

Knowledge and Practices of Women in Rural Nkwerre, Nigeria, regarding Cervical
Cancer and Cervical Cancer Screening

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DEDICATION

This study is dedicated to my mom, Felicia Ihekwoaba, who has supported and encouraged me all through my life. I could not have done this without you.

I love you. Thank you.

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I would like to express my gratitude and appreciation to the people who supported me through this research study. First, I would like to thank the women who shared their personal experiences with me and took the time to answer my questions with great enthusiasm. It was a privilege to be in the company of such strong, wise women and hear their stories. Without the participation of these women, this study would not have been possible. I would like to thank my research project supervisor, Dr. Darlene Steven, for lending her expertise to this study and guiding me through the process. I learned so much from you and greatly appreciate your patience and wealth of knowledge. I would like to thank my sisters, whose encouragement has helped me reach my goal. Thank you, Chioma and Ndidi. You two are the wind beneath my wings. I love you very much. I would also like to thank my dad whose support and encouragement was instrumental in completing this project. Lastly, to my husband, I cannot thank you enough. Your support and patience through this process is greatly appreciated.

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Introduction{ TC "Introduction" \f C \M "1" }

The International Network of Cancer Treatment and Research (INCTR, 2004) has identified cancer as a major health problem in Nigeria, as in most other African countries. Cervical cancer is the commonest cancer in the Nigerian female and it is the leading cause of death in Nigerian women (Ayinde et al., 1998). Unfortunately, the importance of cancer as a health problem has been underplayed or totally neglected over the years by all agencies that have been advising or financing health projects in Africa. Agencies such as the World Bank and USAID give priority to infectious diseases and infant and maternal health. The apparent neglect of cancer by these agencies and the lack of emphasis on this problem has resulted in few cancer treatment facilities and cancer therapists (WHO, 2002).

The Ibadan Cancer Registry, one of six cancer registries in Nigeria, a population-based registry serving a population of 1.22 million within 70 square kilometers in Ibadan in the Oyo state of South West Nigeria, reported that the current estimated number of cancer cases in Nigeria is 100,000 at the present time; by 2010, it is estimated that 500,000 new cases will be diagnosed annually, 22.6% of which will be cervical cancer (INCTR, 2004).

Cervical cancer is the most common type of cancer affecting women in Nigeria. Data have suggested that the maximum incidence occurs at age 50. In Nigeria, there is very little information about the prevalence rates in the general population. However, published studies have suggested that cervical cancer rates are higher than in most European countries. More recent studies have suggested that the incidence of cervical cancer in Nigeria is increasing (Okobia, 2003). Because most women in Nigeria are still

not encouraged to have Pap tests, cervical cancer mortality rates are rising. The increasing mortality and morbidity rate in Nigeria from cervical cancer is a public health issue that needs to be addressed.

There are still no national screening programs for cervical cancer in Nigeria (Ayinde et al., 1998), but there are clinics that offer the test at low cost. Despite the availability of these clinics, most women in Nigeria do not use these services. Very little information is available in Nigeria regarding women's ineffective use of available Pap smear screening services.

Purpose of This Study{ TC "Purpose of This Study" \f C \l "1" }

The purpose of this study was to explore and describe the knowledge and practices of cervical cancer screening among women ages 19 to 65 in Nkwerre, a rural community in Nigeria. The specific objectives of this study were to:

1. Review the literature regarding cervical cancer screening at the national and international levels.
2. Explore the knowledge of women in Nkwerre, Nigeria regarding
 - cervical cancer
 - cervical cancer prevention (Pap smear test)
 - Identify the relationship between knowledge of cervical cancer and socio economic status (education level)
3. Explore the practice of the Pap smear test
4. Identify barriers to utilization of the Pap smear screening test.

Significance of the Study{TC "Significance of the Study" \f C \l "1" }}

The results from this study will provide information to be directed at current policies to significantly reduce the barriers and promote the use of available Pap smear screening services in Nigeria. This study will help to identify cultural barriers to cervical screening for this ethnic group that can be taken into consideration when planning future cervical cancer screening programs in the area. This study will provide useful information on the knowledge, practices, and attitudes of rural eastern Nigerian women toward cervical cancer screening that can be used to design health education programs and establish an organized screening program in this area. This study will also raise the participants' awareness of cervical cancer by providing a platform for a discussion of the topic. In summary, the results of this study will have implications for health care providers, clients, as well as health policy makers.

