highly preventable (Ukpo, 2013; Oluwole, et al., 2017).

Marital status and education were the two main socio-demographics observed to influence cervical cancer awareness among ISN rural women. It was observed that married women have about 57% lower chance of cervical cancer awareness (OR = 0.43). Previous study findings have recorded significant association between marital status and awareness of cervical cancer of which their finding is consistent with that of this study (Assoumou, et al., 2015; Kasa, Tesfaye and Temesgen, 2018) but is in contrast with other studies where the authors observed no relationship between awareness of the disease and marital status (Oluwole, et al., 2017; Eze, Obiebi and Umuago, 2018). The above is a huge revelation coming from a rural setting which is assumed to have certain belief systems that prohibit the women from knowing about the disease such as having the men make decisions regarding the woman's health and utilization of healthcare services (Darj, Chalise and Shakya, 2019). Similarly, it was observed that the odds of cervical cancer awareness was four times more among educated women than uneducated women (OR = 4.05), which implies that there is a simultaneous increase between the women's educational level and awareness of cervical cancer as observed in other studies (Metwali, et al., 2015; Eze, Obiebi and Umuago, 2018; Mehraban, Namdar and Naghizadeh, 2018; Okunowo, et al., 2018; Aldohaian, Alshammari and Arafah, 2019). However, this result contrasts with that of previous studies were the authors observed that educated women lack adequate information about the disease (Abotchie and Shokar, 2009; Ogbonna, 2017). Report from previous Nigerian and Ghanaian studies have recorded that, the lack of knowledge of cervical cancer was high among those with a non-medical background such as clinic attendees; rural women or commercial sex workers, as compared to health professionals and undergraduates (Ezem, 2007; Abotchie and Shokar, 2009). The above was not the case in this study as most of the participants were civil servants (≈41%) from health and non-health backgrounds which make this study's findings unique.

Awareness/Knowledge of Cervical screening

Only ≈41% of the women have heard about cervical cancer screening; 50% have not heard of screening programs; 61.7% do not know what protects a woman against cervical cancer while 85% were yet to attend a cervical screening program. The above findings show that ISN rural women lack knowledge of cervical cancer screening and its preventive measures as also observed from previous Nigerian studies (Ezem, 2007; Eze, et al., 2012). It could therefore be inferred that the implemented strategy and the efforts made by the government to reduce the rate of the disease and increase screening participation with regards to the provision of locally available screening clinics have not been successful as most of the women were yet to go for cervical screening or attend a screening clinic. It is obvious from the above findings that low attendance to screening is as a result of lack of knowledge compared to developed countries where optimal screening practices have resulted to a significant reduction in the incidence and prevalence of cervical cancer (Gaffikin, et al., 2004; Gakidou, Nordhagen and Obermeyer, 2008; Ebu, et al., 2015; Sowemimo, Ojo and Fasubaa, 2017). This is also affirmed by a study carried out in England which highlights that >80% and >70% of the women respectively, have had at least one Pap-Smear test and regular smears every 3-5 years as cited by Kei, et al., (2016).

Women in this study lack knowledge of where screening is done as 62% were yet to receive cervical cancer-related information, while 64% have not heard of any screening clinic. The above findings are in accordance with that of previous studies were the women also showed lack of knowledge of where screening is done (Al-Naggar, Low and Isa, 2010; Eze, et al., 2012; Yanikkerem, et al., 2012; Aldohaian, Alshammari and Arafah, 2019; Eshetu, et al., 2019). A study carried out among Turkish married women suggests that cervical cancer screening programs should not only provide information regarding the disease and screening but also provide adequate information of where screening services are offered. The above suggestion was because the authors observed that women who lacked knowledge of where a Pap-Smear test was done were four times more likely not to have one (Esin, Bulduk and Ardic, 2011).

A different study carried out in Nigeria showed that >80% of the participants have knowledge of at least one screening centre, but uptake was low which contrasts with this study's finding (Arulogun and Maxwell, 2012). The above finding could be attributed to the fact that participants are nursing students who have more knowledge and access to cervical cancer-related information (Udigwe, 2006), compared to the women in this study as it is believed that cervical cancer screening services are only for the educated (Eze, et al., 2012; Ndikom and Ofi, 2012). In view of the above findings, intervention programs in Imo State should include awareness of cervical cancer and its screening measures, including available screening clinics as this will ensure that the women are well informed to make the necessary decisions about their health.

Further analysis shows that ≈91% of the women who are yet to attend a screening program were married. A significant relationship was, therefore observed between marital status and attendance to screening. It is possible that the women were not comfortable to be screened by male health practitioners as some cultures forbid a woman from exposing her sexual part to a man who is not her husband (Holroyd, Twinn and Adab, 2004; Anorlu, 2008; Ansink, et al, 2008; Nwankwo, et al., 2011; Oon, et al., 2011; Al-Naggar, 2012; Jassim, Obeid and Al Nasheet, 2018; Aldohaian, Alshammari and Arafah, 2019; Eshetu, et al., 2019). However, some of the above studies mentioned this among the less common barriers highlighted by the women, which was also the case in this study as only 23.4% of the women viewed this as a barrier. Similar findings were also observed in a previous Nigerian study were only 1.8% of them highlighted this as a barrier (Ukpo, 2013). Therefore, it could be inferred that a male health worker's presence during cervical screening is not an issue for Imo State women.

Similarly, previous study findings showed that women did not attend screening because their partners did not support or encourage them (Al-Naggar, Low and Isa, 2010; Yanikkerem, et al., 2012; Hoque, et al., 2014). The above assertion cannot be attributed to the women in this study because the study did not inquire more as to what prevents "married women" from attending

screening; however, cervical cancer is a disease that affects a woman's reproductive organ and may cause painful sexual intercourse which could invariably cause problems between married couples (Duran, 2011). Though the reason for lack of screening among married women in this study is still unknown, healthcare providers need to work closely with partners of these women during screening programs as this will help increase screening utilization among their female partners (Agurto, et al., 2004; Arulogun and Maxwell, 2012). A Ugandan study affirms the above and further reports that women whose spouse were involved in screening, were more likely to come back for future screening than women whose spouses were excluded (Mutyaba, et al., 2009).

Influence of Cervical cancer awareness on screening participation

Only 4.2% who have heard about cervical cancer said they had been screened. However, it was observed that about 15.5% of the women who reported not to have heard of the disease said they have also been screened which seems surprising as it was expected that the women are first made to understand the disease before consenting to screening. Based on the above finding, it is, therefore, possible that the women were offered cervical screening as an opportunistic screening when there is an indication for it but without any detailed explanation about the disease for which they are being screened for (Al-Naggar and Isa, 2010; Kolawole, 2012; Camilloni, et al., 2013; Hariprasad, et al., 2017). On another note, the response to the question may also be due to chance. Nonetheless, this study's findings showed that the likelihood of attending a cervical cancer screening program depends on how knowledgeable the women are about the disease. This result was unexpected and revealed that cervical cancer awareness impacts screening participation as both variables were statistically significant, thus answering the first research question of this study. However, this finding differs from that of a previous Nigerian study were awareness of the disease and screening participation were not significantly associated (Oluwole, et al., 2017) but is consistent with that of previous studies which revealed that the more knowledgeable women are about cervical cancer, the more likely

they are to attend a screening program (Ndikom and Ofi, 2012; Bayu, et al., 2016; Ogbonna, 2017). It is possible that the women did not participate in screening programs because their local health centres did not offer it nor was it among the routine health talks provided to them during their frequent clinic visits as reported by previous studies (Mupepi, Sampselle and Johnson, 2011; Ndikom and Ofi, 2012). The above view was also affirmed by later studies conducted in Nigeria and Ethiopia which report that the women cannot do anything about the disease if they have no knowledge of it and its preventive measures (Ukpo, 2013; Eshetu, et al., 2019). To increase screening attendance among ISN rural women, awareness programs should be routinely provided in the available local health clinics during the women's regular visit and not only when they attend screening clinics as studies have shown that most women frequently visit the healthcare centres but do not get the necessary information relating to the disease (Ndikom and Ofi, 2012).

Knowledge of Cervical cancer risk factors and symptoms

Approximately, 92% and 52% of the women in this study, have no knowledge of cervical cancer risk factors and symptoms, respectively, which explains why >90% of the women could not identify an affected victim. The above findings are in accordance with that of previous studies and means that ISN rural women lack knowledge of cervical cancer disease (Denny-Smith, Bairan, and Page, 2006; Abotchie and Shokar, 2009; Duran, 2011; Eze, et al., 2012; Ndikom and Ofi, 2012; Ukpo, 2013; Marlow, Waller and Wardle, 2015; Kei, et al., 2016; Mulatu, et al., 2017; Ogbonna, 2017; Oluwole, et al., 2017; Okunowo, et al., 2018; Marlo, et al., 2019). Based on the above findings, things that might help change the women's behaviour is low. Therefore, cervical cancer-related intervention and educational programs are highly recommended in Imo State to help enlighten these women on the risk factors and symptoms of the disease. The women need to know about the HPV, and its role as the main causative agent of the disease as this information will further reduce the spread of sexually transmitted HPV infections (Ingledue, Cottrell and Bernard, 2004; Al-Naggar, Low and Isa, 2010; Ukpo, 2013).

Only 8% of the women in this study who were educated to a certain level could identify the disease symptoms in an affected victim. Therefore, a significant association was observed between the women's educational level and identification of an affected victim. The above result further portrays the low awareness of the disease and its screening in Imo State, which calls for urgent attention. Awareness of the disease within the school environment, therefore needs to be intensified. Findings from previous studies support this and reports that institutional-based health workshops, reproductive health courses and different campaigns using flyers and posters need to be carried out within the learning environment by health educators, and possibly inculcated into the school curriculum (Ingledue, Cottrell and Bernard, 2004; Denny-Smith, Bairan, and Page, 2006; Al-Naggar, Low and Isa, 2010; Arulogun and Maxwell, 2012; Mulatu, et al., 2017; Ogbonna, 2017; Ifediora and Azuike, 2018).

Attitude to screening

Majority of the women in this study have a positive attitude to screening which is consistent with findings from previous studies (Abotchie and Shokar, 2009; Eze, et al., 2012; Mulatu, et al., 2017; Ogbonna, 2017). The above result was confirmed by 89% of the women as they expressed willingness to attend a screening clinic if made available to them. This finding is unexpected but could be attributed to the increased awareness of cervical cancer among these women. It is also possible that this increased desire to know about cervical screening was because it is not routinely offered at the health centre nearest to the women as indicated in a previous Zimbabwean study (Mupepi, Sampselle and Johnson, 2011). Therefore, it is imperative that the Nigerian government ensures that this positive attitude to screening among the women does not wane off. Culturally acceptable service that is accessible and affordable will result in a more positive attitude to screening (Eze, et al., 2017). More so, the government ought to lay emphasis on the importance of screening as this will help build the women's trust in their health and that of the healthcare system (Mulatu, et al., 2017; Aldohaian, Alshammari and Arafah, 2019).

Determinant factors that influence screening participation

Occupation was observed to be a determinant factor that influenced screening participation among rural women in Imo State. Most of the women who expressed willingness to attend screening were civil servants (Government employed) who are often viewed as low-income earners, thus explaining the high poverty level amongst the rural population (Eze, et al., 2012). Therefore, it could be inferred that the lack of knowledge and low attendance to screening programs is related to poverty as willingness to participate in screening was more among women with low income. The above result is supported by findings from previous studies which reports that women's occupational status most times determines their awareness level and financial capability to assess healthcare services (Anorlu, 2008; Oluwole, et al., 2017). A previous Nigerian study reports that women with low income depend on their husbands for financial support; therefore, sexual promiscuity becomes inevitable if that support is not forthcoming which often leads to short and long-term cervical cancer-related risks (Eze, et al., 2012). Poverty is endemic in developing countries and a significant barrier to the prevention of cervical cancer which explains why it is viewed as the disease of *poverty* or that of *poor women*, that needs to be seriously addressed (Anorlu, 2008).

Likewise, distance to a screening clinic was another factor that influenced screening participation among ISN rural women (rho = 0.720, p <.001). More than one-third of the women who have already accessed screening reported that it took them about 120-180mins (2-3 hours) to get to the nearest screening clinic, thus explaining why ≈76% were yet to attend screening. Findings revealed that as distance to the screening location increases, the rate of non-attendance to screening programs increases as well. In other words, the increase or decrease in attendance to a screening program depends on how close the location is to the women. This result is consistent with findings from previous studies where distance was observed to be a barrier to screening (Mupepi, Sampselle and Johnson, 2011; Oon, et al., 2011). However, this was not an issue in Oon and Co's study because the women had easy access to transportation

which was not the case in this study. Nevertheless, bringing the screening centre(s) closer to the women would help reduce transportation cost and increase screening participation among Imo State women.

Information dissemination

ISN rural women were informed about cervical cancer through awareness campaigns and hospitals/health centres. The percentage of response was very low (20% and ≈18% respectively), which means that the approaches mentioned above have only been successful to an extent. These methods have also been adopted in previous studies (Nnodu, et al., 2010; Al-Naggar, 2012; Ukpo, 2011; Goyal, et al., 2013; Cetisli, Dila and Işık, 2016; Mehraban, Namdar and Naghizadeh, 2018; Aldohaian, Alshammari and Arafah, 2019). It is interesting to note that despite technological advancement and improvement of the media and internet as sources of information dissemination, the healthcare providers remain the primary source of information on cervical cancer and its related issues (Eze, Obiebi and Umuago, 2018). The government and healthcare authorities, therefore; needs to put in more effort in equipping the community healthcare providers with the necessary skills that will enable them to disseminate consistent and sustainable disease-related awareness campaigns using various and advanced means of communication (Al-Naggar, Low and Isa, 2010; Miri, et al., 2018; Jassim, Obeid and Al Nasheet, 2018).

Perceived Susceptibility

Surprisingly, although >50% of the women claimed to know that cervical cancer targets mostly women, they did not perceive themselves susceptible to it which calls for concern as every sexually active woman is at risk of contracting the disease (Ukpo, 2013). A South African study revealed that women with high perceived susceptibility were three times more likely to go for cervical screening than those with low perceived susceptibility (Ibekwe, Hoque and Ntuli-Ngcobo, 2010). The above study finding is in contrast with that of previous studies where the

women showed a high level of susceptibility (Abotchie and Shokar, 2009; Ibekwe, Hoque and Ntuli-Ngcobo, 2010), but is consistent with findings from other studies (Ingledue, Cottrell and Bernard, 2004; Denny-Smith, Bairan, and Page, 2006; Esin, Bulduk and Ardic, 2011; Garcés-Palacio and Scarinci, 2012; Ndikom and Ofi, 2012; Demirtas and Acikgoz, 2013; Ukpo, 2013; Yanikkerem, et al., 2012; Marlow, Wardle and Waller, 2015; Pomerai, Muchekez and Nyachowe, 2015; Mehraban, Namdar and Naghizadeh, 2018; Aldohaian, Alshammari and Arafah, 2019; Eshetu, et al., 2019; Gibson, et al., 2019).

This study found a strong positive relationship between age and perceived susceptibility (rho = 0.580, p <.001), which implies that the women's perceived susceptibility to cervical cancer increases with age. The above result is in accordance with previous study findings were participants viewed older women to be at a higher risk of contracting cervical cancer (Ibekwe, Hoque and Ntuli-Ngcobo, 2010; Esin, Bulduk and Ardic, 2011). This view was also supported by a previous Nigerian study which showed that older women were more knowledge of the disease than younger women (Ukpo, 2013). However, this view was perceived differently in a Chinese study where older women believe they are not sexually active and are less susceptible to cervical cancer (Holroyd, Twinn and Adab, 2004). The above finding could be true as sexually active women are more vulnerable to the disease. Nevertheless, it could be inferred in this study that as the women grew older, they became more aware of the dangers posed by the disease, which could be as a result of the increased frequency of consulting a doctor due to some obstetrics and gynaecology reasons (Yanikkerem, et al., 2012).

Knowledge of Perceived Severity

Unexpectedly, ISN rural women understand the severity of cervical cancer disease (≈59%) despite the lack of knowledge of disease risk factors and symptoms. Age and education were two determinant factors that influenced this perception. Therefore, it could be inferred that the conscious awareness of the disease outcome positively influences screening participation which

explains why >80% of the women expressed willingness to attend screening if made available to them. The above findings are in accordance with previous studies that showed high levels of perceived severity among the women (Abotchie and Shokar, 2009; Ukpo, 2013; Pomerai, Muchekez and Nyachowe, 2015; Mehraban, Namdar and Naghizadeh, 2018). However, report from other studies has shown that women perceive the disease outcome to be less severe which is in contrast to the finding in this study (Ingledue, Cottrell and Bernard, 2004; Denny-Smith, Bairan, and Page, 2006; Esin, Bulduk and Ardic, 2011; Eze, et al., 2012; Ma, et al., 2013; Yanikkerem, et al., 2012; Eshetu, et al., 2019; Aldohaian, Alshammari and Arafah, 2019). Nevertheless, the likelihood of taking precautionary measures to prevent cervical cancer will increase if the women understand through health education that they are not only susceptible to the disease, but its outcomes are highly severe (Ukpo, 2013; Mehraban, Namdar and Naghizadeh, 2018).

Knowledge of Perceived Benefits

Findings from this study showed that >50% of the women have knowledge of the Pap-Smear test benefit. However, the above finding was surprising as most of the women also said reported not to have knowledge of the Pap-Smear test, were not aware of cervical screening and have not attended a screening program which further shows that cervical cancer-related strategies in Imo State have not been successful enough.

Imo State women lack knowledge of the significant aspects of cervical cancer such as screening; risk factors, and symptoms which calls for urgent concern. The high knowledge of perceived benefits of the Pap-Smear test among rural women in this study is consistent with that of previous studies (Goyal, et al., 2013; Ma, et al., 2013; Aldohaian, Alshammari and Arafah, 2019). but is in contrast to other study findings were women have shown low knowledge of perceived benefits (Denny-Smith, Bairan, and Page, 2006; Giles and Garland, 2006; Nnodu, et al., 2010; Ukpo, 2013; Demirtas and Acikgoz, 2013; Yanikkerem, et al., 2012; Kei, et al., 2016; Eshetu, et

al., 2019). Increased knowledge of perceived benefits among these women will help reduce the incident and mortality rate of cervical cancer in Imo State. Women will engage in health-seeking behaviours and take immediate action if they perceive that the recommended measures can help detect or prevent them from contracting the disease (Ukpo, 2013; Hoque, et al., 2014).

This study found a relationship between age and perceived benefit. Younger women <28 years were observed to be more aware of the perceived benefits of the Pap-Smear test (≈35%) and thus explains the report from a previous study which suggests that cervical cancer public enlightenment program(s) should target older participants as the younger women are more advanced (Balogun and Omotade, 2018). However, this finding contrasts with that of previous studies were the benefits of the Pap-Smear test were more understood by older women (Yanikkerem, et al., 2012; Aldohaian, Alshammari and Arafah, 2019). Based on this present study's findings, there is an urgent need to increase awareness of the disease's preventive and screening measures across all age groups (Denny-Smith, Bairan, and Page, 2006).

Perceived Barrier(s) to screening

The four main identified barriers to screening highlighted by >50% of the women were: lack of information, lack of money, the distance of screening location and lack of knowledge of screening location. Some other identified barriers with moderate response rate were: Lack of time and Fear of being identified at screening centre. Distance and lack of information repeatedly remain an issue for Imo State women. The above further highlights the lack of an effective implementation strategy in the State. These barriers are relative to those mentioned in previous studies (Holroyd, Twinn and Adab, 2004; Chung, Kim and Kang, 2006; Ezem, 2007; Abotchie and Shokar, 2009; Duran, 2011; Mupepi, Sampselle and Johnson, 2011; Al-Naggar, 2012; Ndikom and Ofi, 2012; Ma, et al., 2013; Ukpo, 2013; Kei, et al., 2016).

Other identified barriers include the unhelpful attitude of healthcare workers; embarrassment; fear of pain; fear of screening result; virginity will be affected; belief in traditional treatment;

fatalistic expressions; male involvement in screening, and perception of women that they are healthy (Oon, et al., 2011; Goyal, et al., 2013; Julinawati, et al., 2013; Yanikkerem, et al., 2012; Pomerai, Muchekez and Nyachowe, 2015; Rasul, Cheraghi and Moqadam, 2015; Jassim, Obeid and Al Nasheet, 2018; Aldohaian, Alshammari and Arafah, 2019; Eshetu, et al., 2019; Marlow, et al., 2019).

Involvement of community stakeholders and the adoption of health education programs to help increase awareness of cervical cancer, screening services, location and nearness of screening centres should be adopted to help curb these perceived barriers and increase screening participation (Mupepi, Sampselle and Johnson, 2011; Al-Naggar, 2012; Kei, et al., 2016; Mulatu, et al., 2017). The possibility of pain leading to fear needs to be acknowledged and relaxation skills need to be taught to enhance the women's trust (Yanikkerem, et al., 2012). The summary of the HBM constructs and the results from this study have been represented in Figure 25.

Belief(s)

This study finding confirmed the presence of some beliefs, although the positive responses were of no significance. Some of the women believed that washing the vagina with medicated soap; hot water; salt, and Dettol (known as 'douching') protects a woman from contracting cervical cancer. Previous study findings revealed that women perceive douching to enhance vaginal hygiene and prevent STD's like cervical cancer (Eshetu, et al., 2019). However, in contrast, douching has been directly associated with high-risk HPV infections (Moscicki, et al., 2013; Bui, et al., 2016) and thus implies that women who douche have a greater likelihood of contracting HPV infection which increases the risk of cervical cancer.

Though there was no relationship between religion and awareness of cervical cancer among the women in this study, it was observed to be associated with perceived barriers. Most of the women in this study were either from a Pentecostal or a Roman Catholic background (≈41% respectively). Therefore, it is likely that their religion has a negative or positive impact on barriers

to screening. Previous studies have shown that women did not participate in screening because of a fatalistic belief that cervical cancer is caused by God/Allah (Duran, 2011; Eshetu, et al., 2019). The above corroborates with the statement from participants in a Kurdish study; *"I always say in God we trust! With this hope, I consider myself to be away from this disease, and I said Insha'Allah God will protect me from this disease. For this reason, I have not been thinking about the test so much." (*Rasul, Cheraghi and Moqadam, 2015*).*

The above beliefs need to be further investigated to help promote and increase screening participation among Imo State women, mostly at the community level. Educational programs centred on cervical cancer awareness will help reduce and correct these beliefs (Agurto, et al., 2004; Ibekwe, Hoque and Ntuli-Ngcobo, 2010).

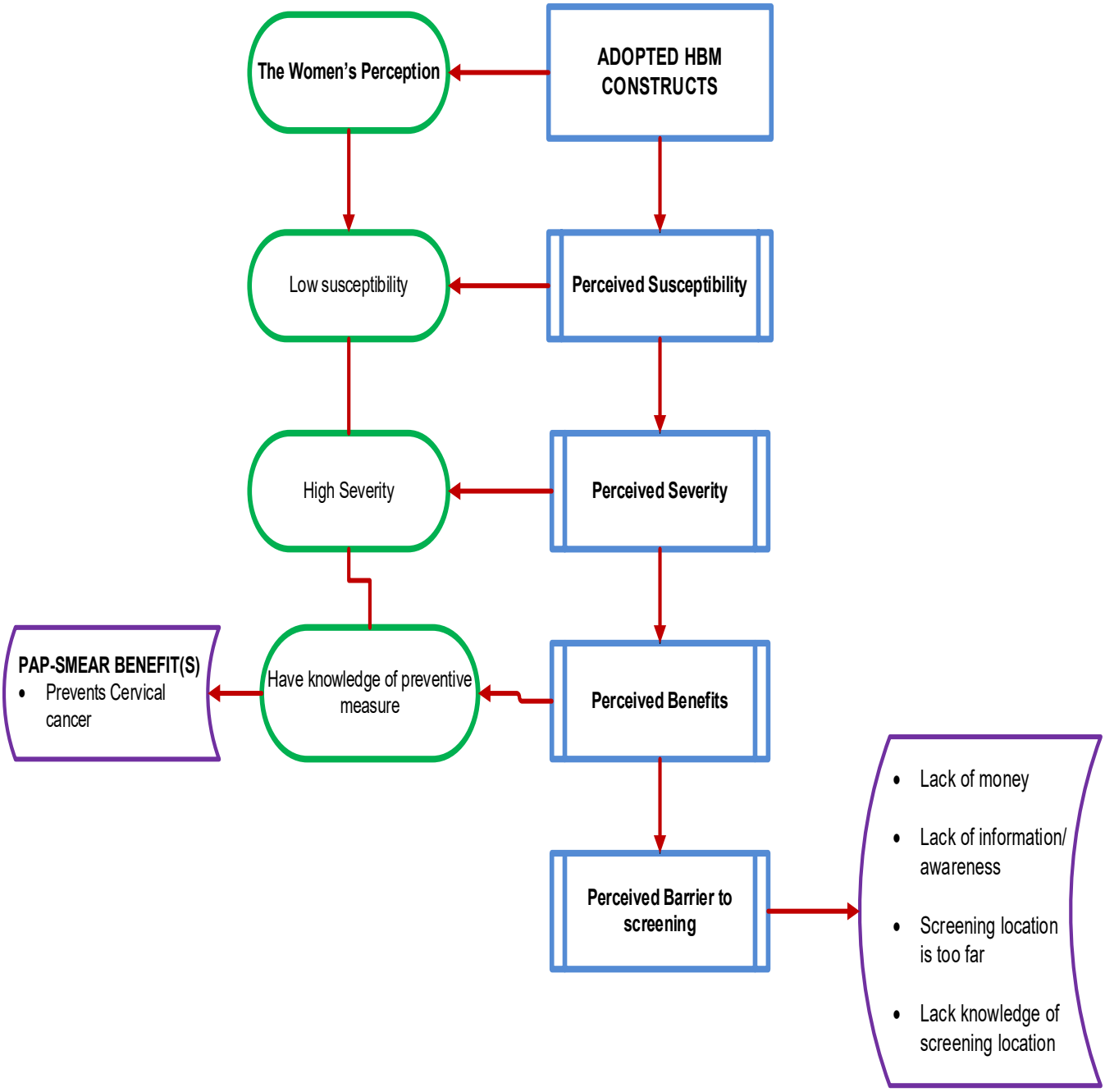


Figure 25: Summary of results from the HBM consults.

(Developed by Researcher, Visio).

4.10 Strengths

1. The study is one of the first to access the rural population of Imo State, Nigeria. This particular population has not been widely studied, and findings have revealed potential information that could help improve cervical cancer policy in Nigeria, which adds strength to this study.
2. Data was collected from women who have reached the age of accountability and are responsible for their health.
3. The questionnaire (semi-structured) allowed the use of open and close-ended questions that helped avoid limited response from the women.
4. The key constructs of the HBM helped assess the women's health behaviour with regards to cervical cancer and screening, which increased the strength of this study.
5. The use of VCM's as research assistants was a contributing factor to the increased participation and response rate, which also increased the validity of this study.
6. Another main strength of the study was randomisation, which helped reduce bias during the recruitment process.
7. This study is a community-based study which recruited more than the minimum required for analysis. The women willingly participated and voluntarily gathered at an agreed venue despite the issues with randomization at the community level due to the households' scattered settlement.
8. Other strengths include the use of multi-stage sampling technique and participants high response rate.
9. It was easy to carry out a straightforward analysis and interpretation of finding using a quantitative data which helped reduce subjectivity.

4.11 Limitations

1. Carrying out the study was time-consuming and expensive, which is a limitation of the quantitative research method.

2. The age restriction could be a limitation as women who are sexually active but <18 years were excluded from the study. The above statement means that needful information from young females was also neglected. However, this study only recruited women who have reached the age of accountability, are responsible for their own health and can consent to the study without any third-party interference.
3. In a rural setting with limited or no internet access, the town crier is considered to be an authoritative voice, community journalist and potent force in information dissemination, which is reliable, cheap, effective, and simple (Adekunle, et al., 2002; Lawal, 2019). However, using a town crier also posed a limitation as women at home caring for a relative may not have the time to participate in the study. Nonetheless, considering the type of households in a typical Nigerian setting, the above is unlikely as caring for a relative or children are often considered a community task shared among friends or household members.
4. Though the questionnaire was adopted from two different studies and piloted, an already validated questionnaire would have saved time and possibly yielded similar results.
5. Only four of the HBM constructs were used in the study hence the limitation as the other constructs would have added more strength to the study.
6. Data analysis was difficult as it required inputting into 'Excel' first (due to lack of internet access in the field of study), before transferring into SPSS which required a level of training and expertise. Though the required analytical test was carried out, some result outcome may have been omitted as they required more advanced interpretation.
7. Transferring data from excel to SPSS helped to reduce the burden of travelling with all the paper questionnaires. However, this means that the original questionnaires were not readily accessible if need be.
8. Data analysis was time-consuming due to the use of an analytical software which required, inputting, and cleaning the data before analysis. Also,

9. The women reported not knowing about the Pap-Smear test but claimed to know its benefits. Therefore, the researcher assumed that the outcome response for the question was not properly structured with regards to the options listed. The options included “early disease detection” which is a general term and was not specific, which led to the unspecific response. It would have been better to mention cervical cancer detection instead of early disease detection and thus was viewed as a limitation. However, this was the only identified question that was not properly structured.
10. Ticking off boxes randomly like in questions 10 and 32 could be by chance. To reduce this, most of the answers in Q10 relate to cervical cancer symptoms, and all answers in Q32 relate to common barriers encountered by women in previous studies. The above means that the options highlighted by the women were somehow expected based on the findings from the literature review hence the limitation.
11. The closed-ended questions in the questionnaire included a ‘prefer not to say’ response option which helped emphasize the fact that the women were under no obligation to answer the questions. However, it is possible that the women might know the answer to a question but refused to disclose it due to some personal issues hence the limitation as a specific response to a question would change the result.
12. There are so many barriers to screening, as seen in previous studies. Exploring some of these barriers would have provided more information on the women’s thoughts regarding cervical screening. However, achieving the above was impossible as the study did not aim to cover only screening barriers. Moreover, it would be difficult to explore all barriers and thus explain why some of the common barriers related to the location and type of participants involved in this study were considered, hence the limitation. Nevertheless, question 18, which was open-ended, allowed participants to freely mention some of the barriers they believed prevented them from participating in cervical screening programs.

13. This study finding can only be generalisable to rural women. It was not generalised to women in the urban setting because of the availability of screening clinics and more awareness of cervical cancer within the area. It was also not generalised to the other Nigerian States as their health system may differ with that of Imo State.

4.12 Summary

Study 1 is the first part of this research which explored awareness/knowledge of cervical cancer, screening and health beliefs using a quantitative approach. ISN rural women 18 years and above were recruited for the study, and 436 women completed the questionnaire after it was piloted among 30 rural women with similar characteristics as the target population. VCMs were recruited as paid research assistants to help in the distribution of the questionnaire. Data collection lasted about 8-12 weeks (2-3 months). The study had a high response rate as the disease has become an issue for utmost concern, explaining why the women were enthusiastic in participating in the study. Data collection was conducted successfully without any discrepancies. Analysis was done using a statistical analytical software called 'SPSS'. ISN rural women were observed to have awareness of cervical cancer but lack knowledge of the disease risk factors, symptoms, cervical screening, and preventive measures. Also, cervical screening participation was observed to be dependent on awareness of the disease. Besides, it was noted that the women lack knowledge of where screening is done while some of them have not heard of screening clinics. Therefore, the main barriers to screening were: lack of knowledge of screening location; lack of money; lack of information and awareness, and distance of screening location. More so, the women were mostly informed about cervical cancer through awareness campaigns and hospitals/health centres. It was also observed that the women have a positive attitude to screening as most of them expressed willingness to attend cervical screening if made available into them. Furthermore, ISN rural women did not perceive themselves as susceptibility to cervical cancer; however, they had a higher perceived severity as they deemed the disease to be deadly.

Chapter 5 - Study 2: A Qualitative Study Exploring Knowledge of Key Stake Holders' Experiences and Recommendation for Policy

5.1 Introduction

This chapter is the qualitative part of this research that focuses on the knowledge of health key stakeholders regarding cervical cancer awareness and its recommended policies in Imo State, Nigeria. This part of the research is referred to as 'study 2' and discusses the adopted design, recruitment process, data collection, analysis, and other related headings.

5.2 Study aims

To evaluate the health stakeholder's perception of the relevant cervical cancer and screening strategy implementation in Imo state, South-eastern, Nigeria.

5.3 Research Method/Design

The researcher adopted a qualitative approach which involves interviewing of health stakeholders from the four randomly selected local governments in Imo state. The aim of this design was to understand the efforts made by the Nigerian government in reducing disease prevalence, initiating policies, their success rate and how they are being implemented at the community level which is believed to be the first point of contact for any intervention aimed at promoting the health of the Nigerian woman. This study will help answer the research question which is

- How effective is (are) the implementation strategy(s) in reducing cervical cancer disease and increasing screening participation in Imo state?

5.3.1 Sample size

According to Morse, (2000), 30 - 60 participants are required in a study with semi-structured interview due to the small amount of data obtained per interview question while 6 -10 participants are needed in a phenomenological study that involves a large amount of data gathered by

interviewing each person many times. Although this research focused on cervical cancer as a common phenomenon among women, this part of the study adopted a semi-structured interview approach in gathering data from the intended participants (health stakeholders) which makes it difficult to choose a sample size accurately. However, the above study also highlighted the possibility of having fewer participants if a rich amount of useable data is obtained from each participant (Morse, 2000). Therefore, the above assertion based on data saturation was considered when choosing the sample size for this study. Initially, the study aimed to recruit a sample size of 16 - 24 health stakeholders due to the timeframe of data collection, which was done during the festival period; however, the study finally recruited 22 participants using a convenience sampling method which allows the recruitment of participants relevant to the study. Therefore, the sample size was deemed enough after data saturation was achieved to avoid having large samples that are not needed. Achieving data saturation during sampling is one idea that has been adopted in most health-related studies (Francis, et al., 2010). Although there was no specified method to note when this happens, the researcher kept recruiting and interviewing participants until data saturation was observed (Francis, et al., 2010; Faulkner and Trotter, 2017). Therefore, interviews were stopped when it was observed that no new themes emerged (Francis, et al., 2010). Data saturation was achieved after the 18th interview; however, four more interviews were conducted to ensure there were no emerging themes, which means that the result of additional information is unlikely if more participants are added. Reason for the above was because participants are from the same geographical region and what is obtainable within the health setting of an LG reflects in the others as they are all being controlled by one SG which means that their perception may be similar. Moreover, this is an embedment part of the research that serves as an eye-opener to how strategies are being implemented based on the perception of health stakeholders of which the sample size is sufficient in addressing the research question and phenomenon of interest.

5.3.2 Research Instrument: Interview

An interview is a data collection tool used by the researcher to understand people's thoughts, opinions, and experience (McNamara, 1999; Fox, 2009). It is mostly used in survey designs, exploratory and descriptive studies, to exchange dialogue between a researcher (interviewer) and one or more participants (Mason, 2002). There are three main types of interviews; Structured, Unstructured and Semi-structured, of which the researcher determines the flexibility and type to be adopted in a study (Fox, 2009).

Structured interviews require asking ordered questions using a predetermined format (Sturkey, 2013). However, this could be one limitation of this interview type as a participant's response is restricted to the question (Fox, 2009). Structured interviews are mostly used in survey studies that require many respondents. Responses are often pre-coded using a coding scheme that has been established for each research question to help in comparison among all respondents (Fox, 2009; Sturkey, 2013).

Unstructured interviews have little or no structure and are considered as an intense approach of gathering data. The interviewer approaches the interviewee with the aim of asking limited questions but frames other questions based on the interviewee's previous response (Fox, 2009). Though an interview guide is required, the interviewee provides the structure, cues, and leads for this type of interview. This type of interview method helps gather extended data from interviewees, increase study validity by allowing freedom of speech, and help the researcher explore the experience or knowledge of different participants. However, it is often viewed as unreliable and inefficient as interviewees may go outside the scope of the researcher's interest (Fox, 2009).

Semi-structured interviews provide a clear set of instructions that enables the interviewer to collect in-depth, reliable and comparable data (Sturkey, 2013). The scheduling, conducting and analyses of this interview type, requires rigorous preparation (Fox, 2009). The inclusion of open-

ended questions and diverging from the interview guide creates room for the researcher to understand the research phenomenon under investigation from a new perspective which explains why this method was adopted in this study (Sturkey, 2013). However, open-ended questions make it difficult to achieve uniformity among participants in terms of response which is one limitation of this method. The researcher used guided and structured questions specific to the aim of this study, to keep the health stakeholders on track but also asked further unstructured questions based on the lead they provided through their response. This method allowed the interviewees to freely express their views and provide interesting facts that might not have been covered by the research interview question guide.

This study meets the five major criteria for adopting an interview method (Taylor and Bogdan, 1984). These reasons as seen below were adopted as a guide in choosing an interview type

1. Well-defined research interest
2. Impossibility of observing participants in a setting as in surveys
3. Time constraints which is a major limitation in this study
4. Focus is on subjective rather than objective human experience
5. The research depends on data gathered from a wide range of people or settings. Therefore, this study recruited health stakeholders from four LGs as a representative subset of the population.

Structure of Interview Questions

The Nigerian study by Ukpo (2013), served as a guide for this second study based on its recommendation to interview health stakeholders and authorities in order to identify the existence of intervention strategies and how they are being implemented in Imo state. To help achieve the above aim, the interview questions were therefore divided into two parts: (a) Introductory and (b) Main questions. The introductory part of the interview was structured to collect baseline data of the interviewees. This part helped to build rapport between the

researcher and the interviewees. Main interview questions were purely open-ended and focussed on current/local cervical cancer policies, implementation strategy, post-implementation success and barriers to screening among rural women at the community level. The interview questions used for the study can be found in Appendix I.

5.3.3 Testing of Research Instrument: Rigor

The primary aim of a qualitative study is to understand a social process about a phenomenon based on the opinions of people and not to determine statistical representation which explains why this type of study allows the researcher to target a small sample of the population and not necessarily a representative sub-set (Mays and Pope, 1995). However, the trustworthiness of a qualitative data irrespective of how the data was collected is evidenced by four concepts: Transferability, Dependability, Confirmability and Credibility (Lincoln and Gubba, 1985).

Transferability is about generalization of findings as in quantitative studies. Findings transferred can only be supported by evidence which is determined by the quality of the results (Lincoln and Gubba, 1985). Therefore, findings from this study can only be generalizable within in Imo state and not Nigeria as a country based on the variance of healthcare service across the different States. The transferability of findings across the 27 LG's in Imo State is based on the notion that what is obtainable within the health setting of an LG reflects in the others as they are all being controlled by one SG.

Dependability refers to the concept of reliability in quantitative studies and considers gathering evidence to support the claim that similar findings will be achieved if the study was repeated (Lincoln and Gubba, 1985). Qualitative researchers aim to create quality data that is independent and replicable with similar conclusions if conducted by a different researcher (May and Pope, 1995). The adoption of the semi-structure interview method in this study helped improve its dependability as the health stakeholders could freely express their opinion in relation to the subject under investigation. Therefore, if this study is to be conducted again using health

stakeholders as participants and similar data collection method, the researcher should arrive at the same or similar conclusions.

Confirmability is the ability for the researcher to recognise their predispositions and emphasis on the steps to reduce the bias (Shenton, 2004), It involves taking careful steps to ensure that the information represented in this study is purely based on the results gained from participant's opinions rather than the researcher's preference. This process allows for scrutiny, which further improves the integrity of the study result. Therefore, this study explicitly explained the rationale that supports the decision for choosing a qualitative research and a semi-structured interview method as a data collection tool.

Credibility in qualitative research is important in determining the trustworthiness of the research as it deals with how consistent the findings from the research question is with reality (Merriam, 1998; Shenton, 2004). The research question was proposed to help determine what factors influence screening utilization and post-implementation success of cervical screening strategies. To ensure the research question's credibility, study 2 only recruited participants who are directly or indirectly involved with the women's health in order to avoid unnecessary guesses and ensure that participants are knowledgeable enough to provide answers to the research question. The adopted data collection method, which is individual interviews; was also deemed suitable to allow participants the freedom of speech and expression in a relaxed setting void of bias and sentiments. To ensure honesty among participants in answering the questions, interviewees were given a copy of the participant information sheet and a consent form which provides them with an option to opt-out. This tactic was employed to ensure that participants who agreed to participate in the study were genuinely willing and would provide the required information. However, they were given an option of reviewing the transcribed data at the end of the interview before it was used for analysis.

5.3.4 Sampling Procedure

This study adopted the purposive sampling method in recruiting health authorities and clinicians based on some of its advantages which include a possible reflection of descriptive comments about the sample and cost/time effectiveness compared to probability sampling. This method can also be an effective choice when it is infeasible or impractical to conduct probability sampling. Notwithstanding, there are some disadvantages to this method too which include but are not limited to lack of representation of the entire population. Most times, it is very difficult to estimate sampling variability and identify possible bias. Furthermore, there is a low level of generalizability than probability sampling (Mathers, Fox and Hunn, 2009; Bajpai, 2010; Black, 2010; Gravetter and Forzano, 2011; Dudovskiy, 2016).

5.4 Recruitment

The study adopted a semi-structured interview method which allows an in-depth understanding of interviewee's opinions on cervical cancer screening policies, its implementation strategies and success rate at the community level. The researcher recruited 22 health stakeholders from the four selected local governments. The selected LG health departmental head drafted the names and addresses of intended interviewees. An invitation letter, consent form and participation information sheet shown in Appendices J and K were then sent to the offices of these intended interviewees who met the inclusion criteria which entailed being a health personal in the selected local government. The individual interview method was preferred to focus group due to variance in the shift pattern. The above method also helped to ensure independence and anonymity of participants, which allowed freedom of speech as the subject under investigation is a sensitive one (Fox, 2009). The interview was conducted face-to-face instead of through videos, telephone, or emails to allow for extended rapport between the interviewer and the interviewee. The face-to-face method, according to Fox (2009), is the best method of collecting high-quality data as the interviewer can note non-verbal expressions from the interviewee, especially if the topic is a sensitive one.

The interview targeted health stakeholders at the local government health departments and health units for better understanding of available cervical cancer policy, sustainability, implementation and referral process in the Federal, State and Community level. Participants were only recruited on the grounds that they were at the forefront of health and its related issues either in the recruited local government or health centre. Participants were expected to either have direct or indirect contact with the women as well as the government. Therefore, they can be seen or considered to be the link between the women (with regards to their health) and the government.

The interview was conducted among two groups identified as group 1 and 2. Group 1 represented the health authorities that have direct contact with the rural women within the selected local governments such as the head of facilities; in-charges, and healthcare providers while group 2 represented clinicians who have indirect contact with the women but are responsible for ensuring that interventions are implemented at the community level such as health information officers; health and preventive screening departmental heads, and WHO/UNICEF representatives.

5.5 Data Collection

Interviews were conducted by the researcher over a time frame of 4 weeks. For those who agreed to participate in the study, an appointment date was later scheduled based on the interviewee's availability. On the day of the interview, the consent signed form was collected from the participants, and a copy was given to them for keeps. During the interview, the researcher used a question guide to obtain information from the interviewees. However, further questions were generated based on the lead information provided by the interviewees. Most of the interviews took place at the participant's office or workplace because the information required was on a professional basis. It also allowed for ease of access for both the interviewee (participants) and the interviewer (researcher). Group 1 interviews were conducted at the

healthcare centres were interviewees have direct contact with the women, while Group 2 participants were interviewed at their individual local government health department office. Group 2 participants were selected based on the fact that decisions from the federal and state governments are first directed to the local government before being implemented at the healthcare centres and to the communities thus explaining why there is no direct link between group 2 participants and the women. Nevertheless, all interviewees were given the option to choose their own place of comfort, which could be outside of their work environment to ensure that participants are not under any pressure during the interview.

Rapport was first established before the commencement of the main interview to encourage honest replies and give participants a sense of assurance. The interviewees were asked some demographic information which focused on their age, the group they belong to (Group 1 or 2), the duration of their post and what their job title entails. Care was taken not to ask interviewees of their direct position or job titles so as not to trace the responses back to them. The above introductory process was followed by the main questions which include knowing the current or local strategy of CCA screening; how it was implemented; evaluation of post-implementation strategies, and factors that influence screening utilization among the women. Further questions were asked based on the lead provided by the participants during the interview. Interviewees were given an option to opt-out from the study or take a break if distressed due to the sensitive nature of the subject under investigation.

Interviews were audio-recorded in order to maintain confidentiality and anonymity of participants using allocated numbers. Audio-records were preferred to other recording methods such as sole taking of notes in order to allow for engagement and maintenance of eye contact between the researcher and the interviewees. More so, the audio-record helped the researcher to capture vital information that would have been missed out during note-taking as it will be difficult to maintain eye contact with participants and take notes as well. The use of audio-record in

interviews helps researchers to build rapport with participants, which is very important (Sturkey, 2013). However, the note-taking method was also adopted to help the researcher remember salient points that were highlighted by the interviewee as this provided a lead for further questions. The above measure was communicated to the interviewees, and permission was obtained.

The interview was initially scheduled to last ≈30-45 minutes to allow interviewees time to settle down and get ready for the interview while the researcher sets the audio-record to meet the required standard. However, the interview lasted for about 10-15 minutes as some of the interviewees were already settled in their office. Also, the audio-record was already set-up for use before the commencement of the next interview appointment, which helped reduce the time allocated for the interview. At the end of the interview, participants were given the opportunity to ask questions regarding the topic. To maintain study credibility, the recorded interview was played back at the end of each session for the interviewees to listen and make any needful corrections. The playback process ensured that the participants were happy with the information they provided and gave them the opportunity to state any other helpful information that was missed during the main interview section. The initial recruited number was 25. However, participants were given the option of opting out of the study at any time before their interview is used for data analysis. The above option included opting out even after listening to the audio-records of their interview of which 3 participants did opt-out as they verbalised not being comfortable to carry on and therefore asked that their record be deleted in front of them. Their request was granted as this was part of the signed consent which states that no data either missing or complete will be used for analysis if the participant decides to opt-out. Therefore, only 22 participants were finally recruited for this part of the study, as seen in figure 18.

5.6 Data Analysis

Secondary Objectives

1. Interview question 4 was used to answer this objective which aimed to evaluate and understand the determinant factors that influence cervical cancer and screening participation among rural women.
2. To critically examine and appraise the effectiveness of the relevant strategy implementation in Imo state, response to the main interview questions 2 and 3 were reviewed and analysed in-depth.
3. The efforts made by the government in reducing the spread of the disease and increasing screening utilization among the women was determined using the interview responses from the health stakeholders with specific reference to interview question 1.

To effectively analyse this part of the research, the different approaches of a qualitative study were put into consideration. The study did not focus on the cultural awareness and sensitivity of rural women in Imo state neither did it look at the influence of culture on screening participation which an ethnographic study would do (Sarantakos, 1998). On the other hand, a phenomenological study investigates a research problem common to a group of people. It aims to understand people's experience and how they interpret it (Padilla-Díaz, 2015). This study looked at cervical cancer as a phenomenon that is common among women, as most of the participants might have had a personal experience. However, it did not specifically recruit only participants who already have the disease or were undergoing treatment but focused on assessing the knowledge of rural women irrespective of their health status. This study also played a supportive rather than a primary role, thus explaining why the sample size was much smaller than that of study 1. Therefore, the analysis of the result did not focus on generating theories as in grounded theory studies. Nevertheless, categorized themes may be used to generate new theories for future studies.

This part of the research aimed to obtain subjective information on cervical cancer screening policies and its implementation success while adopting a psychological approach. A content analysis would have been adopted if the study's intent was to generate recommendations and replicable references based on what was said, to whom and with what effect using different strategies to analyse the text (Wood and Bloor, 2006; Powers and Knapp, 2006). The above issues explain why a 'Thematic analysis' which helps the researcher to independently identify, examine and report emerging themes or patterns in a data set was adopted instead (Fereday and Muir-Cochrane, 2006; Braun and Clarke, 2006; Vaismoradi, Turunen and Bondas, 2013).

Participants were allowed to freely express themselves in words without any form of constraints from fixed questions. Based on this theoretical flexibility, thematic analysis is viewed more as a method rather than a methodological approach as most qualitative approaches (Braun and Clark, 2006). The above statement means that it is not tied to a particular theoretical perspective or methodology, which gives it a considerable advantage over the others (Maguire and Delahunt, 2017). However, the flexibility can also be a limitation as it can lead to lack of coherence and inconsistency, especially when developing themes from the research data (Holloway and Todres, 2003). This type of analysis was deemed appropriate based on its ability to:

1. Answer a wide range of research questions which include the women's understanding of cervical cancer and cervical screening.
2. Analyse different types of data irrespective of the collection source such as transcribing media from a secondary source to transcripts of focused interviews.
3. Works with both large and small data sets
4. Be applied to either generate a data-driven or theory-driven analysis (Braun and Clark, 2006).

The researcher applied the six stages of thematic analysis framework generated by Braun and Clark (2006). These stages were used to transcribe, code, and categorize data in order to generate themes, as shown in table 29. Themes were generated and coded based on some obvious reasons. Results were compared and interpreted alongside the quantitative study findings in order to establish the connection between study 1 and 2. Due to the originality of this study, the researcher adopted an open mind rather than using pre-conceived theories and concepts.

Table 29: Six stages of thematic analysis

Stages of Thematic Analysis	Steps to Achieve Each Stage
1. Familiarizing with data	Data was read and transcribed. Initial codes were noted down after re-reading the data.
2. Generating initial codes	Interesting features of the data was systematically coded. Data relevant to each code was collated.
3. Searching for themes	Codes will be collated into relevant themes.
4. Reviewing themes	Checking if the themes are related to the codes extract. A thematic analysis map was generated.
5. Defining and naming themes	Ongoing analysis to define, refine and name themes while telling the overall story from the analysis.
6. Producing the report	Final analysis and production of a report. The report was related back to the research question and objectives.

Source: Developed by Researcher

The audio-recorded interviews were individually transcribed manually and analysed using the NVivo software. It took about an hour 5 minutes to transcribe one interview; therefore, transcribing 22 interviews took ≈1430 minutes which is about 24 hours.

All participants involved were allocated a subject number, and information collected was also coded accordingly. Collated data was analysed using inductive coding, which was generated from the raw data after the emergent of different categories. Emerged themes were later generated based on the relationship found between the codes extract. This analytical method was more of a reflective approach as it ranged from reading the transcript and identifying codes to generating categories and themes (Guest, MacQueen and Namey, 2012). The connection between the themes was established and used to draw out results. A table showing the classification and summary of results can be found in Appendix L.

5.7 Study Findings

Analysis was classified into four main themes; *"Strategy", "Strategy implementation", "Strategy Evaluation" and "Factors that Influences screening."* as shown in Figure 26. The summary of the initially identified themes alongside the emerged sub-themes and codes are shown in Appendix M and N, while Figure 27 shows a thematic framework map of the final adopted defined themes. The interview questions alongside any emerging question(s) from interviewee's response have been collated and represented in Appendix M.

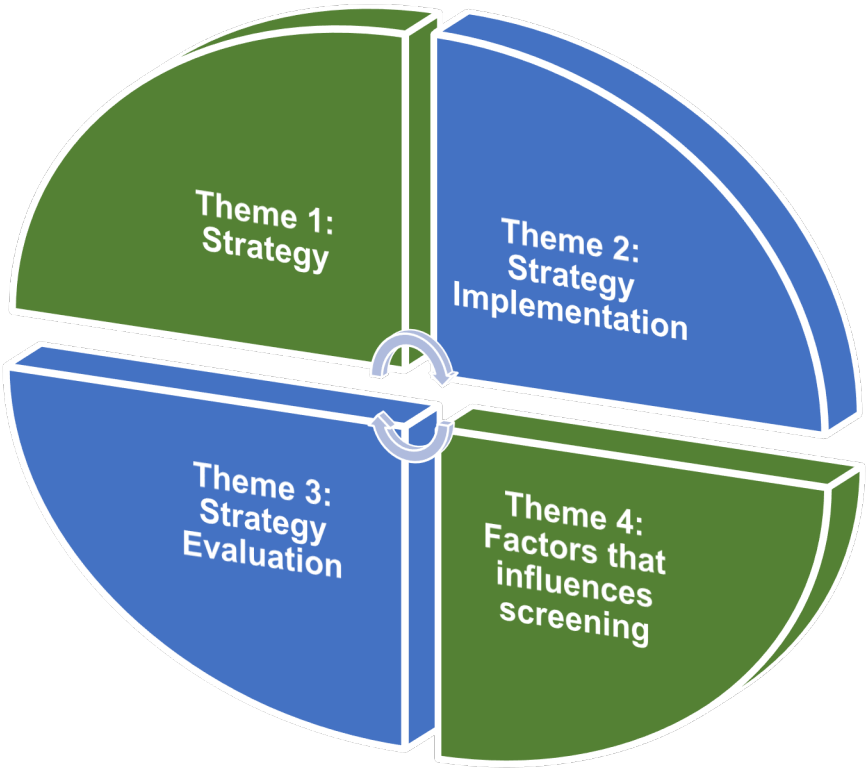


Figure 26: Identified Study Themes.

(Developed by Researcher).