Conceptual Framework{ TC "Conceptual Framework" \f C \l "1" }

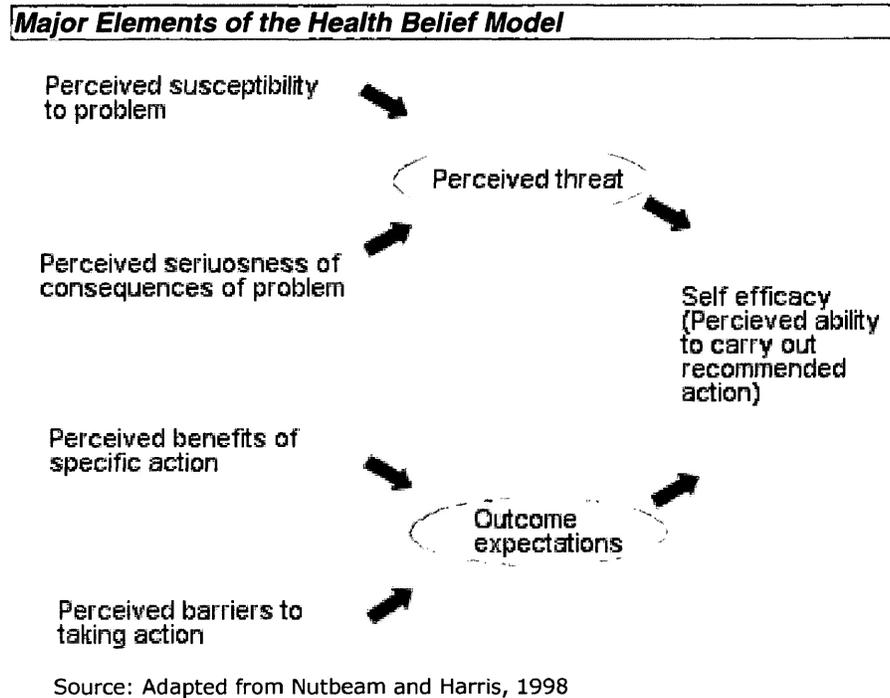


Figure 1. Health belief model.{ TC "Figure 1. Health belief model." \f A \l "1" }

The health belief model (HBM) was developed in the 1950s by psychologists Hochbaum, Kegeles, Leventhal, and Rosenstock, who were working for the U.S. public health service. This model was developed to explore the reasons for decreased participation in preventative health programs (McFarland, 2003). Research focused on attitudes and beliefs of individuals. The health belief model is based on the understanding that a person will instigate health-related action if the person (a) feels that a negative condition can be avoided, (b) has a positive expectation that the recommended action will avoid a negative health condition, and (c) believes that the recommended health action will be successful.

The HBM asserts that the individual's readiness to take action is a function of four beliefs:

1. Perceived susceptibility refers to the individual's belief that he/she is at risk for contracting a particular disease or condition.
2. Perceived severity refers to the individual's belief regarding the seriousness of the disease in question if contracted or left untreated. Studies have indicated that individuals who believe in the seriousness of the disease, and in the likelihood of getting that particular disease, are more likely to take preventive action than those who believe otherwise.
3. Perceived benefit refers to the individual's belief that engaging in a particular preventive action will lower the risk of contracting a particular disease.
4. Perceived barrier refers to the individual's beliefs regarding obstacles to taking preventive action. The model further purports that for preventive action to take place, benefits must outweigh the barriers. (McFarland, 2003)

This model has been shown in recent studies to provide a framework to help explain Pap smear screening behaviors in women of various cultural backgrounds and educational levels. The HBM is the theoretical framework that was used in this study of Pap smear use in Nkwere, Nigeria.

Literature Review{ TC "Literature Review" \f C \l "1" }

This literature review will provide background information on cervical cancer and HPV, will recognize the barriers to cervical cancer screening in different ethnic groups, and examine extant literature describing the current knowledge of cervical cancer screening and the risk factors of women in developing countries. This framework is intended to provide evidence to support further research in this area and highlight gaps in the literature on cervical cancer.

Cervical Cancer Mortality Rates

Cervical cancer is a disease in which cancer cells grow in the cervix. The cervix is the lower, narrow part of the uterus (womb) that connects the uterus with the vagina. The uterus, a hollow, pear-shaped organ, is located in a woman's lower abdomen, between the bladder and the rectum. The cervix forms a canal that opens into the vagina, which leads to the outside of the body. Cancer occurs when cells in the body (in this case cervix cells) divide without control or order (CDC, 2005).

Cervical cancer affects nearly half a million women worldwide each year, half of whom die from the disease (Szarewski, 2005). In Ontario, cervical cancer is the eighth most frequently diagnosed cancer among women of all ages, and it ranks 11th among all cancer causes of death. However, its incidence ranks second among younger women ages 35 to 49, respectively (Black, Yamada, & Mann, 2002). Ontario has some of the lowest rates of cervical cancer in the world, and women in Ontario with cervical cancer have a relatively good prognosis of a 5-year survival rate (Black et al.).

In 2000, an estimated 1,500 new cases of cervical cancer were diagnosed among Canadian women; approximately 430 women died from the disease that same year (Franco, Duarte-Franco, & Ferenczy, 2001). In 2006, there will be an estimated 1,350 new cases of cervical cancer and 390 cervical cancer-related deaths in Canada (National Cancer Institute of Canada [NCIC], 2006a). The highest incidence rates are in Nova Scotia, Newfoundland, and Prince Edward Island (NCIC). Deaths from cervical cancer have decreased in Canada since the introduction of cervical screening for precancerous lesions (Wilson, 2002). Nevertheless, women are still diagnosed with and continue to die from this potentially preventable disease.

Cervical cancer mortality rates have been calculated and studied. Ng, Wilins, Fung Kee Fung, and Berthelot (2004) investigated cervical cancer mortality rates by neighborhood income in Canada between 1971 and 1996. The results showed that by age, the standardized cervical cancer death rate per 100,000 women (and 95% confidence interval) declined from 5.0 (4.5-5.6) to 1.9 (1.7-2.1). It was clear that the rates for the poorer quintiles declined much more than those for the richer quintiles, but data by socioeconomic category were not available to help the researchers understand the dynamics of these diminishing disparities in mortality. One important and acknowledged limitation of Ng et al.'s study was the complete lack of data from rural and smaller urban populations, including the Aboriginal population.

Pathophysiology

Cervical cancer begins as asymptomatic precancerous lesions, usually developing gradually over many years. “The intraepithelial lesions are limited to the cervical epithelium, and as invasion occurs the neoplastic cells penetrate the underlying membrane with potential for widespread dissemination” (Public Health Agency of Canada, 2002, n.p.). Depending on the severity, the lesions either progress to cancer or resolve spontaneously. Cervical cancers most commonly develop in the squamous cells (70%), with 18% to 20% starting in the glandular cells (PHAC). In spite of treatment, over 200,000 women die of cervical cancer each year (NCCC, 2005).