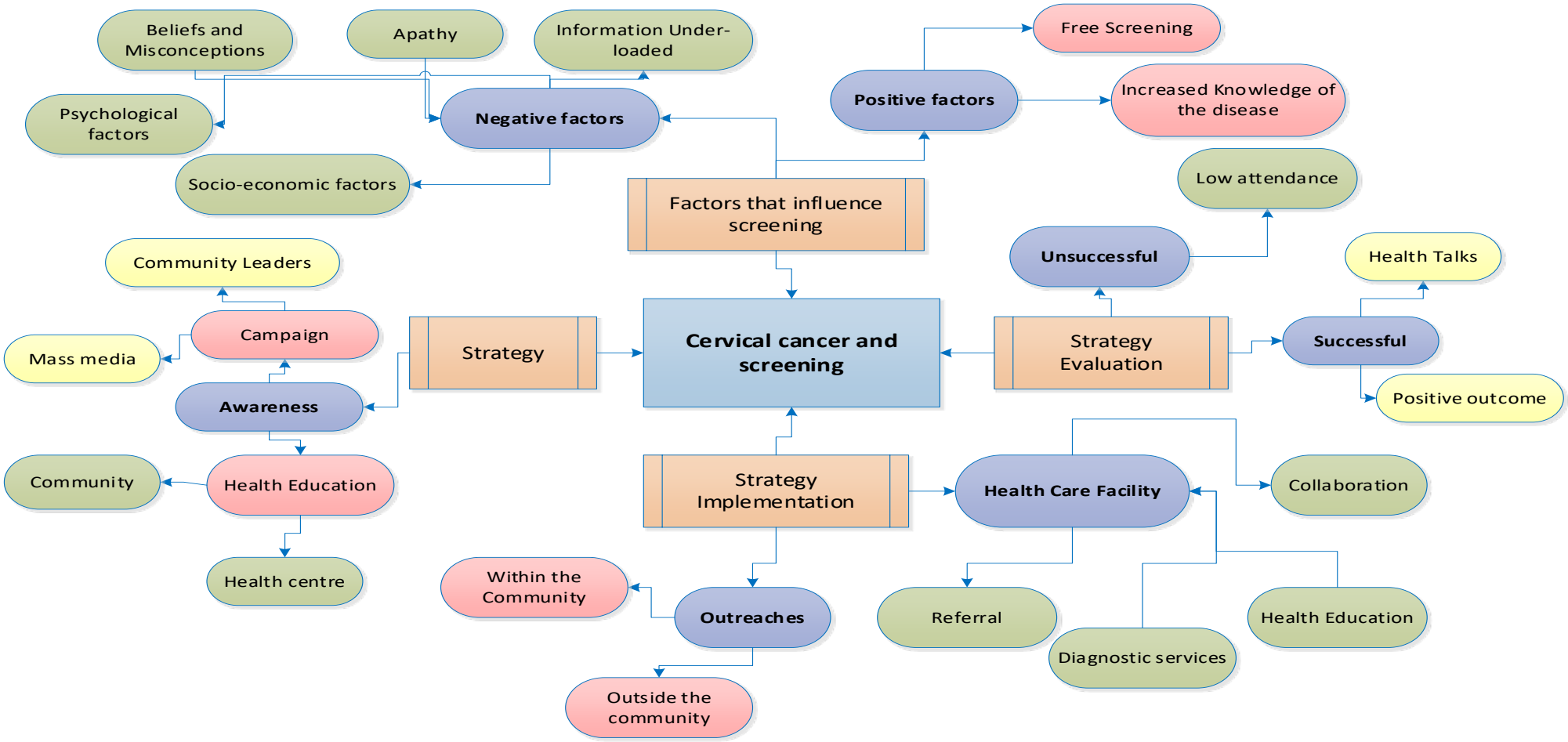


Figure 27: Thematic Framework Analysis.

(Developed by Researcher, Visio).

5.7.1 Interviewee's Profile

The interview section had two sections. The first section targeted participants' demographic information while the second section focused on cervical cancer strategies, its implementation and determinant barriers that influence implementation at the grass-root level. Participant's demographic information as seen in table 30 and 31 includes their age (within the age range); the group they belong to; the duration or number of years they have stayed at their current job position, and what it entails.

Table 30: Group 1 Interview Participant's Profile

Participant's Number	Age	Work responsibility	Years in active service
Par 1	41 – 50	Community sensitization, mobilization and awareness campaigns.	11 years
Par 2	41 – 50	Disease prevention	10 years
Par 3	41 – 50	PHC Co-ordinator	6 months
Par 4	41 – 50	Orientation service and community mobilization	15 years
Par 9	31 - 40	Provide information update on health to the L. G	15 years
Par 10	41 – 50	Provide counselling services to women and couples	10 years
Par 12	41 – 50	Dissemination of governmental programs and policies	6 months
Par 13	51 - 60	Dissemination of governmental programs and policies	8 years
Par 14	51 - 60	Dissemination of governmental programs and policies	10 years
Par 15	31 - 40	Carrying out programs and policies of the government	10 years
Par 18	51 - 60	Provide community Nursing and Midwifery services	10 years
Par 22	51 - 60	PHC Co-ordinator	2 years and 6 months

Source: Developed by Researcher

Table 31: Group 2 Interviewee Participant's Profile

Participant's Number	Age	Work responsibility	Years in active service
Par 5	41 – 50	Community sensitization, mobilization and awareness campaigns.	10 years
Par 6	41 – 50	Disease prevention	1 year 6 months
Par 7	51 - 60	PHC Co-ordinator	8 years
Par 8	51 - 60	Orientation service and community mobilization	8 years
Par 11	51 - 60	Provide information update on health to the L. G	20 years
Par 16	31 - 40	Provide counselling services to women and couples	18 years
Par 17	51 - 60	Dissemination of governmental programs and policies	25 years
Par 19	51 - 60	Dissemination of governmental programs and policies	25 years
Par 20	41 – 50	Dissemination of governmental programs and policies	15 years
Par 21	31 - 40	Carrying out programs and policies of the government	15 years

Source: Developed by Researcher

5.7.2 Theme 1: Strategy

Initially, participants struggled a bit with this question. They found it hard explaining explicitly the intervention on ground though some expressed nervousness until they were comfortable during the interview process and revisited the question later on. Five sub-themes were previously identified as shown in Appendix M. This was later reduced to four sub-themes which are awareness; health education; health centre, and no strategy as shown in Appendices N and O. The identified preliminary sub-themes and codes were collapsed into one main sub-theme, 'Awareness' under the main theme heading, 'Strategy' due to overlap of information as seen in Figure 28.

The last theme, which was, 'no strategy', was removed as it does not inform the researcher on any screening strategy. Nearly one-third of the participants, mostly the health authorities said there were no strategies that specifically targets cervical cancer disease in Imo State. One of the participants specifically stated that there was no policy but further highlights that screening was once carried out in the local government. Some of the responses have been outlined below:

> *"Actually, there has not been any."*
> (PAR 9, Grp 1)

> *"At the moment, none."*
> (PAR 13, Grp 1)

> *"None that I know of"*
> (PAR 14, Grp 1)

> *"The screening has been carried out here about three years ago, but no policy."*
> (PAR 16, Grp 2).

> *"…..Keeping their surroundings and body clean so as to prevent most of the diseases and taking good food, that's feeding properly as some sickness, are caused by some deficiencies as a result of malnutrition, but there has not been any law to say this is how it's going to be."*
> (PAR 9, Grp 1)

Sub-Theme: Awareness

Some of the participants highlighted that awareness had been carried out in the state. The two main identified strategies were *Campaign* and *Health Education*. Both views have been illustrated in the quotes below.

Campaigns

The help of community leaders was solicited in passing health-related information to the women. It was deduced that the government is aware and has urged the community health staff to carry out awareness programs, but it was not stated if they were equipped to do this. However, the women were advised to visit the doctor for further questions regarding their health as represented in the quote below:

> *"…...Umm, what happened is this, am not medical personnel. As a social mobilizer, we always tell the people the dangers of this cervical cancer. We have been trying to create awareness about it, telling the women in particular and the community leaders and traditional rulers to tell their women to always check if there are problems they don't understand in their reproductive system, they should go to the doctor to ascertain exactly what it is. What happened is this, as the thing is ravaging the rural populace, the government have directed us as their agents in the rural areas to carry the awareness campaign to the populace."*
>
> (PAR 1, Grp 1).

> *".... Yes, there is grass-root health awareness on cancer-related issues such as ovarian cancer, cervical cancer, vaginal cancer and all the rest. I think it is ongoing at the grass-root level."*
>
> (PAR 4, Grp 1)

One of the health clinicians mentioned hearing about the dreadfulness of the disease on the television even though they had little knowledge of it. They positively stated efforts of the government and other Non-Governmental organizations as seen in the quotes below. Nonetheless, they expressed sadness over losing a loved one to the disease due to late diagnosis:

> *"I have been hearing of cervical cancer for a long time now, but of recent, I listened to the television, and they were asking women to go for screening, so the disease can be detected earlier to prevent fracas in future. I never knew cervical cancer was a dreaded disease until I heard it over the Television. I also lost a cousin to an undiagnosed cervical cancer which*

was found out at the terminal stage. I relayed to those around me and have been trying to find out if there are places close by that we can go for screening. The federal government are speaking about how dreaded cervical cancer is to women".

(PAR 6, Grp 2)

"Actually, I think the government has been on it in creating awareness to women."

(PAR 2, Grp 1)

There is currently no cervical cancer-related organization in Imo state except for visiting ones. This view was supported by another health authority who further stated some of the things that need to be done to increase awareness at the grass-root level, as shown in these quotes:

"I don't think there is an organization, but I know that there is a visiting organization."

(PAR 2, Grp 1)

"…. There is a social body like LAPO, (Lift Above Poverty Organization) that have taken it upon themselves to create this awareness, get materials for the screening proper and train personnel."

(PAR 5, Grp 2)

"…. Well, its continuous awareness involving the stakeholders, the traditional rulers and the village heads."

(PAR 1, Grp 1)

Similarly, some of the participants also mentioned that an awareness program was done a long time ago, as illustrated in these quotes:

"Some time ago, we had a team of medical professional who came for such program. It lasted for two days".

(PAR 12, Grp 1)

"Yes in 2013/14, we did it as mass conduction of cervical cancer."

(PAR 18, Grp 1)

"Yes, but it was since 2015."

(PAR 20, Grp 2)

"It was previous about three years ago."

(PAR 22, Grp 1)

However, one of the health authorities thinks women are more aware of the causes of maternal death, of which the interviewee presumed cervical cancer to be among the causes. They believed there is an awareness based on this assertion, as illustrated in this quote:

> *"I think there is a greater awareness in the aspect of knowing what causes some of the maternal death and which is predominantly as it is now with the way it is going cervical cancer. So, there is right now awareness and a program on ground to really curb the spread".*
> (PAR 4, Grp 1).

A notified comment on lack of follow-up was observed from the response of one of the participants while the other mentioned the lack of coverage as not all the local governments were involved as shown in these quotes:

> *"We carry our awareness campaign in the villages and advocate for early screening for cervical cancer though we don't follow-up, so we don't know if they go for screening or not, but they always say they will go"*.
> (PAR 7, Grp 2)

> "There was an awareness campaign in other places but not in this area".
> (PAR 15, Grp 1)

There is a lack of consistency in awareness mobilization due to the inadequacies of the local health centre, which explains why suspected cases are referred to, as shown in the quotes below.

> *"Well, last time I couldn't remember, but it has not taken up to 6 months they carried out cervical cancer mobilization."*
> (PAR 3, Grp 1)

> *"Because this is a local health centre, we do not go into elaborate details per se. if we suspect any such, we do referrals".*
> (PAR 11, Grp 2)

Health Education

Staffs were health educated and trained on screening in order to equip them to carry out disease awareness outreaches. The training was done in either the community or at the health centre as represented in the quotes below.

"Some staff was trained for the screening and then for appropriate referral. They were trained some time ago about a year or thereabout. Some health staff was selected and then trained."

(PAR 2, Grp 1)

"In health facilities, the OIC[23] *there, some of them have been trained under this cervical cancer. So, they examine women, if they detect any cancer case, they refer it".*

(PAR 3, Grp 1)

"We once had a community outreach, and we were trained to do the screening at that time".

(PAR 11, Grp 2)

Based on the training received, the health stakeholders referred suspected cases to the referral centres, thus indicating its availability, as shown in the quotes.

"We just suspect, and since we have FMC[24] very close, we usually refer them to FMC"

(PAR 11, Grp 2)

"Actually, we have some referral centres here".

(PAR 2, Grp 1)

However, it seems the health clinicians focused more on creating awareness of breast cancer than cervical cancer. Baby-friendly initiatives are strategies aimed at reducing breast cancer and not cervical cancer, as seen in these quotes.

"…Health education on baby-friendly initiative to reduce gynaecological cancers. We also do post-natal examination of the cervix".

(Par 7, Grp 2)

"Health education on Exclusive breastfeeding to reduce gynaecological cancers and during family planning."

(Par 8, Grp 2)

From the gathered responses, there has been an awareness campaign, but there was no mention of a routinely consistent strategy which explains why some of the participants emphatically stated that there was no strategy at all. The use of mass media, community outreaches and community leaders seem to be an added advantage in relaying information to the women. However, it was

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[23] Officer In Charge
[24] Federal Medical Centre

deduced that there is no follow-up process for screened and unscreened women after awareness has been done. Though staff were trained on screening and appropriate referral, this was only done before campaign outreach and was not consistent, which explains why there is no in-depth information on the disease. It was also gathered from the responses that there is no record of follow-up or update training after the last campaign. More needs to be done by the government as it was deduced that most of the outreaches and trainings were done by visiting organizations.

Figure 28: Final Identified Adopted Strategies.

(Developed by Researcher, NVivo).

5.7.3 Theme 2: Strategy Implementation

Initially, five main sub-themes were identified as seen in Appendices M and O; awareness at designated places; collaboration with other health officials; going to the community to create awareness; health education at health centres and referral to appropriate screening centres. These sub-themes were later collapsed into two sub-themes, 'Outreaches' and 'Healthcare facility' under the main theme heading, 'Strategy Implementation' as shown in Appendix N and Figure 29.

Sub-Theme 1: Outreaches

Some of the health stakeholders mentioned that the campaigns and screenings were held at designated places. Outreaches were carried either in the community or outside the community.

Within the community

Some identified places in the community include churches; marketplaces; local government head-quarters, and August Meetings, as indicated in these quotes.

> *"We did mobilization, and we disseminated the information in the churches, meetings, women organization and all the rest of them. So, on the scheduled date, they came in numbers, and we started checking them and taking the samples to the state."*
>
> (PAR 18, Grp 1)

> *"They create awareness in the market place; at times, they collected some of our IT students, nursing in training, they move to the markets with them, with the megaphone. I think that was how they spread that information."*
>
> (PAR 2, Grp 1)

> *"Then another time is on August,* August meetings[25]*. We use August meeting to sensitize women on cancer problem. Then some of them that are complying to the policy, we refer them to the doctor responsible for cancer cases."*
>
> (PAR 3, Grp 1)

> *"Most of the time during august meeting or so, we use to go to some autonomous communities teaching the women the need to be taking care of themselves. Keeping their*

[25] August meetings are annual events organized by community home and abroad married Igbo women from all spheres of life in order to ensure togetherness and promote healthy living through health education (Adizie, 2017).

surroundings and body clean so as to prevent most of the diseases and taking good food, that's feeding properly as some sickness are caused by some deficiencies as a result of malnutrition, but there has not been any law to say this is how it's going to be."

(PAR 9, Grp 1)

Outside the community

Outreaches carried out outside the community were either done in other venues (s) agreed upon by the providers and the women or the organizers (third parties) and the health providers within the local government. However, it was noticed that the awareness was not specific to cervical cancer. Also, there was no mention of follow-up or referral for women who were presumed to have the disease. These views were represented by the quotes below.

"At times we call them at a point either the local government health quarters."

(PAR 1, Grp 1)

"We mobilize the women for them at a particular location which will be approved by the donor agencies or the organizations. So, when they now come, they see them in their numbers already mobilized. They... now talk to them, carry out treatment and diagnosis of some of these health-related issues, especially that pertains to women, both prenatal and nursing women and also post-natal challenges".

(PAR 4, Grp 1)

One of the clinicians helpfully mentions how the information about a selected location and time is communicated to the women. However, the statement portrayed the lack of confidence among the local government's healthcare staff, as highlighted in this quote.

"We make announcement in the communities and tell them the date and the venue, and then they gather, but we only do that when there are doctors or gynaecologist coming for that even though we were taught how to do it, but we do it when need be".

(PAR 8, Grp 2)

Sub-Theme 2: Healthcare Facility

In general, it was observed that the healthcare facility was used to implement other non-outreach services outside the community. These views and some of the services offered to the women are represented in these quotes below:

Referrals

All the women who came for screening were examined and referred. However, one of the clinicians gave a contrary view by stating that women were only health educated and referred but no mention of examination at the health centres as seen in these quotes:

> *"…Some of them will come back for examination, if they examine them and detect any case, they refer them".*
> (PAR 3, Grp 1)

> *"…After health education, we direct them to the appropriate place to get the screening services".*
> (PAR 5, Grp 2)

Diagnostics services

The health centres were equipped to carry out screening exams. Surprisingly, there was no mention of continuity, follow or referral for women who were presumed to be affected by the disease as indicated in the quotes below.

> *"…. Actually, they went to some health centres to inform the women about the topic in question, cervical cancer. They did some screening also, and after the screening, the administered drugs to some people who they think are likely to be affected."*
> (PAR 12, Grp 1)

> *"All the health centres were given the equipment, and health workers were taught how to make use of the kit. After, we organised women to come to the health centres and were tested with the kit".*
> (PAR 19, Grp 2)

> *"We organised women to come to the health centres, and they were tested with the kit."*
> (PAR 20, Grp 2)

Health Education

Immunization and antenatal visits were also taken advantage of in educating the women on cervical cancer, as highlighted in this quote.

> *"…. Then during health education, our staff normally does that. They health educate them on what to do and then they follow-up on that."*
> (PAR 2, Grp 1)

"Well, during antenatal period, they use to give them health education. During immunization too... When the women come for immunization, then they will use that opportunity to give them health education on cervical cancer."

(PAR 3, Grp 1)

Collaboration

The community healthcare staff often collaborates with other health officials or visiting third-party organizations, but the intention of the proposed visit is unknown. There is a one-way feedback channel between the staff at the community level and the federal government as represented in the following quotes:

"…. *Well. Ah, if it comes to implementation, after the awareness, we report back to government through a feedback channel, and then, they will have a chat with the ministry of health, and they know what next to do about it. What happen is this, we at times collaborate with the health officials through public forum or interactive sections. We go to the communities to raise the awareness. We go to the communities. At times we call them at a point either the local government health quarters, but we normally go to them because if you call them, they may not come."*

(Par 1, Grp 1)

"Usually there are maybe some international bodies and government organised groups. There are also health groups, voluntarism that may be coming from some of our indigenes that resides in the developed world. They usually come to carry out free test, examinations and possibly cure and treatment of some of these diseases".

(Par 4, Grp 1)

However, some of the participants inferred that the collaboration was not consistent, and the result of previous screening was still unknown, as shown in these quotes:

"We were also visited by a lady doctor from a Federal Medical Centre who did screening and collected smear from the women."

(PAR 8, Grp 2)

"They came with their equipment, qualified doctors and nurses that carried it out on their own. Though we were taught how to do it, but we don't have opportunity to go on again."

(PAR 16, Grp 2)

From the gathered response, the healthcare facility seemed to be the most designated place used for the campaigns and screenings. Help was solicited from IT students and nurses in training to help encourage the women to come out for screening because of the familiar faces involved in the awareness campaigns. The use of different designated places will help to ensure wide coverage of information on health and its related diseases. However, it was observed that the healthcare staffs were not efficiently doing their part in reducing the spread of the disease within the state. Even though some of the local government staff has been trained on how to use a cervical screening kit and appropriate referral, there seems to be a lack of confidence in carrying out the mission on ground. The above issue on lack of confidence might be an obvious reason for lack of continuity in creating awareness, promoting screening or even follow-up as the disease severity is only mentioned when there is a medical practitioner (doctor or gynaecologist) at the designated venue.

Furthermore, there seems to be a feedback channel as it was observed to be one-sided. The local government health staff reports to the federal government who later liaises with the state ministry of health, but there is no information to show if the government responds back to the local government staff.

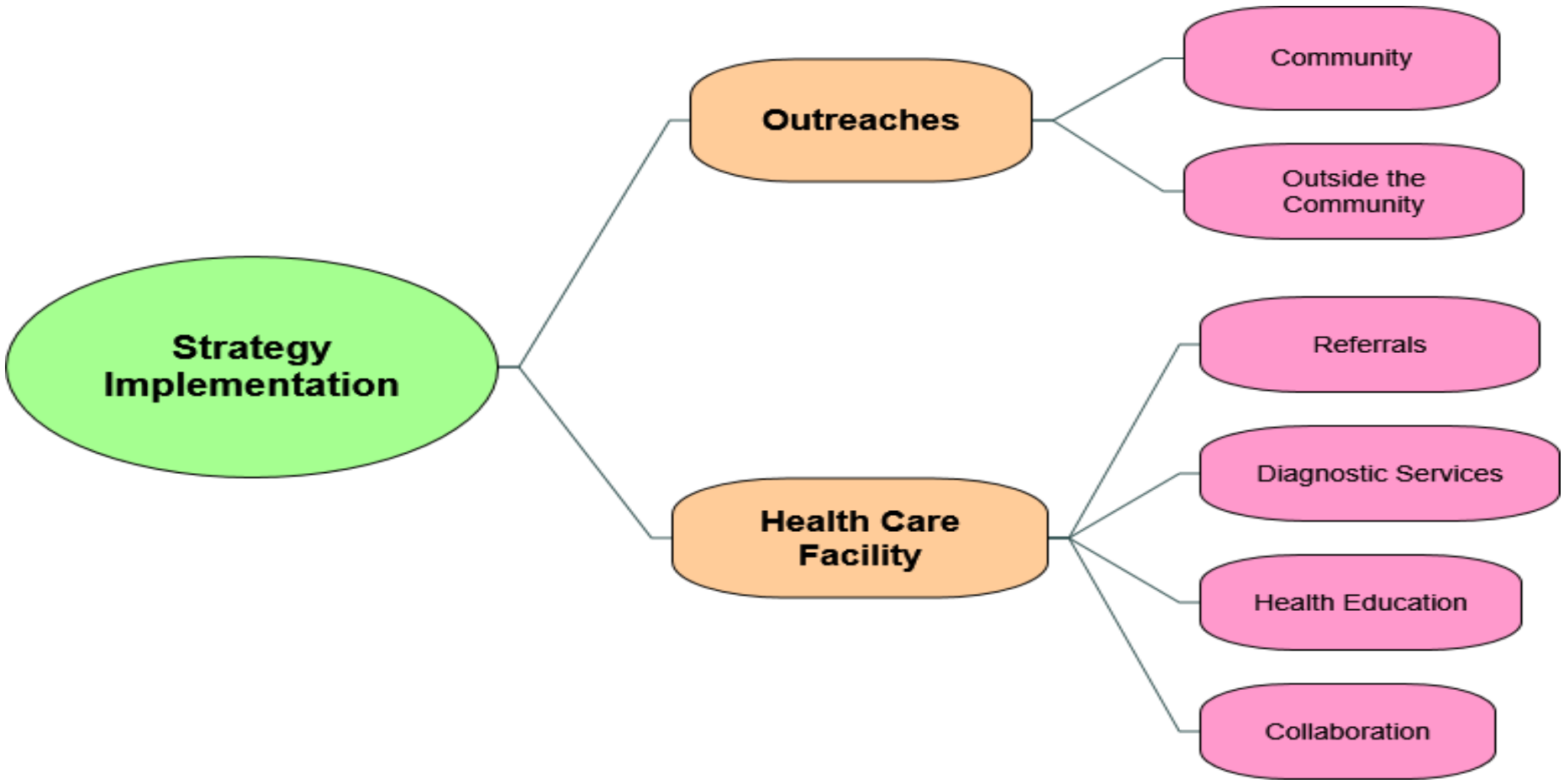

Figure 29: Final Identified Strategy Implementation.

(Developed by Researcher, NVivo).

5.7.4 Theme 3: Strategy Evaluation

This theme refers to the post-implementation success rate of the adopted strategy (awareness). Initially, three main sub-themes were identified; successful; uncertain of success rate, and not successful as seen in Appendices M, N and P. Sub-themes, codes and sub-codes were reviewed and collapsed into two main sub-themes, 'Successful' and 'Unsuccessful', and were merged under the main theme heading, 'Strategy Evaluation' due to overlap of information. Excerpts from the participant's narratives that depict the post evaluation of the strategy implementation are represented below.

Sub Theme 1: Successful

Some health clinicians emphatically stated that the awareness strategy has been successful but did not explain how. Others expressed uncertainty in their response, as illustrated in the quotes below:

> *"Yes, it was successful."*
> (PAR 19, Grp 2; PAR 20, Grp 2; PAR 21, Grp 2)

> *"…Mm I won't say that it's not, it is positive, but the positive-ness is not all that high because of the constraint I mentioned earlier."*
> (PAR 2, Grp 1)

> *"I think it has been success".*
> (PAR 9, Grp 1)

There seems to be an existing communication between the staff at the local government level and the government but no feedback from the government to the local governments. More so, the participant expressed uncertainty regarding cervical cancer screening location as illustrated below.

> *"The government is looking at it. I know once they send us for something, they have a plan for it, and after all our, after our programs, they will collect the reactions of the people and the findings. Umm I know they have some centres too I know, at the national hospital Abuja.*

They must. They have a centre. Diagnostic centre which they are using to examine this woman and at some point, most of the federal medical centres."

(PAR 1, Grp 1)

Health talks

Health talks were used to implement awareness. However, it was not stated if it was specifically related to cervical cancer, as seen in this quote:

"Yes, I think it was successful because, through their teaching and health talk, women were able to take advantage of that and take care of themselves."

(PAR 12, Grp 1)

Other participants helpfully explained that success was based on the fact that some of the women have attended screening programs irrespective of the beliefs surrounding the subject topic as seen in these quotes:

"It is successful because we are in the rural area where they don't value going to the clinic always because they believe they are healthy. And most of them are illiterates, but with good health education you can say 65% of them have assessed the screening services."

(PAR 5, Grp 2)

"Oh, yes, I think it is successful. I can rate it to about 45% successful because, in the rural area, there is reluctance in the awareness. Some may say because it happened on the private part, it makes some of them not to really reveal what is happening to them, they will be managing it themselves. So, for those of them who now take it upon themselves to avoid the shame and really report to the organizations when they come, usually reap the benefits, but most of them die maybe as a result of shame or not being able to really confront their problems themselves. There is record of success though we still have more to do."

(PAR 4, Grp 1)

Positive Outcomes

It seems that getting a positive client which the researcher presumed to be 'the presence of a Cervical Intraepithelial Neoplasia (CIN)' means that the strategy is successful based on participants' responses and thus explains the disappointment in the response of one of the participants as seen in these quotes:

"…. Well, it's successful because they are getting some women with this case."
(PAR 3, Grp 1)

"…It was success but no positive client."
(PAR 22, Grp 1)

Sub Theme 2: Not Successful

50% of the health stakeholders stated that the strategy implementation has not been successful. Some of responses are represented in the quotes below:

"……. it's not-successful at all…"
(PAR 10, Grp 1; PAR 13, Grp 1; PAR 14, Grp 1; PAR 17, Grp 2)

"It's not-successful as women hardly come for the screening services."
(PAR 8, Grp 2)

The main barrier to a successful strategy implementation was *Low attendance*. Participant's responses point to the fact that low attendance to screening and awareness programs have been influenced by different factors. Therefore, they expressed a feeling of discontent as they further explained their opinions, as illustrated in the quotes below.

Low attendance

Lack of follow-up was mentioned again as one of the reasons why the strategy has not been successful, as shown in the quote below:

"……Well, that one that was done then, I have not really experienced a follow-up. It was done skeletal at this place, so it's not successful."
(PAR 11, Grp 2)

Participants expressed disappointment as they highlighted the lack of awareness coverage within the local governments. The women were yet to receive their result and feedbacks from previous screening. It was also noted that the screening location is far, which also influences the success rate of the strategy. These views have been represented in these quotes below:

"We usually tell them, but most times they don't come. There is not enough awareness."
(PAR 7, Grp 2)

"There is not enough awareness as it has been limited to some areas, so not all the women were targeted. Not successful at all."
(PAR 15, Grp 1)

"…. I cannot tell you it is successful because we have not received the result and we have been asking about that result. Even the women themselves have been asking about the result. So, it's not-successful".
(PAR 18, Grp 1)

"For the fact that we have not really got them near us, I don't think it's successful for now."
(PAR 6, Grp 2)

From the gathered response, most health clinicians think that the awareness strategy has been successful as some women came out during the teaching and health talks. However, it was deduced from their responses that the health talks aimed to improve the women's general well-being but was not centred on cervical cancer and screening as seen in the word cloud diagram in Figure 30. The above issue might be the reason why 50% of the stakeholders think the strategy has not been successful as the women hardly come out for screening due to some factors that pose as a limitation. These include a lack of follow-up and reluctance in awareness. The health clinicians are reluctant in carrying out "cervical cancer and screening awareness" to the community. They rely on the women to visit the health centres with a presenting symptom before they are duly informed about the disease of which the women hardly do because they consider themselves healthy.

Figure 30: Word cloud of Participant's response.

(Developed by Researcher, NVivo).

5.7.5 Theme 4: Factors That Influences Screening

This theme aimed to address factors that influence screening uptake from the health stakeholder's perspective. Two main sub-themes, 'Positive' and 'Negative' factors, with several codes, were identified as seen in Appendices M, N and Q. These codes were collapsed due to overlap of information as seen in Figure 31. A word cloud diagram in Figure 32 shows some of the most frequent factors gathered from the participant's response. Participant's opinions have been represented in the quotes below.

Sub Theme 1: Positive Factors

Factors such as increased knowledge of the disease and free screening were identified codes that have a positive influence on screening, as shown in the quotes below:

Increased knowledge

Screening services were assessed more by educated women, as illustrated in these quotes below:

> *"…Those who are educated, they are the ones that have frequenting, visiting the health facility…"*
> (PAR 3, Grp 1)

> *"Some of them are literate and assess the screening services."*
> (PAR 5, Grp 2)

Free screening

It was interesting to know that there has been a free screening and the women had the zeal to come out, but it was not stated if this was done by the government or the visiting organization

> *"…. First of all, since it is free, they have that zeal to come. Then again to know their status."*
> (PAR 18, Grp 1)

Sub Theme 2: Negative Factors

Most of the participants stated some factors that have a negative influence on screening. These views have been represented in the quotes below.

Information under-load

Most of the women were still ignorant of the disease as stated by participants which imply that implemented strategy has not been effective as illustrated in the following quotes:

".... Well, some of them is illiteracy…"
(PAR 3, Grp 1)

"One of the things that prevent them is one, ignorance. Most of them are illiterates."
(PAR 5, Grp 2)

"Some of them are naïve. Lack of knowledge because it's not common..."
(PAR 9, Grp 1)

"Lack of awareness... People don't really know much about the disease in this community."
(PAR 10, Grp 1)

"...Ignorance. More awareness is needed."
(PAR 14, Grp 1)

"…. Ignorance, lack of information and lack of knowledge on the disease..."
(PAR 12, Grp 1; PAR 17, Grp 2; PAR 19, Grp 2; PAR 21, Grp 2)

"…. Some of them told us that they were not used to this type of examination…" (Ignorance)
(PAR 22, Grp 1)

Reasons behind information under-load were stated by some of the clinicians as represented in these following quotes below:

"…Lack of sensitization, orientation and mobilization..."
(PAR 6, Grp 2)

"…Ignorance and lack of mobilization and sensitization..."
(PAR 20, Grp 2)

"…Education, primarily education and again their level of awareness and sensitization."
(PAR 4, Grp 1)

Lack of self-confidence was also another factor that contributed to the women's fear as represented in the quotes below:

"Some feel shame, and another is ignorance."
(PAR 19, Grp 2)

"The factors…... some of them feel shy to come for the examination…"
(PAR 22, Grp 1)

Apathy (lack of interest)

There is a lack of interest and reluctance in awareness among the women because the female reproductive area is regarded as private, which prevents them from attending screening services, as shown in the quotes below:

"Apathy... The women they are not ready to talk. Once it comes to their private life, it's apathy..."
(PAR 1, Grp 1)

"In the rural area, there is reluctance in the awareness. Some may say because it happened on the private part, it makes some of them not to really reveal what is happening to them, they will be managing it themselves."
(PAR 4, Grp 1)

The mode of information dissemination was one of the reasons for lack of interest as deduced from the following quote:

"Most of them don't listen to radios. Even when the advertise for free Medicare and free check-ups, they may not hear it because most of them don't listen to radios and some of them that do, they usually occupy themselves with home videos, Nollywood and Bollywood and all those videos. They are not really appraised with the recent technology of information spread..."
(PAR 4, Grp 1)

Beliefs and Logistical Barriers

A comprehensive list of some of these factors, which include promiscuity and spiritual causes such as witchcraft, was stated by some of the participants, as shown in these quotes:

"…. Transportation, finance, illiteracy, not comfortable spreading their legs for someone, timidity..."
(PAR 7, Grp 2)

"…Transportation, finance, illiteracy and ignorance. Belief in witchcraft, prefer self-medication. Think it's their menses coming back. Spiritual belief which delays seeking medical attention on time..."
(PAR 8, Grp 2)

"Believe the cause is too much sex."
(PAR 10, Grp 1)

The women perceive themselves to be healthy and therefore prefer self-medication if they feel unhealthy except there is confirmatory evidence in the form of uncontrollable signs and symptoms. These views are reflected in this quote:

> *"I don't think there is anything preventing them. Only that you know some women, some of them cannot believe that they have it unless you screen them and discover that they have it. Some will tell you that they don't have it unless those who have breast cancer and when you examine their breast and discover any lump but if is cervical one, they won't believe until they see the signs and symptoms."*
> (PAR 3, Grp 1)

The women's cultural believe influenced screening uptake. The presence of a male healthcare worker was one of the reasons for low attendance, as shown in these quotes:

> *"Cultural influence which prohibits women from removing their clothes before a male healthcare worker."*
> (PAR 13, Grp 1)

> *"…Yes, culture plays a role in the sense that they will tell you that a man cannot screen them because it's abnormal. As another man is not allowed to see their privacy unless they are ill, which means they regard themselves as healthy even when they might have the disease."*
> (PAR 5, Grp 2)

Psychological factors

The response of some of the participants shows that the women fear giving out information concerning their private life, as seen in the quotes below:

> *"Again,… is privacy. They do not want you to know if they have such conditions or be exposed. They are scared and reluctant to give personal information."*
> (PAR 11, Grp 2)

Fear of the unknown or being identified at screening centre and stigmatization were among the major factors that influenced screening uptake as seen in the following quotes:

"…Fear of the unknown and social stigma…"
(PAR 2, Grp 1)

"…Okay, from those ones we educated that time, they are scared. They are afraid of cancer and afraid of some unknown things which make them unresponsive to screening even though they were paid."
(PAR 11, Grp 2)

"What is influencing it is number one; nobody wants to be disclosed as a cancer patient knowing fully well that is a deadly disease. They are afraid of exposure, stigma..."
(PAR 16, Grp 2)

The previous screening result is yet to be evenly distributed to all the local governments that participated in the last screening exercise. The above issue was considered as a barrier to cervical screening as it increased the women's fears, as shown in these quotes:

"…It was sent by the federal government, and they did a lot of screening here, and the result is out, but people are scared of coming for the screening in order not to be disclosed…"
(PAR 16, Grp 2)

"…. The result is still yet to come out, and we conducted a lot of women of childbearing age during that time, but we have not received their result. And they have been asking about the result."
(PAR 18, Grp 1)

Social-economic factors

It was noted from participant response that transportation and distance were among the factors that influenced screening uptake. This view has been represented in some of the quotes above and illustrated in the following quotes below.

"…. Some of them might have interest to go but think of the distance they will cover…"
(PAR 2, Grp 1)

"…Actually, we don't have a closer place where we can go to. We told UNICEF about that as the women are eager to go for screening. The women said they wanted a closer health centre where they can go to as they can't go far to get screened. So, if they find a place close enough, they will all comply."
(PAR 6, Grp 2)

"…Inaccessible road network."
(PAR 15, Grp 1)

Finance was also an important factor that influences screening uptake. Some of these views have been represented in the quotes below:

> *"Do they have money to travel to that length? And how do they pay for it? I mean those that are aware that it is necessary for them to that…Even if they are being discovered, can they afford it? Affordability comes in so; I think that's the issue..."*
> (PAR 2, Grp 1)
>
> *"Secondly, financial aspect due to economic recession..."*
> (PAR 5, Grp 2)
>
> *"…. Another thing is the cost. They were told is free, but when you go there, you will pay. The money is not affordable, so they have their reasons..."*
> (PAR 11, Grp 2)
>
> *"…Poverty and lack of finance…"*
> (PAR 7, Grp 2; PAR 8, Grp 2; PAR 12, Grp 1; PAR 17, Grp 2)

One of the clinicians expressed disappointment in their response which revealed the willingness of the health team in providing detailed information of the disease but were restricted by finance, as shown in this quote:

> *"…Then the financial part of it. There is no money to carry out full research about the disease…"*
> (PAR 16, Grp 2)

Another identified factor was the inability of the government to provide motivation, follow-up and re-enforcement for health staff members at the community level.

> *"Some health staff was selected and then trained, but the problem with us is maintenance culture. They were trained, but the maintenance wasn't forthcoming so the reagents, the equipment and what have you, they are all dilapidated. Nobody is taking care of them. It is a handicap. It is a very big problem. So, that made them, most of the cases, they are referred to private hospitals or clinics…"*
> (PAR 2, Grp 1)

From the gathered response, the negative factors that influenced screening seem to outweigh the positive factors. Lack of knowledge and ignorance about cervical cancer and screening were the most mentioned factors that influenced screening uptake. The women had the zeal to come out for

screening because it was done free, which, in other words, has a positive impact. However, this free screening is not routinely done as some of the participants mentioned the high cost of screening in the hospitals, which negatively impacts the women as they cannot afford it. Cervical cancer is a public health issue that the government is aware of and is making efforts to reduce the spread of the disease. Nevertheless, their impact is yet to be significantly noticed as the women have lost faith and trust in the government. It was noted that the women often come out for screening because they were told it is free only to find out it was a ploy used to attract them to screening programs and thus explains their further lack of interest in current screening programs. Though radios were used as a technological equipment to disseminate information to the women in the rural setting, the women seem not to be technologically inclined, thus reducing screening attendance. Fear played a major role, as well. Results of previous screening were yet to be received by the women while others feared being seen at the screening centres. Furthermore, there seems to be a lack of communication and accountability from both the government and the community healthcare staff as equipment provided for screening was not routinely used, leading to its dilapidation.

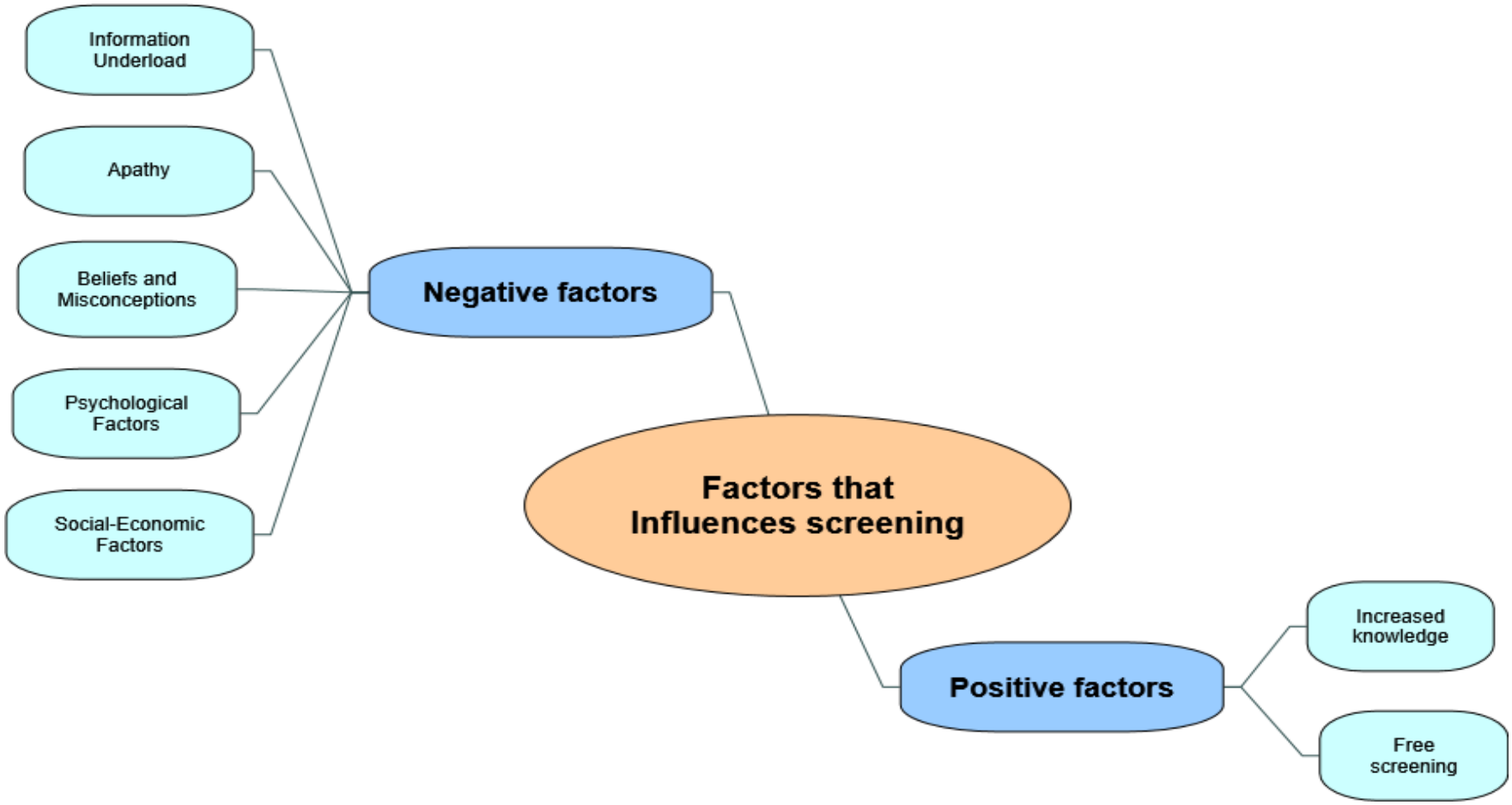

Figure 31: Factors influencing uptake of Cervical Screening.

(Developed by Researcher, NVivo).

Figure 32: Word cloud showing most influential factor(s) to screening.

(Developed by Researcher, NVivo).

5.8 Discussion

Two groups of health stakeholders, 22 in total, were recruited in this study. Most of the participants were between 41 - 60 years. Participants have been actively working in their current position for at least a minimum of 6 months to 25 years maximum. Group 1 participants were classified as health authorities who have indirect contact with the women. 12 of the participants belonged to this group and were responsible for providing community orientation, awareness campaigns, mobilization and sensitization. Group 2 participants, on the other hand, were clinicians who have direct contact with the women. 10 of the participants belonged to this group and were responsible for providing community nursing and midwifery services to the women.

The four main identified themes were:

1. Strategy
2. Strategy Implementation
3. Strategy Evaluation
4. Factors that Influence screening.

Strategy: Awareness

Most of the health stakeholders in this study explicitly stated that there is no existing cervical cancer-related strategy in Imo State. A previous Nigerian report supports this assertion by stating that Nigeria has no national policy for cervical cancer prevention and control (Kolawole, 2012). The above explains why women attend the hospital during the advanced stage of the disease when radiotherapy and even radical hysterectomy is no longer beneficial (Oguntayo, et al., 2011). However, this interview result showed that community outreach, mass media and use of healthcare facilities by health staff for collaborative or health educational services were the main methods used to disseminate cervical cancer-related information in Imo State. The above finding was affirmed by 20%, 18.4% and 9.6% of the women in study 1 who reported that they got information about the disease from awareness campaigns, healthcare centres and mass media, respectively. These methods were also used in previous studies to relay information

regarding the disease (Ezem, 2007; Nnodu, et al., 2010; Wright, 2006; Al-Naggar, 2012; Ukpo, 2013; Oluwole, et al., 2017; Mehraban, Namdar and Naghizadeh, 2018). Nonetheless, it was observed that the use of mass media has yielded tremendous results in some of the above previous studies of which the findings contrast with that of this study.

Likewise, it was noted from the health stakeholder's response that awareness strategy has been inconsistent. This view was evidenced by the women's low response rate, as shown by the percentages stated above. The lack of consistency in awareness might also be the reason why >80% of the women mentioned lack of information as one of the main perceived barriers to screening. Response gathered from one of the participants in a previous Nigerian study showed that presentation of screening determines its utilization (Ndikom and Ofi, 2012). The above view was also supported by the World Health Organization, which reports that Nigeria lacks a widely disseminated and well-articulated National policy on cervical cancer and cervical screening (WHO, 2012).

Furthermore, it was deduced from the health stakeholder's response that cervical screening is not routinely offered to ISN rural women but rather an opportunistic screening, only requested specially by the doctor when needed. The above finding implies that most women were informed about the disease upon referral to a screening centre for a Pap-Smear test. A previous Nigeria study highlights that opportunistic screening is done mostly in tertiary hospitals due to the absence of a national or community based cervical cancer program in the country (Kolawole, 2012). This study finding also corroborates with the report from previous studies were opportunistic screening was only offered to women with presenting symptoms of a reproductive tract problem or based on doctor's recommendation (Wong, et al., 2009; Al-Naggar and Isa, 2010; Hariprasad, et al., 2017). The offering of opportunistic screening, only when there is an indication for it further, emphasizes the lack of knowledge of cervical screening, as evidenced by 41% of the women in this study. The above assertion is because the women seem to know about the screening when they are referred for it. Women mostly those from low socio-economic

backgrounds usually do not participate in cervical cancer screening programs and are considered to be more at risk of contracting the disease (Palencia, et al., 2010; Kristensson, et al., 2014). The lack of participation in cervical screening programs might be the reason why opportunistic screening was preferred over routine screening as low participation rates have been observed in some countries were systematic screening programs were carried out among the population similar to that of this study (Camilloni, et al., 2013).

Based on the above findings, a formal, structured, and consistent awareness strategy using diverse communication and outreach methods will help increase ISN rural women's knowledge of cervical cancer and screening. Consistent awareness strategy has been recommended and evidenced to increase knowledge of the disease among women in other countries (Al-Naggar, 2012; Ma, et al., 2013; Ukpo, 2013; Oluwole, et al., 2017; Eshetu, et al., 2019).

Strategy Implementation

The implemented awareness strategy in Imo State focussed more on different health issues pertaining to women such as maternal death, family planning, and baby-friendly initiatives. It is disturbing to note that the health stakeholders presumed these measures to reduce all gynaecological cancers, including cervical cancer. Cervical cancer is independent of maternal death and can affect all sexually active women irrespective of their maternal status which explains why Kei, et al., (2016) recommends cervical screening for all women who perceive themselves to be sexually active. Women rely on the healthcare staff to provide first-hand information as they are believed to be well knowledgeable about the disease (Teitelman, et al., 2009; Joseph, et al., 2012; Goyal, et al., 2013; Aldohaian, Alshammari and Arafah, 2019). However, this finding has shown that Imo State health practitioners lack adequate knowledge of cervical cancer and its screening measures, thus explaining why some of the women in this study reported that the Pap-Smear test can be used for family planning and HIV prevention. These beliefs will continue to increase if not controlled as ≈51% of the women in this study

already perceive themselves less susceptible to cervical cancer based on the interpretation of information relayed to them by the community healthcare workers.

Despite the awareness strategy in Imo State, the knowledge gap among community healthcare providers also explains why they found it difficult to independently carry out screenings and community outreaches in the absence of a doctor or a third-party organization. It was noted that kits and equipment were provided for screening at the health centres, but they became dilapidated and expired because they were not used. There was lack of continuity of awareness campaigns which explains why 65% of the women in this study were yet to be informed about cervical cancer and screening irrespective of the awareness strategy. The above finding is similar to that of previous studies where healthcare providers have also been evidenced to lack adequate knowledge of cervical cancer and screening (Goyal, et al., 2013; Pomerai, Muchekez and Nyachowe, 2015). Therefore, it is expedient that cervical cancer screening education programs be carried out among community healthcare providers as they are not making good use of their positions in disseminating the necessary information to the women (Arulogun and Maxwell, 2012; Ndikom and Ofi, 2012).

Strategy Evaluation

Based on the above findings, it could be inferred that the implemented awareness strategy has not been successful or effective in reducing cervical cancer disease in Imo state and thus answers the second research question of this study. Another reason for this assertion is that most of the health stakeholders believe that health educating the women or the presence of a positive client after screening means that the strategy is successful. Besides, it was not certain from this study result if the term “positive client” means the willingness to participate in screening programs or the presence of a CIN post-screening of which the researcher assumed the later. Moreover, more than half of the health stakeholders expressed uncertainty and disappointment about the success rate of the strategy as it was deduced that the strategy lacks implementation structure. This finding is supported by a previous Nigerian study which reports that the 2010 -

2015 strategic health development plan in Nigeria did not specify the measures for the implementation of cervical cancer control, and thus lacks co-operation, co-ordination and organization which further explains the lack of implementation structure (Onyenwenyi and Gugu, 2016). Though cervical cancer implemented strategy has been observed to be successful in some studies (Risi, et al., 2004; Dreyer, et al., 2015; Awua, et al., 2017; Caster, et al., 2017; De Groot, et al., 2017), this study's findings are consistent with that of previous studies where the adopted implementation strategy has been observed to be unsuccessful (Watson-Jones, et al., 2012; Synman, et al., 2015; Adepoju, et al., 2016; Degregorio, et al., 2017). Nevertheless, strategies such as; reduction in screening cost; didactic lectures; health educational movies; monthly health sessions; individual counselling; house to house education, and community outreach has been evidenced to increase knowledge of cervical cancer and screening participation among Nigerian women (Okeke, Adepiti and Ajenifuja, 2013; Abiodun, et al., 2014; Chigbu, et al., 2017; Mbachu, Dim and Ezeoke, 2017). These strategies, therefore, need to be consistent and sustainable for them to yield a tremendous result with regards to disease reduction and increased uptake of screening.

The health stakeholders mentioned the government's involvement in implementing the awareness strategy which shows that the government are aware of the dangers posed by the disease; however, their progress is yet to be significant due to poor health policy which was highlighted by the women in this study. Lack of control programs has been observed to reduce screening participation among women (Ndikom and Ofi, 2012). Findings from study 1 analysis showed that the women were yet to receive feedback on the last concluded screening done in some local governments by the SG representatives despite the constant reminders. They also mentioned this as one of the reasons that prevent them from attending future cervical screenings. Therefore, it could be interpreted that the women have lost faith and trust in the government and the healthcare system and explain why the health stakeholders think that the women prefer to either self-medicate or patronise the traditional healers, chemist, clinics and

private hospitals. Similarly, previous study findings have also revealed that women have more faith in other sources than the modern medicine which could be attributed to the inadequacies on the part of the government (Oon, et al., 2011; Pomerai, Muchekez and Nyachowe, 2015; Balogun and Omotade, 2018). Therefore, the government needs to put more efforts to ensure that the awareness strategy yields a significant result.

Factors that Influence Screening

Interview result showed that factors such as *"Increased knowledge"* and *"Free screening"* positively influenced screening among ISN rural women. It was deduced that screening services were assessed more by educated women. This view has been explained in-depth in the first part of this research and also corroborates with one of its main findings, which showed that there is a relationship between education and awareness of cervical cancer. This study finding is consistent with that of previous studies (Jassim, Obeid and Al Nasheet, 2018), and thus explains the increased knowledge about the disease and screening among educated women compared to their counterparts.

Also, the health stakeholders mentioned that the women willingly came out for free screening when it was previously organised, of which some of them received incentives. The above measure had a huge positive impact as >80% of the women in study 1 mentioned lack of money as one of the main perceived barriers to screening. Free Pap-Smear test screening has been observed to be available in some of the developed countries such as Austria; Germany; Ireland; Israel; Poland; Portugal, and UK (Altobelli, et al., 2019) which explains the reduction in cervical cancer incidence and mortality rate in the above countries as compared to developing countries. It is important to note that the cost of preventing the disease cannot be compared to the financial burden accrued by treating it (Julinawati, et al., 2013). Therefore, the government needs to work alongside the healthcare departments to ensure that these positive factors are encouraged.

Nevertheless, some other factors were observed to have a negative impact on screening. The factors highlighted by the health stakeholders are similar to the preventive barriers mentioned by the women in study 1. The first major identified factor was fear. The health stakeholders attributed the women's fears to unknown result of previous screening, stigmatisation by the public and fear of being identified at screening centres. These views were mentioned by the ISN rural women and also corroborated with findings from previous studies (Duran, 2011; Marlow, Waller and Wardle, 2015; Kei, et al., 2016; Balogun and Omotade, 2018; Eze, Obiebi and Umuago, 2018; Marlow, et al., 2019). A UK study reported that women would feel more comfortable attending screening clinics assessed only by women as they fear being seen by familiar faces from their communities (Marlow, Waller and Wardle, 2015).

The distance of screening location was another main negative factor identified from the interview result. The health stakeholders mentioned that the screening location is far from the women. This finding was also affirmed by >70% of the women in this study. Previous study findings have also revealed that distance to a screening location is one reason for low attendance to screening programs (Mupepi, Sampselle and Johnson, 2011; Oon, et al., 2011).

The health stakeholders also highlighted that the women believe cervical cancer is caused by "too much sex" (Promiscuity). The above finding was affirmed by 15% of ISN rural women who reported having multiple sex partners as one of the risk factors of cervical cancer. Though this is true, as earlier discussed in the first part of this research, this belief was regarded as a negative factor influencing cervical screening because women who perceive themselves to be non-promiscuous do not also attend screening programs, hence the low attendance in screening. This opinion was also supported by some of the health stakeholders who also reported that the women believe they are healthy and therefore have no need for screening unless they present with symptoms or see confirmatory evidence. These views are consistent with findings from previous studies (Hewitt, Devesa and Breen, 2004; Mupepi, Sampselle and Johnson, 2011; Oon, et al., 2011; Ndikom and Ofi, 2012; Hoque, et al., 2014; Mulatu, et al.,

2017; Balogun and Omotade, 2018). Therefore, it is important that the women must be made to understand that cervical screening is for all women, asymptomatic or not (Marlow, Wardle and Waller, 2015).

Lastly, the health stakeholders mentioned culture and spiritual belief as factors that influence screening among ISN rural women. It was gathered from the interview result that the women were not comfortable exposing their sexual parts especially to male healthcare professionals, while others believed cervical cancer is caused by witchcraft. About 23% of the women in this study reported not being comfortable to be examined by a male healthcare provider. The above barrier could be attributed to their cultural, personal, or religious belief which has also been observed to influence women in other studies (Kwok, White and Roydhouse, 2011; Al-Naggar, 2012; Kei, et al., 2016; Eshetu, et al., 2019). Study 1 findings actually revealed a statistical relationship between the women's religions belief and perceived barriers to screening. However, they did not mention witchcraft as a factor influencing screening participation which contradicts the health stakeholders' perception. Nevertheless, this was found to be a factor that influenced screening participation in a previous study (Pomerai, Muchekez and Nyachowe, 2015). This finding shows that the health stakeholders may have a wrong perception as to why the women do not partake in screening programs.

In conclusion, the above negative factors need to be seriously addressed by the government and the healthcare team. Considerable efforts should be made to reduce or curb the effects of these factors on screening participation as this will have a huge positive impact on the women.

5.9 Strengths

1. Studies have been done quantitatively using health stakeholders, but not qualitatively adds strength to the study as it helped in exploring the perception and understanding of health stakeholders regarding cervical cancer and screening.

2. This study allowed for the interview of health professionals directly involved in strategy implementation in the community, and in practice.
3. Data saturation was reached, which also adds strength to this study.