The Papanicolaou smear (i.e., the Pap test), which involves scraping some cells from the surface of the cervix with a spatula, placing them on a slide, and examining the slide under a microscope, has been available in Canada as a screening test for cervical cancer for more than 50 years. It is one of the most effective tools available for the early

detection of cervical cancer. Since its introduction, the Pap test has decreased the mortality from cervical cancer by 70% (NCIC, 2006b). The cervical cancer death rate declined 45% between 1972 and 1994, and the overall incidence of the disease decreased steadily from 14.2 per 100,000 in 1973 to 7.4 per 100,000 in 1995, due in large part to the effectiveness of Pap smear screening for cervical cytology (NCIC).

One genital infection that the Pap screen can detect is the human papilloma virus (HPV), one of the more common sexually transmitted infections (STIs). An estimated 80% of sexually active people become infected with HPV at some time in their lives (Wyand & Arrindell, 2005). HPV comprises DNA viruses that infect the skin. There are more than 100 types of HPV; of particular concern are the high-risk types that may lead to abnormal cell changes, which are detected the most often in the cervix. Although most HPV infections do not lead to cancer, Wyand and Arrindell estimated that 99% of cervical cancer tissue contains high-risk HPV.

Risk Factors for Cervical Cancer

A number of risk factors have been associated with cervical cancer. The American Cancer Society (2006) identified the following precursors to cervical cancer: HPV infection, HIV infection, Chlamydia infection, diet, multiple pregnancies, low socioeconomic status, early sexual activity, unprotected sexual intercourse, and smoking. Other than abstaining from sexual intercourse, the surest ways to prevent contracting HPV or other STIs include being in a long-term, mutually monogamous relationship with an uninfected individual and refraining from sexual contact with an infected person. Cofactors of contracting HPV and cervical cancer include intercourse with uncircumcised men and the long-term use of oral contraceptives (Wyand & Arrindell, 2005).

Epidemiological studies conducted in the past 30 years have consistently shown that the risk of cervical cancer is strongly influenced by the measures of sexual activity, the number of sexual partners, the age of first sexual intercourse, and the sexual behaviors of women's male partners (Franco et al.). Other risk factors associated with cervical cancer include smoking, a weakened immune system, and the long-term use of oral contraception (NCIC, 2006b).

Wilson (2002) estimated that 50% of women diagnosed with cervical cancer have never had a Pap smear or have not had one in 10 years or more. Screening for cervical cancer is very effective in detecting invasive and noninvasive cancers early (Wilson, 2002), and the impact of cervical cancer can be minimized if women who are at risk participate in early detection programs (Franco et al., 2001).

Ontario has a provincial screening program that was developed collaboratively by the government, professional associations, and key agencies. Based on the Mandatory

Health Programs and Services Guidelines of the Ministry of Health and Long-Term Care (2002), the initial objective was to reduce cancer mortality by 50% by 2005. Provincial health units were directed to work with community groups and women to coordinate services, identify gaps and barriers to screening, and develop and implement strategies to increase recruitment for cervical cancer screening (Black, Yamada & Mann, 2002).

Cervical Cancer in Developing Countries { TC "Cervical Cancer in Developing Countries" \f C \l "3" }

In developing countries, cervical cancer is the second most common cancer among women, accounting for 370,000 of 466,000 global cases of cervical cancer in 2000. Worldwide, cervical cancer claims the lives of 231,000 women annually, more than 80% of whom live in developing countries (Sankaranarayanan, Budukn, & Rajkumar, 2001). In developing countries, cervical cancer tends to present about 15 years earlier than it does in developed countries and at a lower mean age of diagnosis (Ayinde, Omigbodun, & Ilesanmi, 2004). The highest rates of cervical cancer are reportedly in South and Central America, sub-Saharan Africa, and South and Southeast Asia (Sankaranarayanan et al.).

Some developing countries that compile data on the incidence and mortality rates for cancer have reported an increased incidence of cervical cancer. In sub-Saharan Africa, the rate of cervical cancer is rising in areas that are experiencing rapid population growth (Sankaranarayanan et al., 2001). Although screening is one of the best preventive measures for cervical cancer, it remains difficult to implement massive cervical screening programs in developing countries. Women who are under screened or who have never been screened present with more advanced disease and comprise the greatest number of

women who die from cancer of the cervix (Steven, Fitch, Dhaliwal, Kirk-Gardner, Sevean, Jamieson et al., 2004). Even though screening is essential to cervical cancer prevention, many women continue to be under screened (Steven et al.).

In countries where Pap smear screening is available, it is often accessible only to a small proportion of women through private health care providers, or it is offered primarily to young women through maternal or child health clinics or family planning clinics, where the population being screened generally is not at high risk (Sherris, Herdman, & Elias, 2001).

In 2002, the World Health Organization (WHO) reported that about 5% of women are screened for cervical cancer per year in developing countries, which is low when compared to 45% to 50% in developed countries. This explains the significant reduction of the incidence prevalence, and the morbidity and mortality rates of cervical cancer in developed countries. High morbidity and mortality rates from cervical cancer in developing countries may be attributed to infrequent Pap smear screening: Approximately 75% of patients present while at the early stages of the disease in developed countries, whereas 75% of patients present in advanced stages of the disease in developing countries when cure is not to be expected (WHO).