5.10 Limitations

1. It was noticed that some of the health stakeholders had travelled to their different hometowns for the festive period, which explains why only 22 interviewees were recruited even though data saturation was achieved.
2. A convenience sample was used in recruiting participants and likely to be biased as some stakeholders were unavailable. Besides, the sample was highly self-selected with interviewees choosing whether to take part in the study or not.
3. The likelihood of bias was further heightened by the effects of 'social desirability' where interviewees are likely to present themselves in a way that is socially and professionally acceptable. The above was demonstrated by the fact that two interviewees removed their data because they were unhappy with the opinions expressed.
4. The study findings were as a result of a self-report which would have been further improved if the implementation of cervical screening and screening awareness were observed directly by the researcher.
5. Because of time and cost constraints, interviewees were unable to receive feedback of the conclusion from the findings (that is, member checking was not possible).
6. The study finding can only be generalizable to community health stakeholders in Imo State. It was not generalized to those working in the urban setting because of the availability of screening clinics and more awareness of cervical cancer within the area. Besides, healthcare stakeholders in the urbaan area have more access to healthcare equipment from the FG and SG.

5.11 Summary

This study explored key health-stakeholders' experiences regarding the implementation of cervical screening and its uptake among ISN rural women. Data collection lasted about four weeks (1 month), and 22 completed interviews were successfully collected from Imo state health stakeholders for analytical purposes. Four themes emerged from this study which are: strategy; strategy implementation; strategy evaluation, and factors that influence screening. Awareness mostly through community outreach; mass-media, and use of healthcare facilities for health educational services were identified as the main means of disseminating cervical cancer-related information. However, the implemented strategy, which is 'awareness', has not been effective as it focused on other health issues pertaining to women's health. Besides, these health issues, such as maternal deaths or family planning, were believed by some health stakeholders to be associated with cervical cancer and thus explain their lack of adequate knowledge regarding the disease. Likewise, it was noted that the factors which influence screening uptake were either positive or negative. Free screening was one of the positive factors that encouraged screening uptake among the women. Nonetheless, fear of unknown screening results or being seen at a screening centre; stigmatization; distance of screening location, and cultural or spiritual belief were some of the identified negative factors that also influenced screening uptake among ISN rural women according to the health stakeholder.

Chapter 6 - General Discussion

6.1 Introduction

Although study 1 and 2 were conducted separately, this chapter focussed on the findings from both studies with regards to how they complement or conflict with each other. Amalgamation or integration of study findings is a key process in the final analysis of a mixed-method research study (Santos, et al., 2017). The integration of the findings in this research was challenging as the similarities and differences in response from both studies were first reviewed, analyzed concurrently, and compared before being amalgamated. A summary of the above has been presented in Table 32. The differences found during the findings were also explained. Figure 33 diagrammatically explains the participant's flowchart which shows the total number of participants recruited for both studies in this research, the number of withdrawals or incomplete questionnaires and eligible number adopted after all inclusion and exclusion criteria has been considered.

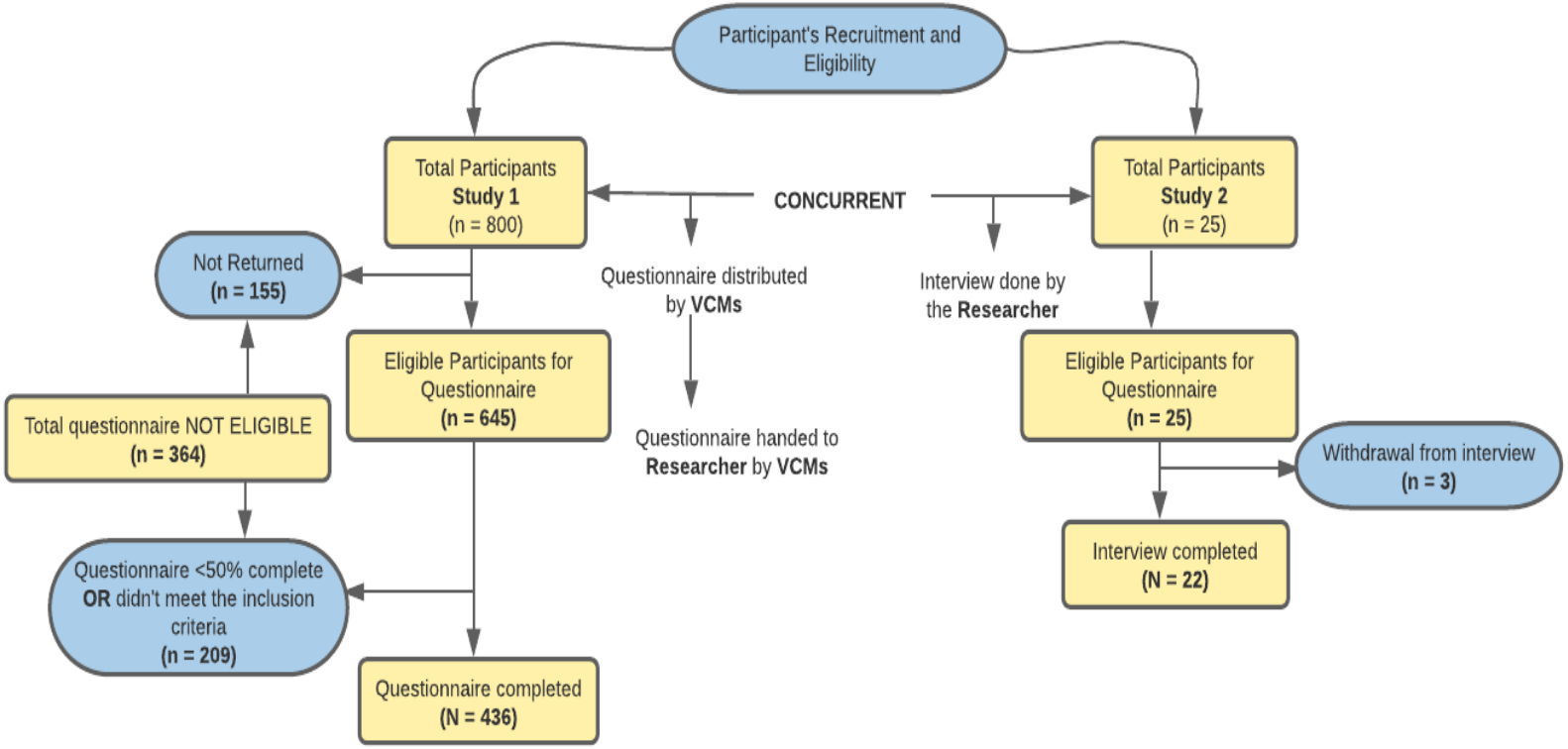

Figure 33: Study participant's recruitment and eligibility flowchart.

(Developed by Researcher)

6.2 Amalgamation of Findings for Study 1 and 2

The awareness of cervical cancer and screening among ISN rural women was observed to be, low. The above finding agrees with the interviewees' response, as they mentioned that cervical cancer awareness has been inconsistent at the community level. Therefore, it is possible that most of the women may not have heard the opportunity to be informed about the disease due to the inconsistency in creating awareness about it. On the other hand, the health stakeholders have only focused on creating awareness of the disease and not its susceptibility. Lack of knowledge and ignorance were mentioned by most of the interviewees as negative factors that influence screening uptake. However, they are yet to understand how the women perceive the disease with regards to their susceptibility. The women in this research perceive that they are less susceptible to cervical cancer, which explains why cervical screening awareness is low because they do not see the need for it. Moreover, susceptibility was observed to increase with age, which means that as the women grew older, they perceive themselves more susceptible to cervical cancer. Not addressing susceptibility to the disease is an issue that needs urgent attention as the awareness strategy did not specify how it aims to target women of all age groups but rather assumed that awareness would somehow reach all the women. Health education iterating how susceptible the women are to cervical cancer will not only help to improve awareness of the disease but that of cervical screening as well.

The awareness strategy has been deemed unsuccessful by some health stakeholders and further affirmed by the women's lack of knowledge. Findings in this research showed that the awareness strategy lacks an implementation structure. It included health talks aimed at improving the women's general wellbeing but was not tailored specifically to cervical cancer which explains why some of the women listed overweight; heredity, and use of IUCD as cervical cancer risk factors. Others highlighted sore throat and conjunctivitis as disease symptoms, while about 27% thinks that a blood test is a suitable diagnostic test for cervical cancer. Although the women have a positive attitude to screening and even expressed willingness to participate in

screening programs if made available to them, the things that might help change their health behaviour is still very low. Healthcare providers need to understand that health educating women on diseases that affect their health does not mean that the implemented strategy is successful. Besides, health-related topics should be discussed one after the other to avoid conflict of information as some of the symptoms of cervical cancer are also applicable to other diseases, thus explaining why screening is necessary in order to be sure of the particular health issue affecting the woman.

Surprisingly, it was observed that the lack of knowledge on cervical cancer was not only applicable to ISN rural women but the health stakeholders as well, which call for urgent attention. Some of the interviewees assumed that having a 'positive client' (pre-cancerous abnormalities) during screening means that the strategy is successful. Others believed that the strategies aimed at reducing breast cancer, such as baby-friendly initiatives or exclusive breast-feeding and family planning, will also target cervical cancer and other gynaecological cancers. The above assertion explains why some of the women think that the Pap-Smear test is for family planning or prevents HIV. Community healthcare providers are the first point of contact for the women, which means the women have faith that any information provided by them is accurate. Therefore, healthcare providers ought to ensure that they have adequate knowledge of cervical cancer and its related aspects such as its stages, risk factors, symptoms, and screening measures, so as to properly inform the women of the disease and enable them to make an informed decision regarding their health.

Community outreach, mass media and use of healthcare facilities were mentioned by both the women and the health stakeholders as ways of creating awareness. One of the community outreaches used in carrying out awareness was the 'August meeting' which involved the gathering of married women from home and abroad in order to promote togetherness and healthy living through health education. The use of August meetings in creating awareness is a step which should be encouraged. However, this is an annual event that is fully packed with

activities and thus means that cervical cancer awareness can only last few minutes to give room for other activities. The women, therefore, lack adequate time to process and digest the information received. Suppose the annual event is to be followed sequentially that means healthcare providers will have to wait till the next August meeting to carry out another awareness on cervical cancer which further explains the lack of consistency. Besides, this meeting is for only married women, limiting the awareness coverage to only the available audience.

The only NGO known to the women and health stakeholders that often carry out occasional awareness on cervical cancer and screening was 'LAPO' (Lift Above Poverty Organization). Study findings showed that this organization often solicit the help of community healthcare providers, IT students and nurses in training which is a step in the right direction as the women have less anxiety when they see familiar faces. However, this organization was mentioned by <3% of the women, which means they were yet to achieve a wide coverage of awareness. Besides, one NGO cannot shoulder the burden related to awareness coverage in a State with more than 2 million women above the age of 18. Awareness needs to be routinely done at the community and should be one of the health topics provided to women at the healthcare facilities to promote wide coverage of disease awareness.

Fear of the unknown; lack of feedback/result of previous screening, superstitious belief, lack of money, lack of follow-up, fear or shame of being seen at a screening centre; stigmatization, and transportation/distance of screening location were some of the barriers that influence screening mentioned by both the women and health stakeholders. However, some of these barriers can be avoided if proper steps are followed. According to the interviewees, cervical screening is occasionally carried out in the communities by either government officials or NGOs on designated days. Nevertheless, the result of the screening test was yet to be received. Though this barrier was mentioned by only 5% of the women, it leads to doubt and lack of trust in the health system. Also, it instigates fear and wrong assumptions in the women due to the unknown outcome of the result. Likewise, the health stakeholders mentioned that when cervical screening

was previously organized free in some of the communities, the women came out willingly to participate, and thus emphasizes the importance of free screening as >80% of women in this research mentioned lack of money as a barrier to screening. Similarly, the involvement of a male healthcare professional was another notable finding mentioned by both the women and the health stakeholders. About 2% of the women reported not being comfortable when examined by a male healthcare professional, of which the health stakeholders attributed this to cultural/spiritual belief. Culture/spiritual belief was also only mentioned by 2% of the women and further shows that the healthcare providers need to focus more on understanding the women's perception about cervical cancer and not just creating awareness of the disease.

More than 70% of the women mentioned the distance of screening location as a barrier to screening. About 17% of them assessed the screening clinic through public transport which takes about 2-3 hours. Coincidentally, the interviewees acknowledged this as a barrier too. Time is of great importance, especially to women in rural areas who depend on trading for survival. Besides, the cost of transportation for a 2–3-hour journey might also be an issue. The problem of distance explains why opportunistic screening is offered to the women at the physician's request. Although opportunistic screening will help limit the time and cost of attending a screening clinic, it does not inform the women about the disease or help create prior awareness of disease prevention. Therefore, if distance seems to be an issue, awareness can be carried out in the community on a weekly or monthly basis. This research did not investigate further into some of the solutions that will help reduce the barriers mentioned above, but these are common barriers that influence not only ISN rural women but others in different countries and should be taken into consideration when implementing cervical cancer-related strategies.

While the interviewees said that the government was responsible for implementing cervical cancer awareness strategy, the women reported that poor governmental health policy was one of the reasons they do not participate in screening programs. Therefore, it can be inferred that both the women and health stakeholders agree that the government has a huge role to play with

regards to drafting cervical cancer policies to ensure that strategy implementation yields significant result. Although the government has a lot to offer, it is also the health stakeholders' responsibility to ensure that healthcare providers have adequate knowledge of the disease through training to build their confidence in independently carrying out awareness and screenings. Lack of confidence was one of the highlighted challenges mentioned by the interviewees, who reported that they have been trained and supplied with cervical screening kits. The above reason explains why awareness is not routinely done as the community healthcare team depend on NGOs or government-specific awareness days before enlightening the women on cervical cancer-related information. According to the interviewees, the supplied screening kits became dilapidated which was assumed to be due to lack of use and thus poses a huge economic burden to the government as the money spent training staff and purchasing those kits is wasted. It also shows a lack of proper communication and accountability between the healthcare department and the government. A feedback channel and proper documentation would have shown when and where the screening kits were used, including restocking, to replace the used kits. Besides, if the healthcare providers are confident in carrying out cervical screenings using the supplied kits, pre-cancerous cervical lesions would be detected early, mortality rate will reduce, and funds allocated for cervical cancer treatment will be channelled into preventive services and other health issues in the country. More so, if the healthcare providers are confident on their knowledge about the disease, even if the facilities do not have the necessary equipment, they can help advise the women on notable symptoms and appropriate referral to a secondary or tertiary level of care if the need arises.

6.3 Summary of research questions

Research Question 1: What is the impact of cervical cancer awareness on screening participation among rural women ≥18 years?

1. More than half of the women are aware of cervical cancer, but only 7% have attended a screening program.

2. This research finding showed that there is strong statistical evidence of the relationship between awareness of cervical cancer and attendance to screening.
3. The increase or decrease in cervical screening participation is dependent on the women's awareness of cervical cancer.
4. The above findings led to the conclusion that; the awareness of cervical cancer has a huge impact on screening participation.

Research Question 2: What is the perception of ISN rural women with regards to cervical cancer and screening?

1. ISN rural women have a positive attitude to cervical screening.
2. However, they had less susceptibility to cervical cancer.
3. Also, the women's susceptibility to the disease was observed to increase with age.
4. The women believe and perceive the outcome of cervical cancer to be highly severe.
5. Most women perceived that the benefit of the Pap-smear test is to help in the early detection of cervical cancer.
6. The main barriers the women believe prevents them from attending cervical screening are lack of money; lack of awareness/information; distance of screening location, and lack of knowledge of where screening is done.

Research Question 3: How effective is (are) the implementation strategy(s) in reducing cervical cancer disease and increasing screening participation in Imo state?

1. The health stakeholders believe that health educating the women alone means that the implemented strategy is successful.
2. They also assumed that having a positive client (pre-cancerous abnormalities) during screening means that the strategy is successful.
3. Also, more than half of the health stakeholders were uncertain if the implemented strategy was successful or not.

4. It was inferred from the findings that the awareness strategy lacks an implementation structure.
5. Based on the factors mentioned above, it was concluded that the implemented strategy, which is awareness, has not been effective in reducing cervical cancer disease and increasing screening participation in Imo state.

Table 32: Summary of results based on research questions and study objectives.

RESEARCH QUESTIONS AND OBJECTIVES	FINDINGS
STUDY 1	
Research question 1: What is the impact of cervical cancer awareness on screening participation among rural women ≥18 years?	This research found out that the increase or decrease in cervical screening participation depended on women's awareness of cervical cancer. The above simply means that awareness of cervical cancer has a huge impact on screening participation.
Research question 2: What is the perception of ISN rural women with regards to cervical cancer and screening?	Although Imo State women have a positive attitude to screening and expressed willingness to attend if made available, they did not perceive themselves susceptible to cervical cancer. However, they perceive the outcome of the disease to be highly severe. The main barriers that prevent the women from attending cervical screening are lack of money; lack of awareness/information; distance of screening location, and lack of knowledge of where screening is done.
STUDY 2	
Research question: How effective is (are) the implementation strategy(s) in reducing cervical cancer disease in Imo state?	This research finding showed that the implemented awareness strategy has not effectively reduced cervical cancer disease and increased screening participation in Imo state due to some factors that were yet

	to be addressed by the Nigerian government and the healthcare providers.
Primary Objective 1: To assess, examine and evaluate the knowledge of cervical cancer and screening among ISN rural women ≥18 years.	More than 50% of the women lacked knowledge of cervical cancer and were yet to hear about cervical screening. Also, >50% of the women who have heard of the disease were yet to attend screening.
Secondary Objective 2: To evaluate and understand the determinant factors that influence cervical cancer and screening participation among ISN rural women.	The four main determinant factors mentioned by the women with >50% response were: lack of money; lack of awareness/information; distance of screening location, and lack of knowledge of where screening is done. Other determinant factors mentioned by the health stakeholders were: Ignorance/illiteracy, fear of unknown outcome, Lack of feedback/result of previous screening, Superstitious belief, Transportation/distance of screening location, Lack of money, lack of information/enough awareness and Lack of follow-up.
Secondary Objective 3: To examine ISN rural women's health belief regarding cervical cancer and screening using the HBM.	More than 50% of the women do not believe they are susceptible to cervical cancer. Susceptibility was observed to increase with age, which means that as the women get older (in age), they perceive themselves to be more susceptible to the disease.

	Also, >50% of the women believe that cervical cancer is deadly and perceive the disease to be highly severe. More than 50% of the women perceived that the Pap-smear test's benefit is to help in the early detection of cervical cancer. The main perceived barriers that prevent ISN rural women from attending screening programs were: lack of money, lack of awareness/information, distance of screening location and lack of knowledge of where screening is done.
Secondary Objective 4: To critically examine and appraise the effectiveness of the implementation strategies aimed at reducing cervical cancer in Imo state.	The Awareness strategy has not been successful and effective enough in reducing the spread of the disease among ISN rural women. Awareness is not routinely done, and community health staff members lack the confidence to carry out outreach and screening programs/examinations independently. Therefore, the progress of the awareness strategy is not yet significant.
Secondary Objective 5: To evaluate the efforts made by the government in reducing cervical cancer and increasing screening utilization among community women.	Some of the efforts made by the government and some other Non-Governmental Organizations include staff training; provision of screening kit; community and mass media outreach, but there is lack of sustainability, follow-up, accountability of screening kit, motivation, and re-enforcement of community health staff.

6.4 Summary

In this chapter, the findings from both study 1 and 2 were amalgamated. While study 1 focused on awareness/knowledge and health beliefs of women regarding cervical cancer and screening, study 2 focused on health stakeholders' perception of strategy implementation. Although both studies' findings were entirely different, some of them from the women either complimented or conflicted with that of the health stakeholders' and were highlighted. The findings that helped to answer the three research questions in this research were also mentioned. Some of the complemented findings relate to barriers that influence screening. However, it was noted that some of the perceptions that the health stakeholder has with regards to the women's lack of participation in screening programs were based on assumptions. Also, health stakeholders seem to focus more on creating awareness of cervical cancer but lack the foresight to understand how ISN rural women perceive the disease with regards to their susceptibility.

Chapter 7 – General Conclusion and Recommendation

7.1 Introduction

Cervical cancer is a major public health issue facing Imo state and Nigeria at large. This research is one of the first to assess ISN rural women's awareness/knowledge on cervical cancer, its impact on screening participation, and the perception of strategy implementation among health stakeholders living in Imo state. The research was, therefore divided into two studies, study 1 and study 2.

Study 1 focused more on understanding the awareness/knowledge of cervical cancer, cervical screening, health beliefs and the determinant factors that influenced screening participation among rural women. The Health Belief Model was adopted as a theoretical framework for this study. A comprehensive literature review was used to explore cervical cancer awareness/knowledge and the role of health beliefs in cervical screening attendance. A 32-item questionnaire was used to collect data from ISN rural women aged 18 years and above. Descriptive and inferential analyses were used to describe and make predictions relevant to the study. The first and second research questions were aalso nswered in this study.

Study 2, on the other hand, reflected on the effectiveness of relevant strategy implementation and efforts made by the government in reducing cervical cancer and increasing screening utilization among ISN rural women in study 1. Health stakeholders were recruited and interviewed in-depth using a semi-structured approach. Data analysis was done using thematic analysis which helped to generate themes relevant to this study. The third research question was also answered in this study.

Findings from the analysis of both studies were compared to previous studies' findings, especially those reviewed in this research.

7.2 Contribution to Knowledge

This research has shown that awareness/knowledge of cervical cancer and screening is very high in developed countries resulting in low mortality rates compared to developing countries. It has also provided insight into ISN rural women and health stakeholders' views regarding barriers to screening and possible ways of curbing them. Nonetheless, it has suggested better ways of increasing the awareness/knowledge of cervical cancer and screening in Imo state and Nigeria at large, based on the findings from both study 1 and 2. Recommendations, if implemented, will influence policy makers to make changes that will help improve Nigerian women's health and well-being. They will also help the government draft policies that are tailored to the needs of women mostly at the rural or community level.

7.3 Strengths and limitations of the study

This research is a mixed-method study that adopted both quantitative and qualitative approaches. The strengths and weaknesses of each method were complimented by the other, which helped to increase the strength of this research.

Both studies (1 and 2) in this research were carried out simultaneously, which was time-consuming and expensive. However, these were the two main disadvantage of a mixed-method study, so it was expected. Furthermore, data collection was done during the festive period, which posed as a limitation and could not be avoided due to delay in ethics approval. The researcher had to travel to a different country for data collection immediately approval was received, which coincidentally was during the Christmas season. To manage and avoid a low response rate due to the festivity, data was collected on non-market days. However, it was observed that the communities individually operate small markets to help local traders generate income, making it difficult to target all the women within the selected age group.

7.4 Conclusion

Cervical cancer disease should be among the top public health priorities in Nigeria. The disease affects sexually active women who are at the prime of their lives irrespective of the State or community. It negatively impacts the emotional, physical, and financial status of families, communities, the State, and the country. However, the disease is cheaper to prevent, which explains why prevention strategies should be adopted to help control its incidence and prevalence in Nigeria. The collection and analysis of data from study 1 and 2, has helped the researcher to answer all the three questions in this research. Findings for the first research question revealed that “The awareness of cervical cancer has a huge impact on screening participation”. The finding for the second research showed that “The women believe the disease is deadly but do not believe they are susceptible to it” while that of the third research question showed that “The relevant strategy implementation has not been effective in reducing cervical cancer disease and increasing screening participation in Imo state”. It was observed from this research that ISN rural women lack knowledge of cervical cancer risk factors, symptoms, and screening which calls for urgent attention. Also, attendance to screening program was influenced by awareness of cervical cancer and some social demographic characteristics such as education and marital status. Though awareness strategy has been implemented in some of the LGs, there was a lack of wide coverage as not all the LGs were involved. The above explains why the women believe that they are less susceptible to cervical cancer. However, they agreed that the disease's subsequent outcome is highly severe and expressed willingness to attend screening programs if made available to them. Screening location was reported to be far as the women travel approximately 2-3 hours before they could assess a screening clinic, thus explaining why the women were not fully utilizing the available screening services. Although the women correctly assumed that the Pap-Smear test is suitable for diagnosing cervical cancer, some of them thought that its benefit includes family planning while some said they were not sure. Lack of knowledge about the disease and screening was also found

among the health stakeholders, which explains the inconsistency and lack of continuity of the awareness strategy by the community healthcare team. The main barriers to screening highlighted by both the women and the health stakeholders were: lack of information and awareness; lack of money, and distance of screening location. The research questions and its related findings are mentioned below.

7.5 Recommendation for Future Research

A quantitative study focusing on awareness/knowledge of cervical cancer and screening on both urban and rural women in Imo State is highly recommended to compare what is obtainable among women from different socio-economic backgrounds. Comparing the findings will help confirm if there are screening centres for cervical cancer in Imo State, how women from both areas are assessing it and if it also offered opportunistically to women in the urban area as it is with the women in this study who are from the rural area.

Although study 1 focused on women 18 years and above, the knowledge of young girls <18 years who are sexually active needs to be explored as this will provide a better understanding of the extent of cervical cancer awareness coverage and screening uptake in Imo State.

Most of the women in this research do not perceive themselves to be susceptible to cervical. Therefore, a qualitative study aimed at understanding the women's perception or why they perceive that they are not susceptible to cervical cancer is highly recommended.

Further research aimed solely at accessing community healthcare workers' knowledge of cervical cancer and screening utilization is also recommended in Imo State. Also, direct observation of the implementation of cervical cancer awareness and screening needs to be further explored.

7.6 Recommendation Based on Findings

7.6.1 The Government

The government needs to draft new, structured, and sustainable cervical cancer policies or improve and intensify the existing strategy to ensure wide coverage in all the Nigerian states. Policies should aim to address the barriers mentioned by the women while considering the effect of the disease on the country's economy. Likewise, the government should solicit the help of popular telecommunication networks (e.g., MTN; GLO; Airtel, and Etisalat) in sending timely monthly screening reminders to everyone in Nigeria as this will also help the men to remind their daughters, sisters, and wives to go for screening.

Increasing literacy level through education will help to improve awareness/knowledge of cervical cancer and screening among Nigerian women. In addition to this, health education on cervical cancer and screening needs to be intensified. Mass and social media are useful and advanced communication tools that should be adopted in targeting mostly younger women. Also, creative, and innovative visual or audio adverts in the Igbo language will help target the uneducated rural women who find it difficult understanding the English language.

Healthcare providers are the first point of call at the community level (Ryan, 2009; Teitelman, et al., 2009). Therefore, it is important for the government to adequately empower them with the necessary equipment, skills, and training needed to intercept the barriers and negative determinant factors that limit the participation and uptake of screening among women at the community level.

Similarly, monthly, or quarterly checks need to be carried out in the healthcare facilities to ensure that the kits and equipment provided for cervical screening are used for its purpose and accounted for. Refreshers training every, one to three years should be made mandatory by the government

as this will keep the health team updated on any new or existing information that will help increase the knowledge of women on the disease and screening participation.

Having at least two or three screening clinics in each LG will help address the issue of distance to screening location and reduce the burden posed on health workers at the tertiary level of care due to referral. Furthermore, since the women are familiar with the VCMs (who are members of the community), they can act as the government's front-liners in the dissemination of cervical cancer-related information in their respective communities.

Funds, therefore; need to be allocated for more research that will target cervical cancer prevention, control programs and factors that influences screening participation.

7.6.2 Target Population

Women

Cervical cancer disease and screening should be made a routine topic during the women's annual church thanksgiving days and August meetings. These programs are widely celebrated by women in all the local governments in Imo State. Therefore, awareness campaigns can be carried out using the women as sole organizers so they can feel involved and have a sense of responsibility.

Study findings showed that increased education was needed. Therefore, the women should be taught sex education, the importance of abstinence and safe sex practice. Simple clear and precise messages that can convey the necessary information within seconds should be printed in pamphlets or fliers, making it easy to distribute and read. Educational intervention in church groups is a useful tool recommended to target women, especially ethnic minority women (Marlow, Waller and Wardle, 2015). Similarly,

The women can also be taught to independently carry out self-vaginal HPV testing to reduce the high referral and burden on the healthcare facilities as this will also reduce stigma, embarrassment from male healthcare examiner and fear of being recognized at a screening clinic. Women from other countries have widely accepted self-vaginal testing, and it will soon become the major focus of future screening programs (Catarino, et al., 2015).

A game app with cervical cancer-related information can be created, and incentives such as points awarded for those that achieve a certain score. These points if converted to vouchers or goodie bags, can be redeemed only after a screening test. The above measure is a long-term strategy that will gradually increase awareness/knowledge of cervical cancer and attendance to screening.

Health Stakeholders

Awareness was identified as the relevant strategy implementation but has not been effective in increasing the knowledge of cervical cancer and screening among ISN rural women as the disease is not routinely discussed in the community and healthcare facilities. The community healthcare providers need to include cervical cancer-related topics as part of the women's routine health talks, especially during antenatal, postnatal, and immunization visits (Ndikom and Ofi, 2012). Educational campaigns must focus not just on raising awareness but on stressing that any sexually active woman is susceptible to the disease.

Though opportunistic screenings will help reduce the burden of cervical cancer in Imo State and Nigeria at large, it will be more effective if it is done in large scale and possibly offered by other healthcare centres including those at the community level (Adab, et al., 2004).

The Health Belief Model (HBM) which has been adopted by different studies carried out in other developing countries like Ghana and South Africa to assess cervical cancer screening behaviour (Hoque, et al., 2014; Annan, Oppong Asante and Kugbey, 2019) should also be adopted by

Nigerian healthcare providers as a standard framework to assess women's health behaviour and in the planning; implementation, and evaluation of cervical cancer screening. Adding a modality score function to these constructs will help the health workers identify women who need more attention. For example, if a woman scores 10 in all the constructs of the HBM, they could be classified as more knowledgeable of the disease and thus need less attention than women who scored 4.

A code generated specifically for each individual woman can be used to replace the women's names and ensure confidentiality as most of the women fear being stigmatized by the public. Codes can be printed in a screening card that looks like an ATM card which needs to be brought and handed over to the healthcare worker during each screening test. This code can also be used to send reminders for routine screening.

The Community

A public awareness campaign and educational programs are needed in the communities as it will target both the women and the men. Cervical cancer is a public issue that needs to be made known to everyone. Male involvement will not only increase participation among the female partners but also the adolescent girls.

Community schools also need to include cervical cancer-related topics as part of the reproductive health module. The above measure will help increase awareness of the disease, screening participation, and empower the girl child with adequate knowledge to identify disease risk factors and symptoms. Similarly, inter and intra-school competitions on health-related issues such as cervical cancer, are recommended as it will encourage independent learning among the students and their peers thereby increasing awareness of the disease and screening practices within the learning environment.

Each community needs to be targeted at a time to ensure wide coverage of screening programs. They also need to be specifically informed of where to go for a screening test. Also, the community stakeholders and local government representatives ought to be involved in the implementation of strategy and decision making concerning the community as they are in the best position to provide information that will be of great benefit to the women and the community at large.

7.7 Implication for Practice

Healthcare providers are the first point of call at the community level. Therefore, they ought to provide adequate information about cervical cancer disease and screening benefits (Cain, et al., 2009; Teitelman, et al., 2009). The benefits of cervical screening and healthy sexual lifestyle with special reference to barrier methods of contraception need to be adequately communicated to the women and the community at large (Ibbotson and Wyke, 2005). Cervical cancer disease is a sensitive subject that concerns the private life of a woman. Therefore, a positive nursing attitude is expected as it will help build the women's trust and confidence in the healthcare system. A positive attitude from the healthcare professional will also help to increase screening participation and influence positive behavioural change among the women (Twinn and Cheng, 2000; Ackerson and Gretebeck, 2007).

7.8 Summary

This chapter provided a brief explanation of the two studies conducted in this research and their adopted methodology. The strengths, limitations, and recommendations for further studies were highlighted. However, recommendations for different but relevant population of interest such as the government; community; healthcare providers, and the women were also provided. The reason for the above was to ensure that everyone plays their part in increasing awareness/knowledge of cervical cancer and encouraging uptake of screening programs.

7.9 Reflection

Carrying out this study has been very challenging. However, I have learnt a lot during the process. Choosing the research problem to investigate was not an issue as I have patiently and progressively studied the influence of the disease on women from my undergraduate level till now. Nevertheless, my data collection and analysis stages were the most challenging part of this research as I had to gain ethical approval from both the Nigerian government and that of the university as shown in Appendices R and S. Also, I had to travel to Nigeria for the fieldwork, which had a huge impact on my finance and time. At the start of this course, I had a vague knowledge of the two statistical software used in analysing my collated data. Therefore, I had to watch lots of videos, read lots of books and attend lots of conferences to increase my knowledge of analysis and the use of both the SPSS and NVivo software. However, the guidance from my supervisory team and the different training provided by the university, helped to keep me on track. I really enjoyed the whole process and was more intrigued anytime I successfully completed a part of the research of which I rewarded myself with some treats. My knowledge of statistics has improved, and I can also draft meaningful and SMART objectives and research questions with little or no help. If I am to conduct this study again, I will do much better using the transferrable skills gained during this research.

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Appendices

Appendix A: The Thirty-Six States in Nigeria and their capitals

STATES	CAPITAL	GEOPOLITICAL ZONES
1. Abia State	1. Umuahia	1. South - East
2. Adamawa State	2. Yola	2. North - East
3. Akwa Ibom State	3. Uyo	3. South - South
4. Anambra State	4. Awka	4. South - East
5. Bauchi State	5. Bauchi	5. North - East
6. Bayelsa State	6. Yenagoa	6. South - South
7. Benue State	7. Makurdi	7. North - Central
8. Borno State	8. Maiduguri	8. North - East
9. Cross River State	9. Calabar	9. South - South
10. Delta State	10. Asaba	10. South - South
11. Ebonyi State	11. Abakaliki	11. South - East
12. Edo State	12. Benin City	12. South - South
13. Ekiti State	13. Ado-Ekiti	13. South - West
14. Enugu State	14. Enugu	14. South - East
15. Federal Capital Territory	***15. Abuja***	***15. North - Central***
16. Gombe State	16. Gombe	16. North - East
17. Imo State	17. Owerri	17. South - East
18. Jigawa State	18. Dutse	18. North - West
19. Kaduna State	19. Kaduna	19. North – West
20. Kano State	20. Kano	20. North - West

STATES	CAPITAL	GEOPOLITICAL ZONES
21. Kastina State	21. Kastina	21. North - West
22. Kebbi State	22. Kebbi	22. North - West
23. Kogi State	23. Lokoja	23. North - Central
24. Kwara State	24. Illorin	24. North - Central
25. Lagos State	25. Ikeja	25. South - West
26. Nasarawa State	26. Lafia	26. North - Central
27. Niger State	27. Minna	27. North - Central
28. Ogun State	28. Abeokuta	28. South - West
29. Ondo State	29. Akure	29. South - West
30. Osun State	30. Oshogbo	30. South - West
31. Oyo State	31. Ibadan	31. South - West
32. Plateau State	32. Jos	32. North - Central
33. Rivers State	33. Port Harcourt	33. South - South
34. Sokoto State	34. Sokoto	34. North - West
35. Taraba State	35. Jalingo	35. North - East
36. Yobe State	36. Damaturu	36. North - East
37. Zamfara	37. Gusua	37. North - Wes

Appendix B: Nigeria's Growth Population from 1950 to 2019 (Historical)

YEAR	POPULATION	% MALE	% FEMALE	DENSITY (KMÂ²)	POPULATION RANK	% GROWTH RATE
2019	200, 962, 417	50.69	49.31	217.55	7	2.60
2018	195, 875, 237	50.68	49.32	212.04	7	2.61
2017	190, 886, 311	50.67	49.32	206.64	7	2.63
2016	185, 989, 640	50.66	49.34	201.34	7	2.65
2015	181,181, 744	50.65	49.35	196.13	7	2.70
2010	158, 578, 261	50.58	49.42	171.66	7	2.68
2005	138, 939, 478	50.50	49.50	150.41	9	2.58
2000	122, 352, 009	50.42	49.58	132.45	10	2.52
1995	108, 011, 465	50.35	49.65	116.92	10	2.54
1990	95, 269, 988	50.31	49.69	103.13	10	2.64
1985	83, 613, 300	50.26	49.74	90.51	10	2.62
1980	73, 460, 724	50.27	49.73	79.52	11	3.00
1975	63, 373, 572	50.07	49.93	68.6	11	2.51
1970	55, 981, 400	50.01	49.99	60.6	11	2.23
1965	50, 127, 214	49.96	50.04	54.26	13	2.11
1960	45, 137, 812	49.91	50.09	48.86	13	1.90
1955	41, 085, 563	49.89	50.11	44.48	13	1.65
1950	37, 859, 744	49.89	50.11	40.98	13	0.00

Appendix C: Nigeria's Projected Growth Population from 2020 to 2095

YEAR	POPULATION	% MALE	% FEMALE	DENSITY (KMÂ²)	POPULATION RANK	% GROWTH RATE
2020	206,152, 701	50.70%	49.30%	223.17	7	0
2025	233,691, 888	50.73%	49.27%	252.98	5	2.54%
2030	264,067, 527	50.75%	49.25%	285.86	5	2.47%
2035	297,323, 173	50.76%	49.24%	321.86	5	2.40%
2040	333,172, 092	50.75%	49.25%	360.67	4	2.30%
2045	371,119, 359	50.74%	49.26%	401.75	4	2.18%
2050	410,637, 868	50.72%	49.28%	444.52	3	2.04%
2055	451,310, 617	50.69%	49.31%	488.55	3	1.91%
2060	492,643, 358	50.65%	49.35%	533.3	3	1.77%
2065	534,359, 116	50.60%	49.40%	578.46	3	1.64%
2070	576,062, 295	50.54%	49.46%	623.6	3	1.51%
2075	617,054, 577	50.47%	49.53%	667.98	3	1.38%
2080	656,683, 661	50.40%	49.60%	710.88	3	1.25%
2085	694,557, 237	50.32%	49.68%	751.87	3	1.13%
2090	730,325, 352	50.24%	49.76%	790.59	3	1.01%
2095	763,551, 079	50.17%	49.83%	826.56	3	0.89%

Appendix D: Articles that explored cervical cancer awareness/knowledge (2010 – 2020)

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Suneetha and Rao, (2011) **India**	Quantitative	Urban and rural women (35 – 60 years)	Questionnaire	Both urban and rural women have moderate knowledge of cervical cancer. The knowledge of cervical cancer among rural women was dependent on the source of information.	STP was observed to be effective in increasing the knowledge of cervical cancer among urban and rural women.	
Eze, et al., (2012) **Nigeria**	Quantitative	Rural women (>20 years)	Questionnaire	Low awareness of cervical cancer among women.	The level of cervical cancer-related knowledge among Igbo women in the rural area is low. Aggressive awareness education was highly recommended.	The study does not represent the whole community as it only focused on women that attended the clinic during the study period.
Ndikom and Ofi, (2012) **Nigeria**	Qualitative	Women (26 – 30 years)	Focus group discussion	Women have not heard of cervical cancer	Women lack awareness of cervical cancer disease and claimed that information was not being provided by the health workers.	Findings are not generalizable as it only focused on women that attended an antenatal clinic.
Low, et al., (2012) **United Kingdom**	Quantitative	Females >16 years	Questionnaire	Participants lack knowledge of cervical cancer risk factors and symptoms.	Intervention should target women from an ethnic minority group and low education	

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Simayi, et al., (2013) **China**	Quantitative	Married rural women (19 – 70 years)	Questionnaire	Women with no prior education had poor awareness of cervical cancer. A one-time educational intervention increased the women's awareness level of the disease. Illiteracy and low-income were factors that influenced the before and after an educational intervention.	Community-based awareness programs on cervical cancer are sustainable, locally affordable, and realistic in low-income countries.	The study was carried out among mostly Muslims of which the study findings might be different if the views of other religious denomination were considered. The study highlights low-income as a factor that influences educational intervention; however, this factor is a known constant as the study was carried out in two low-income towns.
Getahun, et al., (2013) **Ethiopia**	Quantitative	Women >15 years	Questionnaire	The women had poor knowledge of cervical cancer but have heard of it mainly through media.	Women should be well-educated on disease risk factors, signs, and symptoms.	
Ukpo, (2013) **Nigeria**	Quantitative	Women >18 years	Questionnaire	Older women >45 years were more knowledgeable about cervical cancer than younger women <44years	Generally, there is a low level of knowledge regarding cervical cancer among women in Imo State, Nigeria.	
Olowokere and Ojo, (2014) **Nigeria**	Quantitative	Rural women (25 – 50 years)	Questionnaire	77% of the women were aware of the disease, but only 41.3% had good knowledge.	Nurses need to intensify efforts aimed at increasing cervical cancer awareness among the women.	

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Siddharthar, Rajkumar and Deivasigamani, (2014) **India**	Quantitative	Women (18 – 60 years)	Questionnaire	Despite the NCCP, most of the women had poor knowledge of cervical cancer.	The women's response to the NCCP would have been better if they were well informed about the disease.	The study findings cannot be generalized to all rural women as recruitment was from a hospital which does not represent all the women.
Akinlaja, and Anorlu, (2014) **Nigeria**	Quantitative	Female patients (18 – 65 years)	Questionnaire	Women were mostly informed about cervical cancer by health professionals but still lack adequate information.	Campaigns and awareness programs with main focus on disease risk factors need to be conducted by healthcare providers.	Findings cannot be generalized to women outside the hospital setting.
Assoumou et al., (2015) **Gabon**	Quantitative	Women >16 years	Questionnaire	Most Gabonese women have heard of cervical cancer but lack adequate knowledge of the disease.	Educational campaigns using the local media to inform Gabonese women about cervical cancer would be a good approach.	Not much information on previous Gabonese studies on cervical cancer. There is bias in the study population's recruitment as women with higher educational level were not well represented in the study population.
Ebu, et al., (2015)	Quantitative	Women (10 – 74 years)	Interview	More than 50% of the women have not heard of cervical cancer, and >90% lack knowledge of the disease risk factors.	Cervical cancer-related information should be disseminated through mass media and health talks.	Chances of recall bias are high due to the age range. Some of the participants are too young to provide

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Ghana						information on cervical cancer practices available within their region.
N I, et al., (2016) **India**	Quantitative	Married women (30 – 60 years)	Questionnaire	Participants have poor knowledge of cervical cancer. A significant association was found between knowledge of cervical cancer and some of the social demographics.	Nurses need to improve on awareness programs aimed at increasing the knowledge of cervical cancer among participants using STPs.	Small sample size. Participants were only married women. Sample size selection method was not deemed appropriate and prone to bias.
Abiodun, et al., (2017) **Nigeria**	Quantitative	Women 20 – 65 years from the Outpatients Department	Questionnaire	Women have not heard of cervical cancer. They had poor knowledge of disease risk factors. Health talks and hospital staff were the main sources of information.	A well-funded media campaign would help increase awareness and knowledge of cervical cancer among the women.	Findings cannot be generalized to community women because the study is hospital-based.

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Arora, et al., (2017) **India**	Quantitative	Women 18 – 55 years from the Outpatients Department	Questionnaire	The women reported not to be aware of the disease. Women of high social class and education are more likely to have knowledge of cervical cancer than their counterparts.	The only means of reducing the disease burden and increasing the level of awareness among women is through health education.	Study findings cannot be generalized to women in other categories. Participant's response may be prone to bias as they unconsciously link participating in the study with being seen by a healthcare provider.
Ifediora and Azuike, (2018)	Quantitative	Female secondary school students (13 – 25 years)	Questionnaire	The awareness of cervical cancer (42.7%), its risk factors (42.4%) and symptoms (28.3%) among the students were poor.	Awareness campaigns targeting teenage female students were highly recommended.	The study claimed that eligible participants included all final-year female senior secondary school students, but participants' ages ranged from 13 - 25 years, making the information ambiguous. The study was conducted among students but excluded 'illiterate' girls, of which the modalities for exclusion were not mentioned. The study is generalizable but only among female students within the State where it was carried out and

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Nigeria						not the whole South-east region.
Kasa, Tesfaye and Temesgen, (2018) **Ethiopia**	Quantitative	Women >15 years	Questionnaire	About 69.3% of the women were aware of the disease, but only 23.1% were knowledgeable. About 63% of them had a negative attitude	The social demographics were statistically significant with the women's knowledge of the disease	
Mabelele, et al., (2018) **Tanzania**	Quantitative	Women (15 – 49 years)	Questionnaire	17.3% of the women have knowledge of cervical cancer, but majority (83.1%) are aware of it. Only 0.3% of the women knew that infection with HPV could lead to cervical cancer.	Majority of the women lack comprehensive knowledge of cervical cancer disease	The study does not represent the whole community as it only focused on women that attended the clinic during the study period. Also, study data is subject to bias as it relied on the women's self-reported screening practices.

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Gatumo, et al., (2018) **Kenya**	Quantitative	Women >18 years	Questionnaire	Nearly 80% of the women were aware of the disease but lack knowledge of its risk factors.	Interventions aimed at increasing the knowledge of cervical cancer among the women are highly needed.	Findings cannot be generalized to women in the Urban area. Knowledge-based questions focused only on disease risk factors; therefore, knowledge of women regarding the symptoms of the disease is not known.
Yahya and Mande, (2019) **Nigeria**	Qualitative	Women (15 – 39 years)	Focus Group Discussion	The women were aware of the disease but had poor knowledge of its cause and risk factors. The media was the main source of information dissemination.	Healthcare providers need to offer adequate education in relation to cervical cancer and its preventive measures.	Findings cannot be generalized to the population of interest as the study is qualitative, which focused on only one region.
Moshi, et al., (2019) **Tanzania**	Quantitative	Women (15 – 49 years)	Questionnaire	The women's level of knowledge is very low. A significant relationship was observed between cervical cancer knowledge and uptake of screening.	Mass media campaign should be used in creating public awareness on cervical cancer.	According to the authors, working-class women were under-represented as the study was conducted when most of them were at work.

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Agui, et al., (2020) **India**	Quantitative	Women (15 – 49 years)	Questionnaire	Nearly 77% of the women have not heard of cervical cancer, and the most common source of information was the radio.	Active participation of the women and community in carrying out cervical cancer-related activities will help increase the awareness of the disease among women of reproductive age.	
Kadian, et al., (2020) **India**	Quantitative	Women (18 – 65 years)	Questionnaire	Women in the urban area were more aware of cervical cancer than those in the rural area.	An extensive awareness program will help educate the women on cervical cancer and its preventive measures.	The sample population was not balanced as participants were more of rural women which could thus bias the findings
Mengesha, Messele and Beletew, (2020) **Ethiopia**	Quantitative	Women (15 – 49 years)	Questionnaire	The women were aware of cervical cancer, but only a few had knowledge about it.	Mass media was mostly used to increase awareness of cervical cancer among the women.	The study was carried out in only one town, limiting the generalizability of findings to other towns within the region and beyond.
Hirani, et al., (2020) **Pakistan**	Quantitative	Women (15 – 50 years)	Questionnaire	Most of the women have heard of cervical cancer disease	The authors concluded that generally, the women have low knowledge of the disease due to the low percentage response regarding disease prevention and screening	The study findings cannot be generalized to women from other categories or those outside the hospital setting.

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Reichheld, et al., (2020) **India**	Quantitative	Women (25 – 65 years)	Questionnaire	>50% of the women have not heard of cervical cancer, and most had poor knowledge of it. The main source of information was family/friends	Community healthcare workers need to conduct community-based cervical cancer program to help increase awareness of the disease among the women	Possibilities of recall bias as women were asked to recall some information such as age at marriage and age at first child.
Gyamfua, et al., (2020) **Ghana**	Quantitative	Women >15 years	Questionnaire	The women were aware of cervical cancer disease, and they were informed by the media.		

Source: Developed by Researcher

Appendix E: Articles that explored the role of health beliefs in cervical screening attendance (2010 - 2020)

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Leung and Leung, (2010) **China**	Quantitative	Women (18 – 65 years)	Questionnaire	The women had a high chance of not attending screening as they perceived themselves to be healthy but lack knowledge of cervical cancer risk factors	Screening is usually done by nurses (or trained healthcare professionals); therefore, their role in cervical screening needs to be explored in-depth.	Participants were recruited using a convenience sampling method which limits the generalizability of the study.
Duran, (2011) **Turkey**	Qualitative	Women (15 – 49 years)	Interview	Women did not exhibit positive health behaviour. Belief, knowledge and barriers were the identified emerging themes.	A face-to-face cervical cancer-related educational programs should be conducted face to face between the health workers and the women and not through media.	Study findings cannot be generalizable to the wider community due to the type of research method used.
Ma, et al., (2013)	Quantitative	Women (20 – 70 years)	Questionnaire	Women who believed they are at risk of contracting cervical cancer were two times more likely to attend cervical screening than those who did not.	Understanding the health beliefs and its association with cervical screening among women will help identify those at risk who will benefit more from cervical screening interventions/programs.	Cues to action were excluded, thus limiting how events (physical and environmental) motivate the women to take action. Also, the study is not generalizable to other residents who are not closely engaged with their

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Vietnam						community as their cervical screening behaviour pattern may differ from that of the investigated participants.
Hoque, et al., (2014) **South Africa**	Quantitative	Female university students (18 – 26 years)	Questionnaire	Students who have previously had a screening test had significantly lower barriers than their counterparts.	The women lack complete information on cervical cancer. Strategies should target both the women and the society at large. Right screening cues should be disseminated through the media and healthcare workers.	Findings cannot be generated to older women, non-students or the less educated.
Marván, Ehrenzweig and Catillo-López, (2014) **Mexico**	Quantitative	Women (>26 years)	Questionnaire	Women believed that cervical cancer was due to bad luck or fate. The above belief was more among rural women.	It is possible that women with fatalistic beliefs may think that cervical cancer cannot be prevented and therefore see no need for proactive behaviour such as screening.	Fatalistic beliefs were not explored in depth as the study was quantitative driven. A qualitative aspect would help to explore further factors affecting women's attitude to cervical screening.
Marlow, Waller and Wardle, (2015)	Qualitative	Women (25 – 64 years)	Interview	Women believed that diagnosis was shameful. The extreme negative experience might be a barrier to repeat attendance.	Social setting such as community and church groups should be used to discuss educational interventions as this will help increase screening	Findings cannot be generalized to the target population.

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
United Kingdom					attendance among the women.	
Bayu, et al., (2016) **Mali**	Quantitative	Women (>21 years)	Questionnaire	Women who had a general knowledge of cervical cancer were more likely to attend screening than their counterparts. The feeling of healthiness among women due to the absence of disease symptoms was a major barrier to cervical screening.	The uptake of cervical screening among women was unacceptably low.	Though the study identified factors that affect the uptake of cervical screening among the women, it did not explicitly recommend ways to increase screening uptake in the community.
Cetisli, Dila and Işık (2016) **Turkey**	Quantitative	Married women (>18 years)	Interview	A significant relationship was found between cervical screening and health promoting lifestyle such as healthy eating, feeling healthy, stress coping mechanism and physical activity. The above health behaviours are believed to effectively protect the women's overall health and prevent cancers.	Barrier(s) to Pap-Smear screening test is lower among women who have a health-promoting lifestyle and their intent to have screening is higher.	The findings cannot be generalized to other Turkish women, especially the unmarried ones.

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Liu, et al., (2017) **China**	Quantitative	Women (30 – 65 years)	Questionnaire	Women had a positive attitude toward screening. Low uptake of screening.	Governmental programs aimed at improving awareness of screening is highly beneficial in reducing cervical cancer among Chinese women.	Findings cannot be generalized to other regions in Eastern China.
Annan, Oppong Asante and Kugbey, (2019) **Ghana**	Quantitative	Women (>16 years)	Questionnaire	Increased screening behaviour was observed to be significantly related to the disease's knowledge and the initial four constructs of the HBM model (Perceived Susceptibility, Severity, Benefits and Barriers).	Knowledge of cervical cancer is an important factor influencing women's perception of the disease and screening behaviour.	Though the author justified why the participants were purposively selected, a random sampling method would have provided more insight into the views of various women with regards to the objective of the study for better comparison.
Aldohaian, Alshammari and Arafah, (2019) **Saudi Arabia**	Quantitative	Women (>18 years)	Questionnaire	Women believed that screening would not prevent them from getting cervical cancer if it was part of their destiny.	There was low uptake of screening despite the high level of perception in terms of benefits and motivation.	There is a possibility of recall bias. Recruited participants were highly educated; thus finding cannot be generalized to all Saudi-women.
Darj, Chalise and Shakya, (2019)	Qualitative	Women (25 – 60 years)	Focus Group Discussion	Women were ashamed to attend screening as they believed it to be for those who committed adultery due to the known fact that having multiple sex	If screening is made accessible and affordable to the women, it will encourage awareness and attendance.	Findings not generalizable

Author & Year	Design	Participants	Data Collection	Result	Summary	Study Limitation
Nepal				partners is a risk factor for cervical cancer.		
Marlow, et al., (2019) **United Kingdom**	Qualitative	Women (50 – 64 years)	Focus Group	Attendance to cervical screening was prevented by some fatalistic and idiosyncratic beliefs. Some of the reasons for non-attendance includes extreme negative experience; discomfort and embarrassment; worry and trust in the results, and concern about the procedure.	Women should be made to understand the purpose and relevance of cervical screening as this will help them have a positive mindset towards its uptake.	The study cannot be generalized to other women within the same age group. The authors mentioned participant bias. Some of the women were more willing to discuss their experience more than the others and more likely to participate in the study.

Source: Developed by Researcher.

Appendix F: Questionnaire – Study 1 (Quantitative)

Thank you for agreeing to take part in this study and for taking your time to fill this questionnaire which is designed to assess the awareness and knowledge of cervical cancer and cervical screening uptake. All answers are anonymous and treated confidentially. Please read carefully and fill in or tick (√) the correct answers in the spaces provided.

SECTION A

SOCIO-DEMOGRAPHIC DATA

1. How old are you?

   a. Under 18yrs ( ) **b**. 18 – 28 ( ) **c.** 29 – 39 ( ) **d**. Above 39 ( ) **e.** Prefer not to say ( )

2. What is your marital status?

   a. Single ( ) **b.** Married ( ) **c.** Divorced/separated ( ) **d**. Widowed ( ) **e**. Prefer not to say ( ) **f.** Other – please specify .....

3. What is your level of educational achievement?

   a. None ( ) **b**. Primary education ( ) **c**. Secondary education ( ) **d**. University education ( ) **e.** Prefer not to say ( ) **f.** Other – please specify.....

4. What is your religious background?

   a. Pentecost ( ) **b.** Roman Catholic ( ) **c**. Anglican ( ) **d.** Moslem ( ) **e.** Prefer not to say ( ) **f**. Other – please specify .....