Cervical cancer is a health issue between the developed and the developing world where there are clear inequalities in care (Wang, 2002). Most developing countries do not have the capacity to screen women. There are no organized screening programs in Nigeria, which is one of the higher risk sub-Saharan African countries for cervical cancer (Ayinde et al., 1998). In some sub-Saharan countries where screening programs are available, screening programs focus on women in their twenties who are too young to

show any specter of cervical cancer. Because HPV virus, one of the causes of cervical cancer, grows slowly, women infected in their 20s may not develop precancerous lesions until their 30s or 40s (Wang).

Increased mortality and morbidity rates of cervical cancer in Sub-Saharan Africa may be attributed to poor Pap smear screening rates. Some of the factors that have been documented as the reasons for infrequent Pap smear screening in developing countries are related to the individuals' knowledge, beliefs, attitudes, and values. In addition, low screening rates in developing countries may be the result of factors specific to the individual countries, such as a paucity of national screening programs, stringent financial constraints, and a lack of adequately trained health care professionals (Guidozzi, 1996).

In summary, the screening methods for cervical cancer, which include the Pap smear, visual inspection using acetic acid, cervical punch biopsy, and PHV testing, can only be effective for detecting and preventing cervical cancer if they are administered frequently. Although some important barriers to Pap testing appear to be universal for most women, such as perception that the test is unnecessary, fear of cancer diagnosis, embarrassment with the test procedure, and lack of physician referral, it has been demonstrated that individual barriers to screening and their relative importance differ markedly between population groups (WHO, 2002). It is important that the barriers to screening be identified for each ethnic group so that effective interventions can be developed and evaluated (Marin et al., 1995).

Studies have been conducted worldwide to identify barriers to the utilization of Pap smear tests and promote the use of screening services in developing countries. Most of the research on women's knowledge of Pap smears, cervical cancer, and the risk

factors for cervical cancer has been done via surveys. This section presents a review of these studies.

HPV and Cervical Cancer TC "HPV and Cervical Cancer" ACM '3'

Cervical cancer has been attributed to sexual promiscuity among women or men, sexually transmitted infections (STIs), and low use of contraceptives. Since the 1980s, researchers have identified a link between HPV and cervical cancer, having found that over 99% of cervical dysplasias contain DNA for HPV (Reid, 2001). Data showing the prevalence of HPV among women in Nigeria, particularly Nkwere, are not available. Sellors et al. (2000) examined the predictors and prevalence of HPV in women living in Ontario. They reported that women ages 20 to 24 have the highest prevalence of HPV. Of the 955 women in their study sample, 156 participants were from northern Ontario. Twenty-three percent of these women had HPV. The risk factors included more than three lifetime partners; more than one partner in the preceding year; cigarette smoking; never married, divorced, or separated status; and current use of oral contraceptives.

As stated earlier, there are more than 100 high-risk (HR) HPV genotypes. Arora, Kumar, Pructy, Kailash, Batra & Das (2005) identified 20 that have been closely identified with the development of cervical cancer. They examined the prevalence of HR-HPV in healthy women who had underlying cervical squamous intraepithelial lesions but who tested negative in Pap smears. Although there are many HR-HPV genotypes, the researchers examined only types 16 and 18, which are considered high risk for the development of cervical cancer. Within one year, the researchers examined 3,300 women between the ages of 20 and 60 who attended a major governmental hospital in New Delhi. A total of 2,059 women had negative Pap smear results but had evidence of

inflammation (Arora et al.). One hundred and sixty participants were diagnosed with HR-HPV type 16, and one participant tested positive for HR-HPV type 18 (Arora et al.). The researchers found that 10% of the participants who tested negative in the Pap smear had evidence of inflammation and tested positive for HR-HPV and cervical squamous intraepithelial lesions. The results indicated that HR-HPV detection can be utilized as an adjunct to routine cytology screening programs to identify high-risk women (Arora et al.). The study also found a reduced risk of HR-HPV infection among the older study participants. The researchers concluded that it is essential for young women, particularly those who reside in developing countries, to be screened more frequently.

Over the last 2 decades, the incidence of HR-HPV and cervical cancer has been on the rise (Bekkers, Meijer, Massuger, Snijders, & Melchers, 2006). However, an equally sharp decline in the incidence and mortality of cervical cancer has been observed in several northern European countries following the introduction of cervical screening programs such as conventional cytology (Bekkers et al.). The researchers utilized a large, randomized, and controlled trial to determine if HR-HPV detection, along with conventional cytology, improves the effectiveness of organized cervical cancer screening programs. Because cervical cancer and HR-HPV develop mutually, it was more beneficial for the researchers to examine both infections simultaneously.

Bekkers et al. (2006) screened women ages 30 to 60 who were living in United States, the United Kingdom, and the Netherlands to examine the efficacy of population-based cervical screening programs. Although they did not mention how many women participated in this study, the researchers found a higher percentage of HR-HPV detections among the women who were screened for cervical cancer. In addition, the

sensitivity of HR-HPV detection in identifying women with cervical cancer was higher in conventional cytology than other cervical screening tools (Bekkers et al.).

However, excluding participation in the study, the overall success rate of the program was low (Bekkers et al., 2006). Ensuring that the target population participates is the most important factor in the effectiveness of any cervical cancer screening program. Only half the survey sample completed the screening process for HR-HPV and cervical cancer (Bekkers et al.). This paper drew heavily on the assertion that high participation rates in cervical cancer and HR-HPV screening programs result in a decrease in mortality among high-risk women. Thus, to prevent early withdrawal from screening programs, the researchers concluded that it is essential to educate women about the serious health hazards that may result if precautions are not taken. The researchers clearly supported the initiative to produce mandatory screening programs in developing countries.