5. Have you lived in Nigeria for the past five years?

   a. Yes ( ) **b**. No ( ) **c**. Not sure ( ) **d.** Prefer not to say ( )

6. What is your occupation? .....

SECTION B

AWARENESS/KNOWLEDGE INFORMATION

7. Have you heard about cervical cancer disease?

   a. Yes ( ) **b**. No ( ) **c.** Not sure ( ) **d.** prefer not to say ( )

8. If yes, what are the risk factors or causes of cervical cancer? (List as many as you can)

   .....

   .....

   .....

   .....

   .....

   .....

   .....

9. Who does cervical cancer affect most?

   a. Men ( ) **b**. Women ( ) **c**. Both ( ) **d**. Not sure ( ) **e.** Prefer not to say ( )

10. What do you think are the symptoms of cervical cancer? (Tick all that apply)

SYMPTOMS	YES	NO
Abnormal and offensive vaginal discharge		
Discomfort or pain during sex		
Vomiting and stooling		
Heavy and longer menstrual periods		
Irritation of the vulvar/vagina		
Sore throat		
Vaginal bleeding between periods or after menopause		
Blood in stool or urine		
Conjunctivitis (Apollo)		
No symptoms		
Others (please specify)		

11. Do you know of anyone affected by cervical cancer?

    a. Yes ( ) **b.** No ( ) **c**. Not sure ( ) **d.** Prefer not to say ( )

12. How did you know the affected person?.....

    .....

    .....

13. Do you think cervical cancer disease is preventable?

    a. Yes ( ) **b**. No ( ) **c**. Not sure ( ) **d.** Prefer not to say ( )

14. What do you think protect(s) a woman from cervical cancer?

    .....

    .....

    .....

15. Do you think cervical cancer can lead to death?

    a. Yes ( ) **b**. No ( ) **c**. Not sure ( ) **d.** Prefer not to say ( )

16. Have you ever heard about cervical cancer screening?

    a. Yes ( ) **b**. No ( ) **c**. Not sure ( ) **d.** Prefer not to say ( )

17. Have you been part or attended a cervical screening program?

    a. Yes ( ) **b**. No ( ) **c.** Not sure ( ) **d.** Prefer not to say ( )

18. What do you think prevents women in your community (Including yourself) from participating in cervical screening program?.....

    .....

    .....

    .....

    .....

    .....

19. What test do you think is suitable for cervical cancer diagnosis?

a. Blood test ( ) **b.** HIV test ( ) **c.** Pap smear test ( ) **d.** Not sure ( ) **e.** Prefer not to say ( ) **f.** Other – please specify……

20. Have you heard of clinic(s) that do cervical screening tests?

a. Yes ( ) **b.** No ( ) **c.** Not sure ( ) **d.** Prefer not to say ( )

21. Did you ever receive information about cervical cancer and its screening services?

a. Yes ( ) **b.** No ( ) **c.** Not sure ( ) **d.** Prefer not to say ( )

22. Where did you receive the information in question 21?

a. No information yet ( ) **b.** Community meeting ( ) **c.** Hospital/Health centre ( ) **d.** Social/Mass media ( ) **e.** Awareness campaigns ( ) **f.** Not sure ( ) **g.** Prefer not to say ( ) **h.** Other – please specify……

SECTION C

PERCEIVED SUSCEPTIBILITY, SEVERITY, BENEFITS AND BARRIERS.

23. How likely do you think you can get cervical cancer?

a. Very likely ( ) **b.** Likely ( ) **c.** Less likely ( ) **d.** Not Likely ( ) **e.** Not sure ( ) **f.** Prefer not to say ( )

24. Cervical cancer disease is deadly. To what extent do you agree with this statement?

a. Strongly agree ( ) **b.** Agree ( ) **c.** Disagree ( ) **d.** strongly disagree ( ) **e.** Neither agree or disagree ( ) **f.** Prefer not to say ( )

25. Do you know about the Human Papilloma Virus (HPV) vaccination?

a. Yes ( ) **b.** No ( ) **c.** Not sure ( ) **d.** Prefer not to say ( )

26. What do you think are the benefits of taking the HPV Vaccination?

a. To kick polio ( ) **b.** To prevent breast cancer ( ) **c.** For child spacing ( ) **d.** To prevent cervical cancer ( ) **e.** Not sure ( ) **f.** Prefer not to say ( ) **g.** Others – please specify ……

……

……

27. Do you know about the Pap smear test?

a. Yes ( ) **b.** No ( ) **c.** Not sure ( ) **d.** Prefer not to say ( )

28. What do you think are the benefits of taking the Pap smear tests?

a. Early disease detection ( ) **b.** For family planning ( ) **c.** Prevents HIV ( ) **d.** Not sure ( ) **e.** Prefer not to say ( ) **f.** Others – please specify

……

……

……

29. How do you access the nearest cervical screening clinic?

a. Public transport ( ) **b.** Private transport ( ) **c.** haven't attended one ( )

d. Prefer not to say ( ) **e.** Other – please specify.....

30. How long in minutes/hour does it take you to get there?

.....

31. If cervical screening was available in your local area, would you attend?

a. Yes ( ) **b**. Prefer not to say ( ) **c**. No ( ) state your reasons please

.....

.....

.....

32. What do you think are the barriers to taking Pap smear or HPV vaccine? (Tick all that apply)

BARRIERS TO SCREENING	**YES**	**NO**
Lack of money/funds		
Screening location is too far		
Fear of being seen at screening centre		
Lack of information		
Religion forbids it		
Culture forbids it		
Lack of time		
Don't know where screening is done		
Screening is done by a male health care professional		
Doctors are mean		
I think it will be painful		
Others (please specify)		

Kindly use the space below to state/express any comment or concerns you may have in relation to this questionnaire or topic

.....

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1/02/2017

Version 1.3a

Appendix G: Participant Information Sheet and Consent Form for Study 1

This approval will elapse on: 16/06/2020

PARTICIPANT INFORMATION SHEET

SECTION A: THE RESEARCH PROJECT

Title of the research:

Assessing the knowledge of cervical cancer and screening among rural women and the perception of implementation strategy among health-stakeholders in Imo state, South-Eastern Nigeria. A community based cross sectional study.

Name(s) and affiliation(s) of researcher(s) of applicant(s):

This study is being conducted by Miss Faith Ogbonna, a PhD research student of Anglia Ruskin University, Cambridge Campus.

Sponsor(s) of research:

This study is not sponsored by any private or public organization

Purpose(s) of research:

The main purpose of this study is to assess the awareness and knowledge of cervical cancer and cervical screening, and to determine the factors that influence the utilization of preventive screening measures among rural women living in Imo state, south eastern Nigeria.

Why have I been asked to participate?

You have been invited to participate in this study because you meet the inclusion criteria. The survey targets only rural women from Imo state aged >18 who live in the selected local government of which your district was selected at random to be included in the research. More so, your household has been chosen in a random manner, not related to anything known about you.

Has the study got ethical approval?

Approval for this study has been agreed upon by the Faculty of Medical Science Research Ethics' Panel in Anglia Ruskin University and the Nigerian Research Ethics Committee (NREC). A written permission has also been obtained from the four local government chairmen. (**Pending NREC approval and LG written permission**).

SECTION B: YOUR PARTICIPATION IN THE RESEARCH PROJECT

Procedure of the research, what shall be required of each participant and approximate total number of participants that would be involved in the research:

If you agree to take part in the study, I will obtain a signed informed consent for participation from you using a consent form and provide you with a copy. You will also be given a questionnaire which comprises of 32 questions about your characteristics, personal views, knowledge/awareness of cervical cancer, cervical screening, barriers to screening and factors that might be of influence. This process should last approximately 15 to 20 minutes. The questionnaire will be collected upon completion.

Risk(s) or possible disadvantages:

There are no foreseen risks attached to the study. Taking part in the study will not in any way affect your wellbeing or safety. However, 30 to 45 minutes of your time will be required if you accept to take part in the interview. If you feel distressed or psychologically troubled at any time of the study due to the type of questions or research topic, you are free to either withdraw from the study or take a break and continue when relaxed. There is no stigma attached to the study as your information will be anonymised neither will your legal rights be infringed**.**

Costs to the participants, if any, of joining the research:

Your participation in the study will cost about 20 minutes of your time. However, there are no cost for travel or reimbursement of time and travel cost attached to the study.

Benefit(s):

There is no direct benefit from the study to you as individual participant but the information you provide will add to the body of knowledge and also help enlighten the public on the dangers of cervical cancer and the urgent need for screening. However, the wider benefit is accessing women's knowledge on screening implementation and what works best so as to help the government proffer solutions that will curb the spread of the disease and also promote available interventions.

Confidentiality:

All participants involved will be allocated a subject number and all information collected in this study will be given code numbers. Your name or any identifiers will not be used in any publication or report from this study. This study will be monitored by NHREC and Anglia Ruskin Ethics review panel to ensure that due process in followed in maintaining confidentiality of information and anonymity of participants. The researcher will ensure that any information given cannot be traced back to you. Your information will be kept on a password protected data file for the duration of the study and any storage device used such as USB, will be stored within the school premises and appropriately encrypted when used off-premises. Access to your information via the school remote desktop will always be done through an approved connection. Your information or data will only be accessible to the researcher and the supervisory academic team and this will strictly be in an anonymised format as you will be allocated a subject number which will be displayed on the right-hand side of the questionnaire to ensure your anonymity is guaranteed. However, it may not be possible to guarantee complete anonymity as you will be filling the questionnaire in the company of other women, colleagues or

friends which explains while the researcher used subject number to represent each participant and not names. The results from the survey will also be anonymised and presented in a statistical format.

Voluntariness:

Your participation in this study is entirely voluntary. You may withdraw from the study at any time without explaining your reasons. If you choose not to participate, this will not affect you or your treatment in any way.

Consequences of participants' decision to withdraw from research and procedure for orderly termination of participation:

You can also choose to withdraw from the research at any time until the anonymised questionnaire has been returned to the researcher as it will not be possible to connect the anonymised questionnaire to the participant. The researcher promises to make good faith effort to comply with your wishes as much as is practicable. You are not under any obligation to answer all questions. Feel free to skip any question you do not wish to answer.

Any apparent or potential conflict of interest:

There is no known information that may cause the researchers not to do their work with fear or favour.

QUESTIONNAIRE CONSENT FORM

Statement of person obtaining informed consent:

I have fully explained this research to _____ and have given sufficient information, including about risks and benefits, to make an informed decision.

DATE: _____ SIGNATURE: _____

NAME: _____

Statement of person giving consent:

I have read the description of the research or have had it translated into language I understand. I understand that my participation is voluntary. I know enough about the purpose, methods, risks and benefits of the research study to judge that I want to take part in it. I understand that I may freely stop being part of this study at any time. I have received a copy of this consent form and additional information sheet to keep for myself.

DATE: _____ SIGNATURE: _____

SUBJECT NUMBER: _____

Please tick the box

1. I confirm that I have read the information sheet dated 1/02/2017 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐
3. I am free to ask any questions at any time before and during the study. ☐
4. I understand what will happen to the data collected from me for the research. ☐
5. I have been provided with a copy of this form and the Participant Information Sheet. ☐
6. I understand that quotes from me may be used in the dissemination of the research ☐
7. I agree to take part in the questionnaire part of the study ☐

Detailed contact information including contact address, telephone, fax, e-mail and any other contact information of researcher(s), institutional HREC and head of the institution:

If you have any question about your participation in this research, you can contact the principal investigator, Faith Ogbonna on +2347065151978 or through email at faith.ogbonna@pgr.anglia.ac.uk. You can also contact also contact Anglia Ruskin University's complaints through:

Email address: complaints@anglia.ac.uk
Postal address: Office of the Secretary and Clerk,
Anglia Ruskin University, Bishop Hall Lane,
Chelmsford, Essex,
CM1 1SQ.

PLEASE KEEP A COPY OF THE SIGNED INFORMED CONSENT.

1/02/2017
Version 1.1a

Appendix H: Participant Invitation Form for Study 1

Anglia Ruskin University

Appendix 2

PARTICIPANT INVITATION LETTER

PARTICIPANT NAME: PAR 0....

Dear,

You are cordially invited to take part in a research study which aims to understand the determinant factors that influence the knowledge and awareness of cervical cancer, cervical screening and its implementation strategy among Imo state rural women aged 18years and above. You were invited by the researcher because you are from Imo state and reside in one of the chosen local government. A detailed participant information sheet about this study has been enclosed for you to read. If you are interested in taking part in this research, please kindly choose from any of the three options

1. Ask for consent form
2. Email the researcher at faith.ogbonna@pgr.anglia.ac.uk
3. Call or text your contact details on +2347065151078.

From the expressions of interest received, you will be invited to take part in the questionnaire survey. I hope that the enclosed information form explains fully what will be involved in taking part in the study. If you have any further queries please feel free to contact me through my above details.

Yours Sincerely,

Faith Ogbonna (principal researcher)
Anglia Ruskin University
Tel: +2347065151078
faith.ogbonna@pgr.anglia.ac.uk

.....Cut Here.....

I am interested in taking part in the research project which entails assessing my knowledge and awareness of cervical cancer, cervical screening and its implementation strategy.

Contact details:

Name..... Contact telephone number.....

Email Address.....

Return to: Faith Ogbonna (principal researcher)

1/02/2017
Version 1.0a

Appendix I: Interview Questions – Study 2 (Qualitative)

INTERVIEW QUESTIONS

Introductory Session

1. What age group do you belong to?
   a. <31
   b. 31 – 40
   c. 41- 50
   d. 51 – 60
   e. >60
2. What group do you belong to (Post of interview)?

   a. Group A = Health Authority/Stakeholder (Indirect contact with women)
   b. Group B = Clinician (Direct contact with women)

3. How long have you been in this position (appointment) and what does it entail?

Main Questions

1. Would you please explain the current local strategy/policy or guideline(s) regarding cervical cancer screening?

2. Can you tell us about the implementation process?

3. What is your evaluation of the post implementation success of these strategies?

4. What factors do you think has influence on the extent of knowledge about cervical cancer and utilization of the services available for cervical screening.

1/02/2017
Version 1.3b

Appendix J: Participant Information Sheet and Consent Form for Study 2

This approval will elapse on: 16/06/2020

PARTICIPANT INFORMATION SHEET

SECTION A: THE RESEARCH PROJECT

Title of the research:

Knowledge and awareness of cervical cancer, preventive screening measures and its implementation strategy among rural women in Imo state. A community based cross sectional study.

Name(s) and affiliation(s) of researcher(s) of applicant(s):

This study is being conducted by Miss Faith Ogbonna, a PhD research student of Anglia Ruskin University, Cambridge Campus.

Sponsor(s) of research:

This study is not sponsored by any private or public organization

Purpose(s) of research:

The main purpose of this study is to assess the awareness and knowledge of cervical cancer and cervical screening, and to determine the factors that influence the utilization of preventive screening measures among rural women living in Imo state, south eastern Nigeria.

Why have I been asked to participate?

You have been invited to participate in this study because the interview targets only health stakeholders and clinicians in your local department of health, who have the ability as a virtue of their office, to influence decision regarding the health of Imo state residents in the state and local government respectively of which you meet the inclusion criteria.

Has the study got ethical approval?

Approval for this study has been agreed upon by the Faculty of Medical Science Research Ethics' Panel in Anglia Ruskin University and the Nigerian Research Ethics Committee (NREC). A written permission has also been obtained from the four local government chairmen. **(Pending NREC approval and LG written permission).**

Has the organisation where you are carrying out the research given permission?

A written permission has been obtained from the four local governments. However, this only constitutes a general permission as individual permission on whether to participate in the interview will be required from each participant. **(Pending LG written permission).**

What will happen to the results of the study?

The results will be written up as a PhD thesis and for publication either in African public health journals, Cancer research institutes, Nursing and Medical journals or any other body with access to vital information. This will add to the body of knowledge in terms of cervical cancer and screening especially among Nigerian or African women. The Imo state library and Anglia Ruskin University library will also be provided a copy of this study so it can easily be accessible to anyone whose interest is to promote the health of women and increase cervical screening uptake. The researcher also plans to present the results of this study at Public health conferences and Cancer Research institutes as a background study. The results will be totally scrutinised by the supervisors and members of the research team before it is being presented to the public.

SECTION B: YOUR PARTICIPATION IN THE RESEARCH PROJECT

Procedure of the research, what shall be required of each participant and approximate total number of participants that would be involved in the research:

If you agree to take part in the study, I will obtain a signed informed consent for participation from you using a consent form. An interview not more than 30 to 45 minutes will be conducted by me at a convenient location of your choice. This will be on an individual basis. The interview will be based on certain questions penned down by the researcher with main focus on screening implementation and factors that affect screening utilization at the community level. The interview section will be audio recorded.

Risk(s) or possible disadvantages:

There are no foreseen risks attached to the study. Taking part in the study will not in any way affect your wellbeing or safety. However, 30 to 45 minutes of your time will be required if you accept to take part in the interview. If you feel distressed or psychologically troubled at any time of the study due to the type of questions or research topic, you are free to either withdraw from the study or take a break and continue when relaxed. There is no stigma attached to the study as your information will be anonymised neither will your legal rights be infringed.

Costs to the participants, if any, of joining the research:

Your participation in the study will cost about 30 to 45 minutes of your time. However, there are no cost for travel or reimbursement of time and travel cost attached to the study.

Benefit(s):

There is no direct benefit from the study to you as individual participant but the information you provide will add to the body of knowledge and also help enlighten the public on the dangers of cervical cancer and the urgent need for screening. However, the wider benefit is accessing women's knowledge on screening implementation and what works best so as to help the government proffer solutions that will curb the spread of the disease and also promote available interventions.

Confidentiality:

All participants involved will be allocated a subject number and all information collected in this study will be given code numbers. Your name or any identifiers will not be used in any publication or report from this study. This study will be monitored by NHREC and Anglia Ruskin Ethics review panel to ensure that due process in followed in maintaining confidentiality of information and anonymity of participants. Only the principal investigator and supervisory academic team will have access to interview data. Your participation will be kept confidential and your reports, anonymised. Your information will be kept on a password protected data file for the duration of the study and storage device used such as USB, will be stored within the school premises and appropriately encrypted when used off-premises. Access to your information via the school remote desktop will always be done through an approved connection. The information from the interview will also be transcribed and anonymised. Your transcribed data which might be stored in a USB device and the digital recording device used for the interview will be kept in a locked safe only accessible to the researcher and the supervisory team and this will strictly be in an anonymised format as you will be allocated a subject number which will be displayed on the right-hand side of the information sheet and consent form to ensure your anonymity is guaranteed. However, it may

not be possible to guarantee complete anonymity as the researcher might be seen walking in and out of your office which explains the use of subject numbers to represent each participant and not names.

Voluntariness:

Your participation in this study is entirely voluntary. You may withdraw from the study at any time without explaining your reasons. If you choose not to participate, this will not affect you or your treatment in any way.

Consequences of participants' decision to withdraw from research and procedure for orderly termination of participation:

You can also choose to withdraw from the research at any time until submission or publication of the thesis. Please note that some of the information that has been obtained about you before you chose to withdraw may have been used in reports and publications. These cannot be removed anymore. However, the researcher promises to make good faith effort to comply with your wishes as much as is practicable. You are not under any obligation to answer all questions. Feel free to ask the interviewee to skip any question you do not wish to answer.

Any apparent or potential conflict of interest:

There is no known information that may cause the researchers not to do their work with fear or favour.

INTERVIEW CONSENT FORM

Statement of person obtaining informed consent:

I have fully explained this research to _____ and have given sufficient information, including about risks and benefits, to make an informed decision.

DATE: _____ SIGNATURE: _____

NAME: _____

Statement of person giving consent:

I have read the description of the research or have had it translated into language I understand. I understand that my participation is voluntary. I know enough about the purpose, methods, risks and benefits of the research study to judge that I want to take part in it. I understand that I may freely stop being part of this study at any time. I have received a copy of this consent form and additional information sheet to keep for myself.

DATE: _____ SIGNATURE: _____

SUBJECT NUMBER: _____

Please tick the box

1. I confirm that I have read the information sheet dated 1/02/2017 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐

3. I am free to ask any questions at any time before and during the study. ☐

4. I understand what will happen to the data collected from me for the research. ☐

5. I have been provided with a copy of this form and the Participant Information Sheet. ☐

6. I understand that quotes from me may be used in the dissemination of the research ☐

7. I understand that the interview will be recorded. ☐

8. I understand that I cannot withdraw from the study once my information has been transcribed and written up for the study. ☐

Detailed contact information including contact address, telephone, fax, e-mail and any other contact information of researcher(s), institutional HREC and head of the institution:

If you have any question about your participation in this research, you can contact the principal investigator, Faith Ogbonna on +2347065151978 or through email at faith.ogbonna@pgr.anglia.ac.uk. You can also contact also contact Anglia Ruskin University's complaints through:

Email address: complaints@anglia.ac.uk
Postal address: Office of the Secretary and Clerk,
Anglia Ruskin University, Bishop Hall Lane,
Chelmsford, Essex,
CM1 1SQ.

PLEASE KEEP A COPY OF THE SIGNED INFORMED CONSENT.

1/02/2017
Version 1.1b

Appendix K: Participant Invitation Form for Study 2

Anglia Ruskin University

Appendix 2

PARTICIPANT INVITATION LETTER

PARTICIPANT NAME: PAR 0....

Dear,

You are cordially invited to take part in a research study which aims to understand the determinant factors that influence the knowledge and awareness of cervical cancer, cervical screening and its implementation strategy among Imo state rural women aged 18years and above. You were invited by the researcher because you are one of the health stakeholders in the local and state ministry of health. A detailed participant information sheet about this study has been enclosed for you to read. If you are interested in taking part in this research, please kindly choose from any of the three options

1. Ask for consent form
2. Email the researcher at faith.ogbonna@pgr.anglia.ac.uk
3. Call or text your contact details on +2347065151078.

From the expressions of interest received, you will be invited to take part in the interview phase of the study with an interview appointment date and time, depending on where you would like the interview to be conducted. You will also be requested to complete a consent form before the commencement of the interview. I hope that the enclosed information form explains fully what will be involved in taking part in the study. If you have any further queries please feel free to contact me through my above details.

Yours Sincerely,

Faith Ogbonna (principal researcher)
Anglia Ruskin University
Tel: +2347065151078
faith.ogbonna@pgr.anglia.ac.uk

.....Cut Here.....

I am interested in taking part in the research project which entails understanding the effort of the government in reducing the spread of the disease.

Contact details:

Name..... Contact telephone number.....

Email Address.....

Return to: Faith Ogbonna (principal researcher)

1/02/2017
Version 1.0b

Appendix L: Summary of Interview results based on questions (Raw Data)

NAME	DESCRIPTION	SOURCES	REFERENCES
	PARTICIPANT'S DEMOGRAPHICS		
Q. 1. Age of interviewees	This shows the age of all the participants both health authorities and clinicians that were recruited and interviewed in this study	22	22
31 to 40	Interviewees between the age of 31 - 40	4	4
41 to 50	Interviewees between the age of 41 - 50	9	9
51 to 60	Interviewees between the age of 51 - 60	9	9
Q. 2. Interviewee's group	The different groups that interviewees belong to. The study divided participants into 2 groups of A and B	22	22
Group 1 (Health authority or stakeholder=Indirect contact with women)	Group 1 represented Health authorities or those who indirect contact with the women	12	12
Group 2 (Clinician = Direct contact with women)	Group 2 represented Clinicians or those that have direct contact with the women.	10	11
Q. 3. Duration of post	How long interviewees have been in their work position as either Health authorities or clinicians	22	22

Q. 4. What position entails	A brief description of what interviewees position entails	22	22
Carry out programs and policies of the government	Government assigned programs must be implemented by interviewees as part of their job description	4	4
Awareness campaigns or services	Carrying out awareness campaigns on health-related issues at the community level	1	1
Mobilization	Gathering and organizing the women and the community at large for awareness campaigns and screening programs on health and its related issues	2	2
Orientation services	Introducing a new health related idea or concept to the women or community as well as directing them on where to get the necessary information	2	2
Sensitization	Engaging the community and the women in disseminating information about cervical cancer, its screening programs or health related issues to the public.	1	1
Disease Prevention	Interviewees aimed at preventing diseases - Immunisation services	1	1
PHC Co-ordinator	Primary Health Care Co-ordinators within the recruited local governments	3	4

Provide Health services at the Health centres	All health services carried out at the different health centres within the recruited local governments. This includes Nurses, doctors, midwives, counsellors and other related fields that work in the health care centres at the community level	0	0
Counselling	Counsel couples on health and its related issues	1	1
Nursing and Midwifery services	Provide all minor health requirements for the women and the community members at the community level.	4	6
Provide Information update on Health to L. G	This includes Principle Report or Information officers (PRO / PIO) who update the health centres and the local government on recent updates regarding health and its related issues	1	1
Supervisor for Health services	Health supervisors within the local government under investigation	5	5
	MAIN QUESTIONS		
Q. 1. Current or local strategy on CCA screening	Is there any current or local strategy/policy regarding cervical cancer screening? This shows responses of participants which was more of an explanation rather than a 'Yes' or 'No' response.	22	22
Awareness campaigns	interviewees response to the type of CCA screening strategy	12	12

Awareness on mass media	A type of strategy that has been adopted or still on-going which is aimed at reducing cervical cancer in Imo state	1	1
Health education	A method of improving CCA Screening	2	2
None	No current or local strategy	8	8
Referral centres for diagnostic screening	Another strategy aimed at improving CCA Screening	2	2
Training of staff for screening and appropriate referral	An adopted strategy	3	3
Q. 2. Implementation process	If there is a current or local strategy, if Yes, what is the implementation process?	22	22
Awareness at designated places	Creating awareness of the disease an agreed place by the women and the health officials	0	0
Agreed venue	Awareness at an agreed venue by the donor agencies which is communicated to the women	3	3
August Meetings	Awareness during women's gathering often referred to as August meeting	1	1

Church	Awareness in the church auditorium	1	1
Health care facility	Awareness at the health care facilities within the communities or local government	7	7
Market place	Awareness at the market square	1	1
Collaboration with other health officials	Team work with other health care officials either home or abroad	4	6
Going to the community to create awareness	Approaching the women in the community or their comfort zone	6	6
Health Education at Health centres by staff	Health educating the women during ante-natal, post-natal or immunization visits to the health care centres.	2	3
Referral to appropriate cervical screening centres	Referral to screening centres	2	2
Q. 3. Evaluation of post implementation success	To find out interviewees evaluation of the implemented strategies or policies. How successful are they in reducing the spread of cervical cancer and increasing screening awareness?	22	22
Not successful	Implemented strategies have not been successful in reducing the spread of the disease and increasing screening awareness	11	11

Successful	Implemented strategies have been successful in reducing the spread of the disease and increasing screening awareness	9	9
Uncertain of the success rate	Not sure if it has been successful or not	2	2
Q. 4. Factors that influence women's knowledge on CCA and utilization of screening	Some of the factors (positive and negative) that influences CCA knowledge and screening awareness	22	22
Negative factors	Some of the negative factors that prevents the women from utilizing screening services or partaking in screening programs	0	0
Apathy	Unconcerned or feeling reluctance to discuss their private life or body	3	3
Beliefs	Personal opinions, cultural and religious beliefs	6	9
Distance	Proximity to screening centers	2	3
Fear and unknown outcome of previous result	Fear of unknown outcome and not knowing the result of previous screenings which is yet to be shown to them	4	4
Finance or Affordability	Funds to cover all expenses before or after discovery of the disease	8	9