Pap smear testing of precancerous cervical lesions is widely recognized as an effective method for detecting cervical cancer (Dalstein et al., 2004). It is an accepted fact that HR-HPV is the main causal agent of developing intraepithelial and cervical cancer (Dalstein et al.). Dalstein et al. implemented a 5-year HPV screening program in a clinical French hospital, located in a pilot area for organized cervical cancer screening. Between 1997 and 2002, the researchers examined 6,691 women. All of the women who participated in the study were carefully informed about HPV testing, the benefits of participating in the study, and the importance of following up with doctor visitations after examination. The goals of the screening program were to educate the participants on reproductive health before the initial examination, detect HPV development in the participants with negative Pap smears, and treat the women who were infected with

invasive carcinoma. After educational training, the participants underwent a pelvic examination; two samples of exfoliated cells were obtained from the cervix (Dalstein et al.).

The outcome of the study indicated that 3,019 participants had normal Pap smear results, 9 participants were diagnosed with invasive carcinoma, and 420 participants who tested negative for cervical cancer tested positive for an HR-HPV infection (Dalstein et al., 2004). The highest rate of HR-HPV infection was among women ages 20 to 24 (Dalstein et al.). The participants who were diagnosed with cervical cancer or HR-HPV received treatment following the initial examination (Dalstein et al.). The researchers concluded that HR-HPV testing is a relevant tool by itself or as an adjunct to cytology. A combination of cytology and HR-HPV testing may help to identify women who are at high risk of developing cervical cancer.

Cervical Cancer among Ethnic Groups { TC "Cervical Cancer among Ethnic Groups" \f C \ "3" }

Very little is known about the factors that contribute to low Pap smear screening rates among ethnic minority groups. Although the literature is scant, a few articles from North America and Africa highlight the current knowledge gap among different ethnic groups about the benefits of screening for cervical cancer. The studies described in this section used qualitative research to explore the knowledge of different ethnic groups about the risk factors of cervical cancer. Austin, Ahmad, McNally, & Stewart (2002) defined ethnicity as “a subgroup of people who share a common ancestry, history, or culture” (p.124). The findings from these studies may be useful to plan appropriate educational interventions for specific target groups.

Using at-home interviews and questionnaires to determine Pap smear screening rates and knowledge of the risk factors for cervical cancer among women of Chinese descent in British Columbia, Hislop, Teh, Lai, Ralston, Shu, & Taylor (2004) randomly selected households from Vancouver and Richmond neighborhoods with a high density of Chinese residents to be interviewed. A total of 1,900 women selected for the study were sent introductory letters in Chinese and English explaining the purpose of the study.

The study group included 528 Chinese women who completed the survey questions on cervical cancer knowledge, who did not have a personal history of invasive cervical cancer, and who were not born in North America. These participants were selected from 822 Chinese women between the ages of 20 and 79 who were interviewed and who represented 62% of the contacted households with family members meeting the study criteria (Hislop et al., 2004). To determine if the women's knowledge of cervical cancer was related to their exposure to and utilization of Western health services, the questions asked about their experiences with prenatal care and family planning services in North America, if they had family doctors for usual care, and the gender and ethnicity of the family doctors. In addition, the women were asked if they had received a Pap test within the previous 2 years. The survey questionnaire was developed in English; a quantitative method using open-ended interviews was used to assess the cultural sensitivity components of the program.

Hislop et al. (2004) found a link between the women's knowledge level and two socio demographic acculturations factors, namely, the women's level of education and the gender of the doctor providing usual care. The women who were highly educated and under the care of a female doctor had more knowledge of the risk factors for cervical

cancer than the women who were less educated. The researchers also found that about 50% of the Chinese Canadian participants had some knowledge of the factors for cervical cancer. There were two limitations of this study: The findings cannot be generalized to other Chinese communities because differences in cultural sensitivities to some of the risk factors, particularly those related to sexual behavior, may impact screening behavior, and Chinese women speaking dialects other than Cantonese and Mandarin were excluded from the study.

Klug, Hetzer, and Blettner (2005) reported on the participation in cancer detection examinations, the motivation to attending screening programs, and the knowledge about risk factors for cervical cancer such as HPV among women ages 25 to 75 living in Bielefeld in northwestern Germany 2000. An epidemiological questionnaire, along with a prepaid return envelope, was mailed to a random sample of 1,500 women. The questionnaire sought demographic information, general information on health status, participation in cervical cancer screening, HPV testing, cervical examination by a medical doctor, knowledge about screening methods, risk factors, and motivation for participation in screening (Klug et al.). A total of 540 questionnaires were returned by mail, giving a response rate of 38%. The results of this study showed that almost all the women had had at least one cytological smear. Two women who had never had a cytological commented that they believed the procedure to be too intimate and embarrassing.

Age of first Pap smear was associated with social class among the study participants (Klug et al., 2005). Participants from a lower social class were older when they first had a Pap smear. Very few respondents (11.2%) knew the risk factors for

cervical cancer, and only 3.2% of the women knew about HPV. The majority of the participants were receptive to obtaining information on cervical cancer. One limitation of this study included the low response rate, which may have introduced a selection bias because of the self-selection of the women who responded. Therefore, the results may not be representative of the target population.

Hasenyager (1999) used a qualitative design that included interviews and questionnaires to assess the knowledge of 150 women visiting a university health centre in Massachusetts for routine gynecological care about the risk factors of cervical cancer. The mean age of the respondents was 23.5. The results showed that 90% knew that the Pap smear is a test for cervical cancer. However, some of the respondents believed that it also can test for ovarian cancer (56%), Chlamydia (30%), gonorrhea (29%), syphilis (27%), AIDS (6%), and uterine cancer (5%). A majority (96%) of the participants believed that a Pap smear should be performed annually, and 86% thought that all women over the age of 18 should be tested annually. Eighty-four percent reported that a woman should have an annual Pap smear before the age of 18 if she is sexually active.