Lack of Knowledge and awareness	Little or no knowledge about the disease and screening	15	18
Lack of self-confidence	Not confident enough to go for screening, feeling of shyness	3	3
Maintenance culture	Not taking care of screening equipment	1	1
Mode of information transmission	Information is being transmitted through channels unfamiliar to the women	1	1
Stigma	Risk of shame and isolation from the society	2	2
Transportation and Bad road network	Lack of transportation and longer route due to bad roads	3	3
Positive factors	Some of the positive factors that make the women eager to know about the disease and its screening programs	0	0
Beliefs	Personal, cultural or religious opinions	1	1
Free screening	Free screening as the women will not pay for the screening services	1	1
Knowledge about status	Eager to know about their health status	1	1
Literacy	Already know about the disease	1	1

Q. 5. What government needs to do	This describes the strategies or plans the interviewees think the government needs to put in place to help reduce the spread of cervical cancer and increase screening utilization among the women.	1	1
Continuous awareness of Cervical cancer disease	Increased awareness of the disease and screening	1	1
Involve community stakeholders	Involvement of community gate keepers and leaders in awareness plan	1	1
Q.6. Organizations in-charge for screening	Organizations that conduct cervical screening within the state	0	0
Non-Governmental Organization	Non - government owned agencies and private bodies that conduct cervical screening	2	2
The Government	Government owned facilities that conduct cervical screening services within the state	1	1

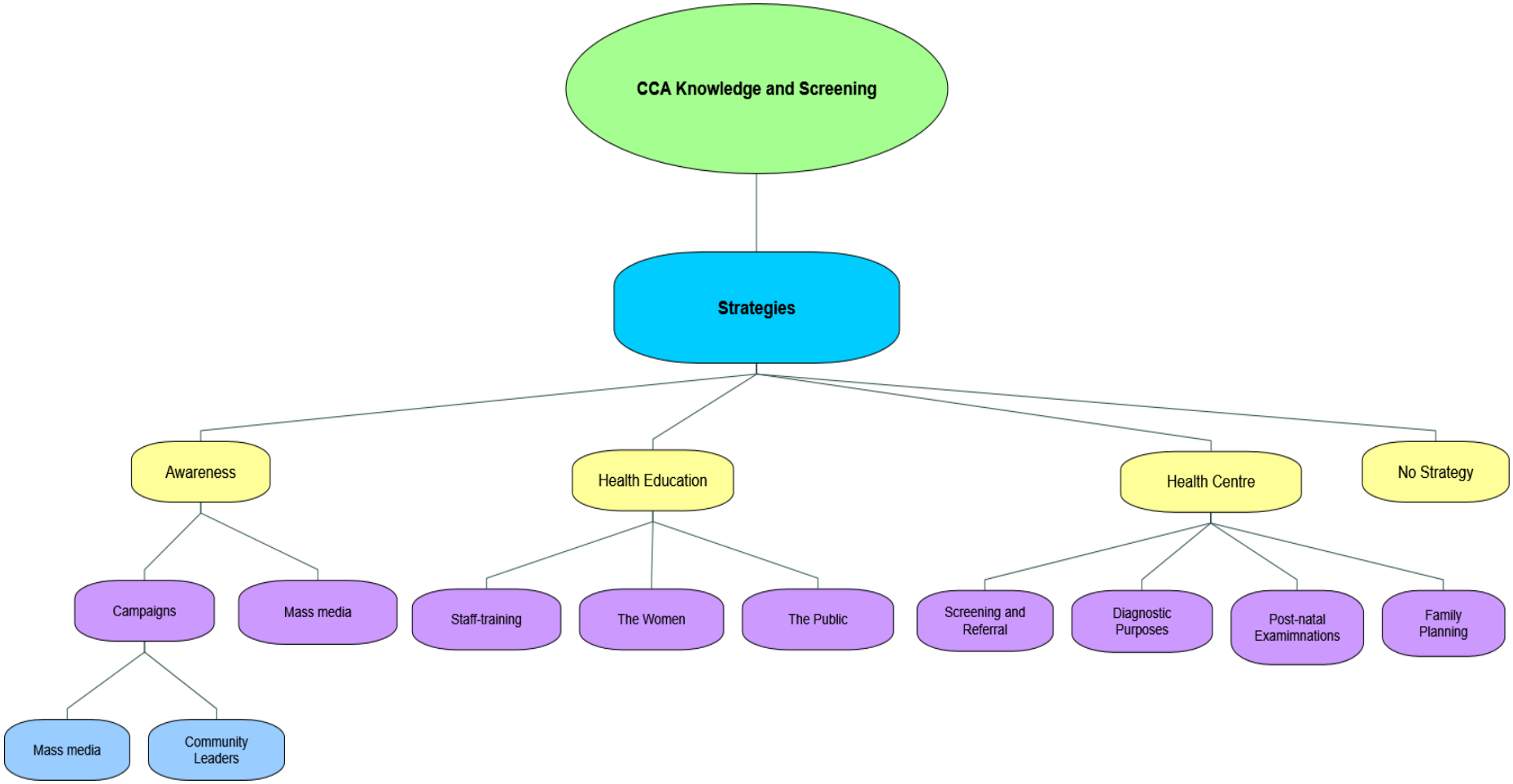
Appendix M: Summary of Interview findings (Initial coding)

Theme 1: CCA and Screening strategy **Sub-theme 1: Awareness** ➢ Mass media ➢ Campaigns **Sub-theme 2: Health Education** ➢ Staff -Training ➢ The Women ➢ The Public **Sub-theme 3: Health Centre** ➢ Screening and Referral ➢ Diagnostic Purpose ➢ Post-natal Examination ➢ Family Planning **Sub-theme 4: No Strategies**	**Theme 2: Strategy Implementation Process** **Sub-theme 1: Outreaches** ➢ Community • August meetings • Church • Market place ➢ Other Agreed Venue ➢ Health Care Facility **Sub-theme 2: Screening Centre** ➢ Health Education ➢ Collaboration with other health officials ➢ Referral purposes
Theme 3: Post Implementation Success **Sub-theme 1: Successful** ➢ Health talks ➢ Positive cases ➢ 45% successful ➢ 65% screening attendance **Sub-theme 2: Uncertain of Success rate**	**Theme 4: Organizations in-charge of cervical screening** **Sub-theme 1: The Government** ➢ Grass root awareness **Sub-theme 2: Non-Governmental Organization (NGO)** ➢ Staff Training ➢ Provide screening equipment

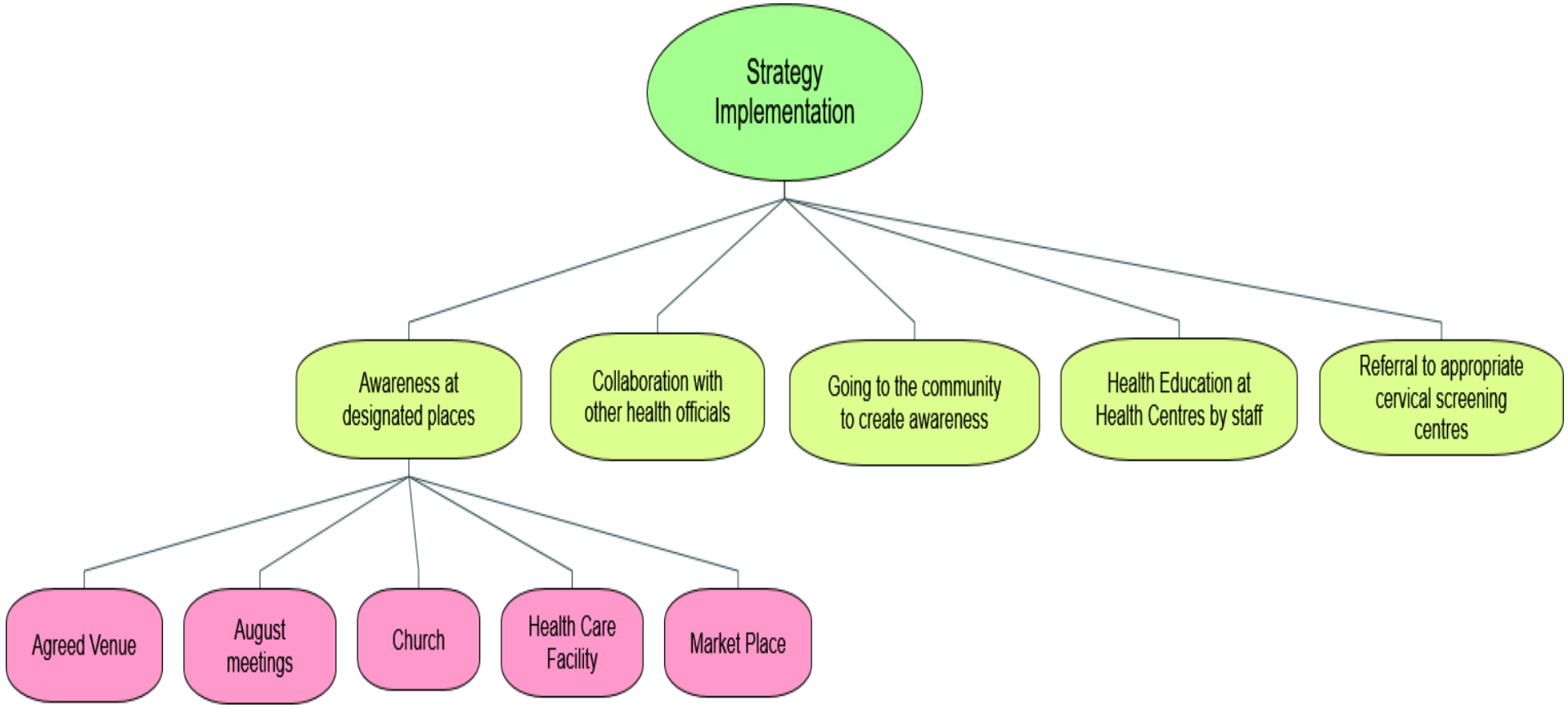
➢ Low Positive Outcome ➢ On-going Process by the government **Sub-theme 3: Not Successful** ➢ Low attendance to screening • Lack of awareness • No follow up • No result from previous screening • Women believe they are healthy ➢ No close screening center • Screening limited to some areas ➢ No positive case	
Theme 5: Governmental efforts that needs improvement ➢ Continuous awareness ➢ Involve community stakeholders	**Theme 6: Factors that influence screening** **Sub-theme 1: Positive factors** • Free screening • Knowledge about status • Literacy **Sub-theme 2: Negative factors** • Apathy (Lack of interest) • Finance or affordability • Misconception: caused by promiscuity or Spiritual cause (witchcraft). • Believe they are healthy: Evidence of confirmatory report

	• Culture: Presence of male health care professional, not comfortable opening their legs. • Return of Menses • Mode of Transmission • Maintenance culture: dilapidated equipment • Transportation: Distance • Lack of Knowledge and awareness • Fear: stigma, lack of self-confidence and unknown outcome of previous results.

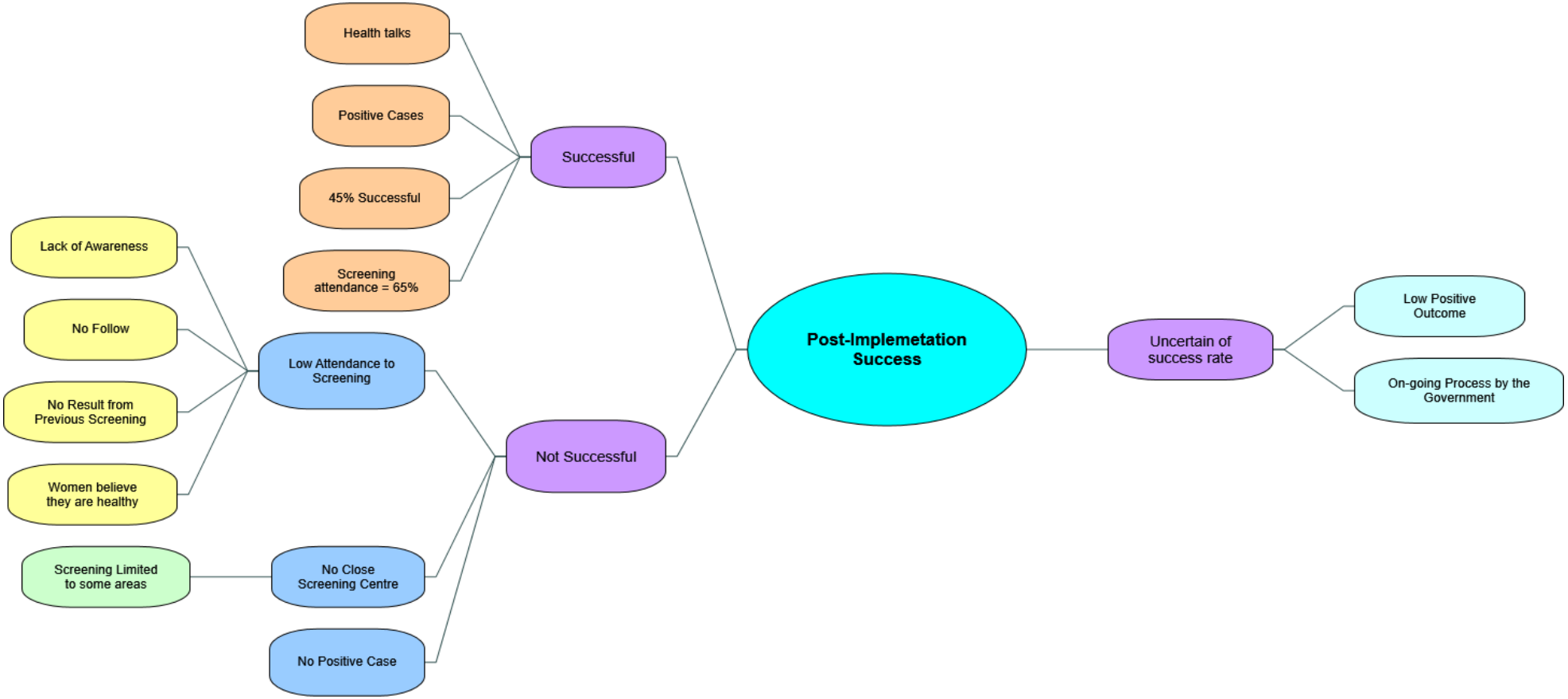
Appendix N: Initial Identified Strategies



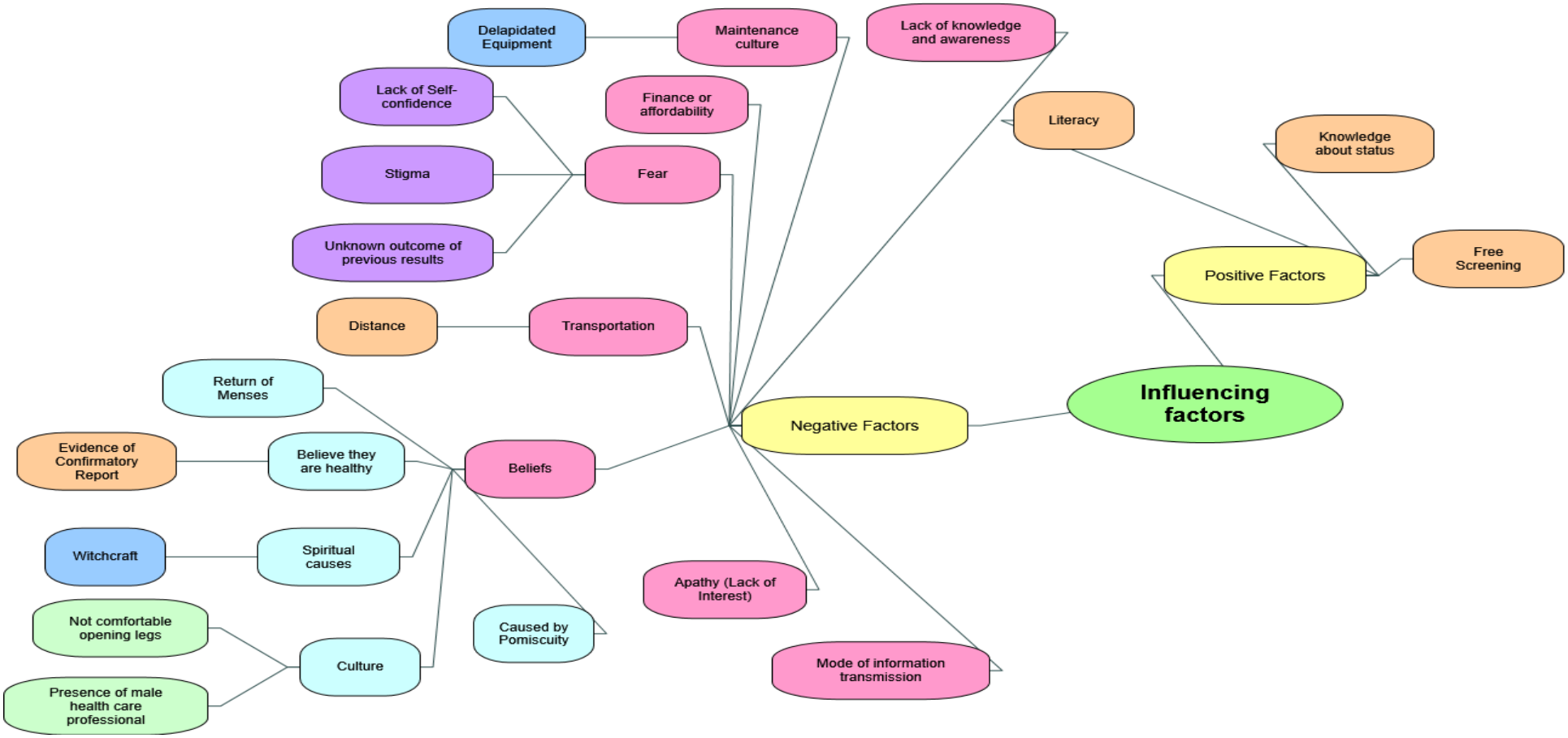
Appendix O: Initial Strategy Implementation



Appendix P: Initial Strategy Evaluation



Appendix Q: Initial Identified factors that influences screening



Appendix R: Nigerian Ethical Approval

National Health Research Ethics Committee of Nigeria (NHREC)

Promoting Highest Ethical and Scientific Standards for Health Research in Nigeria

Federal Ministry of Health

NHREC Protocol Number NHREC/01/01/2007-10/04/2017
NHREC Approval Number NHREC/01/01/2007-15/10/2017B
Date: 30 October, 2017

Re: Knowledge and awareness of cervical cancer, preventive screening measures and its implementation strategy among rural women in Imo state, South East, Nigeria. A community based cross sectional study

Health Research Committee assigned number: NHREC/01/01/2007

Name of Student Investigator: Faith Ogbonna

Address of student Investigator: Faculty of Medical Science
Department of Medicine and Health Care Science
Anglia Ruskin University Campus
England
Faith.ogbonna@pgr.ar

Date of receipt of valid application: 15/10/2017
Date when final determination of research was made: 30/10/2017

Notice of Ethics Committee Review and Approval of Modifications

This is to inform you that the protocol and other documents in support for modifications of the above titled study have been reviewed. National Health Research Ethics Committee has determined that the modifications have not altered the risk level of the study and thus granted expedited approval for the study.

This approval dates from 30/10/2017 to 29/10/2018. If there is delay in starting the research, please inform the HREC so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study.* In multiyear research, endeavour to submit your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification.

Signed

Professor Zubairu Iliyasu MBBS (UniMaid), MPH (Glasg.), PhD (Shef.), FWACP, FMCPH
Chairman, National Health Research Ethics Committee of Nigeria (NHREC)

Department of Health Planning, Research & Statistics
Federal Ministry of Health
11th Floor, Federal Secretariat Complex Phase III
Ahmadu Bello Way, Abuja

Tel. +234-09-523-8367
E-mail: chairman@nhrec.net, secretary@nhrec.net, desxofficer@nhrec.net
URL: http://www.nhrec.net

Appendix S: ARU Ethical Approval

Anglia Ruskin University
Cambridge Chelmsford Peterborough

28th April 2017

Dear Faith Ogbonna

***Principal Investigator:** Faith Ogbonna*
***FREP number:** FMSFREP16/17 125*
***Project Title:** Knowledge and awareness of cervical cancer, preventive screening measures and its implementation strategy among rural women in Imo state, south-eastern, Nigeria. A community based cross sectional study.*

I am pleased to inform you that your ethics application has been approved by the Faculty Research Ethics Panel (FREP) under the terms of Anglia Ruskin University's Research Ethics Policy (Dated 8 September 2016, Version 1.7)

Ethical approval is given for 3 years from 28th April 2017. If your research will extend beyond this period, it is your responsibility to apply for an extension before your approval expires.

It is your responsibility to ensure that you comply with Anglia Ruskin University's Research Ethics Policy and the Code of Practice for Applying for Ethical Approval at Anglia Ruskin University, including the following.

- The procedure for submitting substantial amendments to the committee, should there be any changes to your research. You cannot implement these amendments until you have received approval from FREP for them.
- The procedure for reporting adverse events and incidents.
- The Data Protection Act (1998) and any other legislation relevant to your research. You must also ensure that you are aware of any emerging legislation relating to your research and make any changes to your study (which you will need to obtain ethical approval for) to comply with this.
- Obtaining any further ethical approval required from the organisation or country (if not carrying out research in the UK) where you will be carrying the research out. Please ensure that you send the FREP copies of this documentation if required, prior to starting your research.
- Any laws of the country where you are carrying the research and obtaining any other approvals or permissions that are required.
- Any professional codes of conduct relating to research or requirements from your funding body (please note that for externally funded research, a Project Risk Assessment must have been carried out prior to starting the research).
- Completing a Risk Assessment (Health and Safety) if required and updating this annually or if any aspects of your study change which affect this.
- Notifying the FREP Secretary when your study has ended.

Please also note that your research may be subject to monitoring.

Should you have any queries, please do not hesitate to contact me. May I wish you the best of luck with your research.

Yours sincerely,

FREP Chair
Date 28.4.17
V1.0

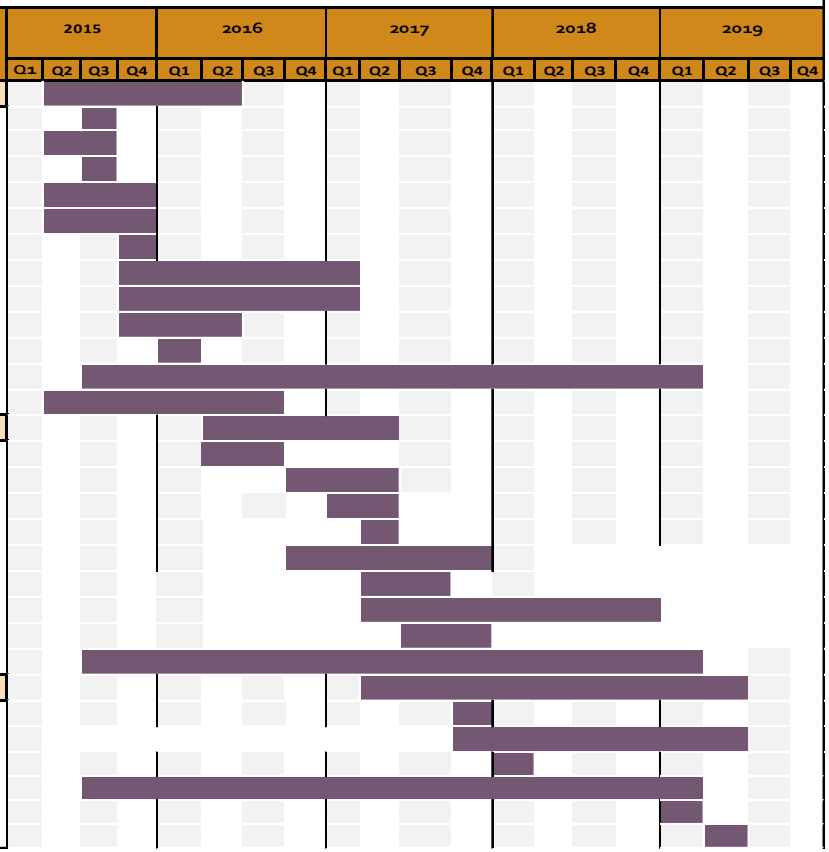
Appendix T: 4-year Gantt-Chart Planner for Thesis

Gantt Chart for PhD Thesis (2015-2019)

Period Highlight: 1

Plan | in progress | % Complete

PROJECT ACTIVITIES	START DATE	END DATE
YEAR ONE (2015 - 2016)	12/06/2015	16/06/2016
Stage 1 induction training	14/07/2015	14/07/2015
Research proposal approval	12/06/2015	28/07/2015
Intellectual property in the research context	01/07/2015	30/07/2015
Ethics 1: Good research practice (EPIGEUM)	12/06/2015	16/12/2015
Ethics 2:Research with humans in the health and social and social sciences	12/06/2015	12/12/2015
First year review meeting	14/12/2015	16/12/2015
Complete and submit ethical application for Nigeria	25/12/2015	07/01/2017
Complete and submit ethical application for ARU	25/12/2015	01/03/2017
Draft questionnaire	15/12/2015	20/12/2016
Annual review meeting (Year 1 AMR)	14/03/2016	16/03/2016
Writing up project (Chapter 1 - 5)	01/07/2015	01/01/2019
Supervisor's supervision (2x every month)	16/06/2015	18/08/2016
YEAR TWO (2016 - 2017)	16/06/2016	16/06/2017
Stage 2 A and B presentation and academic writing presentation	20/05/2016	01/08/2016
Annual review meeting (Year 2 AMR)	16/12/2016	16/04/2017
Ethical approval application for Nigeria	07/01/2017	07/04/2017
Ethical approval application for Anglia Ruskin	07/04/2017	07/06/2017
Supervisor's supervision (2x every month)	18/08/2016	12/12/2017
Confirmation of candidature	16/06/2017	19/07/2017
Data collection and analysis	07/06/2017	07/11/2017
Recruitment of particpants (A and B)	07/07/2017	31/10/2017
Writing up project (Chapter 1 - 5)	01/07/2015	01/01/2019
YEAR THREE (2017 - 2019)	16/06/2017	16/06/2019
Annual review meeting (Year 3 AMR)	01/12/2017	16/12/2017
Supervisor's supervision (2x every month)	12/12/2017	16/06/2019
Stage 3 thesis production and exanminattion preparation training	15/01/2018	19/01/2018
Writing up project (Chapter 1 - 5)	01/07/2015	01/01/2019
Mock Viva	16/03/2019	16/03/2019
Submission of thesis for examination	10/06/2019	16/06/2019



Appendix U: 12-week Gantt-Chart for field work in Nigeria

FIELD WORK/DATA COLLECTION WEEKLY PLAN

Period Highlights

Completed

FIELD WORK ACTIVITIES	Nov-17			Dec-17				Jan-18			
	2nd wk	3rd wk	4th wk	1st wk	2nd wk	3rd wk	4th wk	1st wk	2nd wk	3rd wk	4th wk
Selecting of VCM for Phase 1 study											
Training of selected VCM											
Visiting the L.G. and sending letters to interview participants for phase 2 study											
Follow up of interview participants for study recruitment											
Visiting of villages with allocated VCM											
Distribution of Questionnaire by VCM											
Collection of questionnaire by researcher											
Questionnaire data input on excel											
Monitoring and evaluation of VCM's in the field											
Conducting interview in 2 L.G.A and health care facility											
Conducting interview in the other 2 L.G and healthcare facility											
Review of Interview audio-tape records											
End of field work and return to school											