The women were less informed about the risk factors for cervical cancer. Only half of the respondents identified multiple sexual partners, a history of STIs, and HPV as risk factors for cervical cancer. Just one quarter of the women recognized that smoking cigarettes, early age at first intercourse, or infection with the AIDS virus increase the risk for cervical cancer. Sixty four percent of those sampled believed that all patients with cervical cancer could be cured, and 44% thought that the treatment for cervical cancer could be performed as an office procedure (Hasenyager, 1999).

The limitations of this study were the small sample size (150), which may have affected the trustworthiness and generalizability of the findings to different populations. Larger studies with probability sampling are needed to conduct research on women's knowledge and beliefs about the risk factors for cervical cancer risk and the use of screening services. Another limitation of this study may have been the recruitment site. Hasenyager (1999) surveyed only women visiting a university health centre for gynecological screening.

In summary, these survey studies examined issues of knowledge and access to Pap smear screening among various ethnic groups. Cumulatively, the studies suggest that having health insurance, female practitioner, a regular physician, being younger, being educated increases the chances for effective use of service. Lack of knowledge of Pap smear test is a major barrier to Pap screening. These studies provide basis for understanding how inadequate knowledge of cervical cancer and Pap smear screening can influence Nigerian women's use of Pap smear tests.

Cervical Cancer Awareness in Africa { TC "Cervical Cancer Awareness in Africa" \f C \l "3" }

Other studies in Africa that have investigated women's knowledge of the risk factors of cervical cancer have concluded that there is limited knowledge in developing countries about these risk factors, which may explain the increased rates of cervical cancer in sub-Saharan countries. The following studies addressed the issue that women in sub-Saharan Africa have little knowledge of the risk factors for cervical cancer.

In South Africa, Lartey, Joubert, and Cronje (2003) used interviews and questionnaires to survey 538 women in Xhosa, or Sesotho. The aim of this study was to

ascertain the knowledge about cervical cancer and its risk factors, practices of cervical cancer screening, and general attitudes regarding the Pap smear among women in a typical rural setting. The study participants were females ages 18 years and older who visited primary health care clinics, irrespective of their reason for visit. The median age of the participants was 40, and their median educational level was Grade 7. The findings revealed that approximately 63.6% of the surveyed women had heard about a Pap smear.

These women were significantly older, having a median age of 42. The women who had never had a Pap smear gave various reasons for not having one: It had not been suggested by the doctor or nurse (40.4%); the participant was not ill, so she felt that it was unnecessary (37.8%); and there was a fear of having it done (32.5%). Cultural and religious beliefs were identified as a factor by only 1.3% of the women. One third of the women thought that the first Pap smear should be done as soon as sexual activity begins, and 71% thought that cervical cancer is a preventable disease (Lartey, Joubert & Cronje, 2003).

In Ghana, Adanu (2002) conducted a cross-sectional study using self-administered questionnaires among 4 different groups of well-educated women at the University of Ghana's main and medical campuses in Accra, Ghana. These groups comprised medical students, non-medical undergraduate students, nurses, and senior university workers. The aim of the study was to determine the level of knowledge about Pap smears and the risk factors for cervical cancer assess the level of Pap smear use, and identify the factors that promote cervical cancer awareness and Pap smear use. They surveyed 175 women between the ages of 18 and 56, with a mean age of 31.7.

The findings revealed that although 93% of the respondents knew about cervical cancer, only 37% had adequate knowledge of the disease (Adanu, 2002). Of those with adequate knowledge, nurses and medical students were significantly in the majority. Twenty-three percent of the respondents did not know the etiological factors for cervical cancer. Although 39% had sufficient knowledge of Pap smears, only 8.5% had ever had a Pap smear. Pap smear use was the most frequent among the university staff. The most common reasons cited for not having the Pap smear included the belief that it was not considered necessary (19.4%) and the fact that they had never heard of it (16.4%). This study showed that the level of Pap smear use among well-educated women in the West African city of Accra is low, despite the higher level of knowledge about cervical cancer and Pap smears when compared to other African cities.

In Maiduguri, Nigeria, Audu, El-Nafaty, Khalil, and Otubu (1999) conducted a study in a teaching hospital that focused on identifying the barriers to cervical cancer screening among the clinic population. This purpose of this qualitative study was to determine the participants' awareness of the occurrence of cervical cancer as well as their knowledge of its risk factors and whether or not the disease is curable and or preventable. Audu et al. also collected information to assess the population's awareness of screening for cervical cancer by Pap smear as well as their attitudes toward the benefits of the procedure. Interviews were conducted using a closed-ended questionnaire for the 500 female participants.

The findings revealed that despite the high prevalence of cervical cancer, an overwhelming majority of the participants (90.2%) were ignorant of its occurrence and its risk factors, and very few had actually heard of the disease (Audu et al., 1999). Only

2.8% of the respondents were aware of the Pap smear test and knew where to have one; 92.7% were not. The researchers also found that although these women expressed a general abhorrence of a vaginal examination, especially by male health care professionals, it was virtually acceptable to all who were screened as long as its value to their health was explained to them prior to the examination. Audu et al. attributed the lack of knowledge about cervical cancer to the absence of education programs and routine screening programs in the community. They concluded that education must precede a screening program if it is to succeed.

Another study from Nigeria conducted by Ayinde, Adewole & Babarinsa (2004) determined that undergraduate students had poor knowledge of the risk factors for cervical cancer. They surveyed 421 undergraduate female students of the University of Ibadan by having the participants complete a self-administered questionnaire examining their knowledge of the risk factors of neoplastic cervical lesions, cervical cancer, and Pap smears and utilization.

Ayinde et al. (2004) found that 90.7% of the respondents were aware of cancer in general and that 71.0% were aware of cervical cancer. However, only 33.5% of the respondents were aware of Pap smears, and approximately 64.1% of them knew that sexually active females should have a Pap smear. The results also showed that 89.9% of the sexually active respondents had never had a Pap smear. The researchers concluded that though awareness about cervical cancer was fairly high among the participants, their knowledge of the Pap smear was generally poor, and the procedure itself was unpopular among the students. Ayinde et al. recommended that reproductive health education about cervical cancer, STIs, and prevention strategies be increased in the high schools and

higher institutions of learning. They suggested that regular cervical screening be emphasized and that the mass media and the Internet be utilized to inform people about cervical cancer.

The absence of standardized measures to evaluate the participants' knowledge of cervical cancer and Pap smear tests was a limitation in all of the studies that were reviewed. Assessment of knowledge using open-ended questions and criteria determined by the researchers provided new data on the topic that could not have been captured through standardized measures. The reviewed studies on the knowledge of the risk factors for cervical cancer indicated that some women, especially those in sub-Saharan Africa, do not have sufficient information about the risk factors and the screening methods for cervical cancer. All women need more information on the risk factors for cervical cancer. Women who become sexually active before the age of 18 need to know that cervical cancer screening is the best way to prevent cervical cancer. Women who smoke, have multiple sexual partners, or engage in unprotected sex need to know that they are at risk for contracting cervical cancer.

Barriers to Cervical Cancer Screening { TC "Barriers to Cervical Cancer Screening" \f C \l "3" }

The studies reviewed in this section address the barriers to cervical cancer and Pap smear screening in selected parts of North America and Africa. There are limited recent studies from Africa and developing countries. In Ontario, 88% of women ages 18 and over have reported having had a Pap test. However, one in 4 women in Canada ages 18 to 69 has either never had a Pap test or has not had one in the past 3 years (Black et al., 2002). Some of the factors associated with being under screened in Ontario include

age, education, and poverty; living in a rural area; being an immigrant; being Aboriginal; or not speaking English or French (Black et al.). Surprisingly, these barriers are no different in other parts of the world.

Despite the high incidence rates of cervical cancer in some developing countries, Pap tests are not utilized as a preventive behavior. Researchers have examined the barriers to cervical cancer screening in different ethnic groups. At the Center for Minority Health at the University of Texas Cancer Center, Chilton (2006) interviewed 17 leaders in the Vietnamese community in Houston, Texas, to identify factors that have a negative impact on screening practices among Vietnamese women. These leaders included local health-care delivery providers, directors, administrators, and community outreach liaisons. The results showed that some of the barriers to cervical cancer screening included a lack of knowledge, a lack of female physicians, language barriers, a lack of insurance, and embarrassment. Interviews established that prevention is a Western concept that the Vietnamese community has not yet adopted. The findings revealed that “Vietnamese women used their churches, community physicians (licensed or not), circle of friends, and families for their health information. Many patients used herbs as alternative or complementary therapies” (Chilton, 2006, p. 110). The researchers concluded that cultural factors play a vital role in limiting Vietnamese women’s use of cervical screening. Further research needs to focus on identifying specific barriers and determining how they can be overcome (Chilton).

Arevian, Nouredine, and Kabikian (1997) conducted a study to examine the barriers to cervical cancer screening among a cohort of 290 Armenian/Lebanese women living in the greater Beirut region. A systematic sampling technique was used to select

the participants. The women, ages 18 and older, were from various economic backgrounds ranging from poor to affluent. Their educational levels ranged from elementary school to university. Data were collected from the questionnaires. The results of the study identified anxiety, cost, embarrassment, and inadequate knowledge as barriers to cervical cancer screening. The researchers concluded that the participants' screening practices increased with their level of education, economic status, and positive attitude toward Pap smear testing.

Hislop et al. (1996), as cited by Steven et al. (2004), used a participatory research approach to determine Pap smear screening rates among a sample of First nations women in British Columbia and identified facilitators and barriers to screening. They also developed, implemented, and evaluated specific interventions to improve cervical cancer screening practices. They commented:

Pap smear rates were substantially lower among First Nations women than among British Columbia women; older women had even lower rates. No clear differences were found among First Nations women residing in Vancouver or residing off reserves else where in British Columbia. Facilitators and barriers to screening were similar amongst women residing in reserves and in Vancouver. Many First Nations women are greatly affected by health care providers' attitudes to provide clear information, and abilities to provide clear information, and abilities to establish trusting relationships. (p. 1701)

The researchers also discovered that women's knowledge was related to how the test was performed and what they had to do. The participants knew little about the cancerous process and the purpose of the Pap smear or its optimal frequency. They

confused it with a test for STIs. Few women mentioned the role of the Pap smear in detecting precancerous changes, nor were they able to describe accurately the technical aspect of the test. Some women thought that the Pap smear is a prerequisite to obtain birth control pills. Overall, the women reported being very embarrassed and uncomfortable psychologically and physically when having Pap smears, especially if examined by a male doctor. Only a few women indicated feeling anxious about the possible positive outcome of the Pap smear. Although some women reported that over time it became easier to have a Pap smear, most of them had to psychologically prepare and remind themselves that the exam is meant to help them retain their optimal health (as cited in Steven et al., 2004).

The researchers also developed specific interventions. These included the development of a visual image representing the linking of urban and rural First Nations communities to be used on a poster. An information art card and an educational follow-up pamphlet to be distributed in locations frequented by the women also were used. Other initiatives were newspaper articles and community meetings that provided information regarding the Pap smear and women's health and a Pap smear clinic that was established specifically for First Nations women and staffed by female practitioners. Long-term evaluation to determine the effectiveness of the interventions is required. However, it is thought that due to the participatory nature of the entire project, a positive outcome is anticipated. Similar studies need to be conducted in other First Nations populations (as cited in Steven et al., 2004).

Chukwuali, Onuigbo, and Mgbor (2003) were concerned about the low patronage of a screening program in Enugu State in Nigeria. Even after an intensive media

campaign, the maximum number of clients annually was only 122. They studied the results of cervical cancer screening at a women's medical association centre and found that over the 10 years under review, a total of 815 women had had Pap smears at the centre. Of this number, only 4 women (.5%) had had one previous smear prior to coming to the centre. The percentage of positive smears in this study (12.2%) was high when compared to the national screening program in the United States (3.8%). The researchers stated that the poor utilization of cervical cancer screening services in Nigeria is related more to psychosocial factors than cost. Fearing positive results and having a poor preventative health consciousness were identified as possible reasons by the researchers for the low number of women seeking cervical cancer screening services in Enugu. The researchers concluded that a national cervical screening program in Nigeria is overdue and that an increased cervical cancer consciousness among Nigerian women, followed by regular Pap smears, is necessary to reduce the prevalence of positive smears among Nigerian women.

Although some studies have examined such barriers to cervical cancer screening as low level of education, SES, fear of positive results, poor preventative health, and a lack of female physicians, other researchers have identified different cultural barriers. In Botswana, McFarland (2003) used a demographic questionnaire and a semi structured interview guide to obtain information about women's perceived susceptibility to cervical cancer and the barriers to obtaining cervical cancer screening. The sample included 30 women with different educational and income levels who were 30 years of age or older living in Gaborone, the capital of Botswana. The women were recruited using network sampling.

The results of the study showed that the participants had limited knowledge of the risk factors for cervical cancer (McFarland, 2003). Of the 30 women surveyed, only one (3%) had adequate knowledge of the risk factors for cervical cancer. Ten (33%) of the 30 women surveyed had no knowledge of the risk factors. The researcher reported that although the participants had inadequate knowledge of the scientifically established causes of cervical cancer, they reported additional factors such as vaginally inserted medical and chemical substances and intrauterine devices or loops that they perceived as responsible for the high incidence of cervical cancer in Botswana. The participants thought that these substances could lead to erosion of the cervix and cause cervical cancer.

McFarland (2003) also found a link between cervical cancer knowledge and SES. The researcher reported that knowledge was limited among the women from a lower SES. The reasons that were outlined for the limited knowledge included cultural norms of secrecy, providers not informing the public, and policy makers' limited attention to cervical cancer. Barriers reported by the participants included fear of the test, gender of the health care provider, fear of losing the uterus, mistrust of the health care provider, financial constraints, lack of motivation, and laziness. The participants also were worried about the inability of the health care providers to ensure client confidentiality.

Steven et al. (2004) utilized a questionnaire and an interview process to assess the knowledge, attitudes, beliefs, and practices regarding breast and cervical cancer screening of selected ethno cultural groups in northwestern Ontario. The sample consisted of 105 women ages 40 years and older from five ethnic origins (Ukrainian, Finnish, Italian, Ojibwa, and Oji-Cree). The interview, which was based on a C-SHIP model, elicited

information on health concepts, health beliefs and expectancies, affective states, health goals and values, self-regulatory competencies, and skills for generating and maintaining health-protective behaviors. The findings suggested that cultural beliefs, attitudes, and practices toward health promotion are important factors that must be considered when developing strategies to address barriers to effective breast and cervical screening. They also asserted that acknowledging and respecting cultural beliefs will encourage women from different cultural backgrounds to participate in regular breast and cervical screening procedures.

Steven et al. (2004) identified four themes in their research:

Theme 1: use multiple media sources to inform women about screening programs

Theme 2: educate women regarding breast and cervical cancer

Theme 3: remind women when they are due for screening

Theme 4: pap tests are uncomfortable and frightening (pp. 309-310)

Pertinent to first theme, the women in the study confirmed the need for the development of appropriate marketing strategies to enhance healthy beliefs, goals, competencies, and skills for breast and cervical cancer screening practices. Steven et al. noted:

They suggested the use of videos rather than booklets as a strategy for enhancing information presented to those who are less literate. They also suggested placing information in grocery bags, on coupons, and on refrigerator magnets and using special programs on cable television. (p. 310)

They also suggested that nurses who are culturally sensitive to their own ethnic practice should visit women's homes and provide educational sessions either individually or in groups.

The second theme described the participants' views in terms of education of cervical cancer screening. The women highlighted the need for young women to receive information to allay their fears and foster positive and ongoing health behaviors in regard to prevention and screening. The participants suggested that information about cervical cancer prevention and screening should be taught in high school.

In regard to the third theme, the participants expressed the desire for culturally appropriate strategies to remind them of screening programs. One of the participants suggested, "Yearly phone calls or check in by a health care practitioner is helpful" (Steven et al., 2004, p. 310).

The fourth theme described the participants' views in terms of the screening process. They suggested the following strategies:

- Educate women at a young age so that they know what to expect.
- Ensure that healthcare professionals include female examiners.
- Develop new method to examine the vagina.
- Drink a 40-ounce bottle of rye.

Conclusion

Similarities across North America and Africa were noted in the reviewed studies. The research on women's knowledge of cervical cancer screening methods has shown that women, especially those in developing countries, do not have sufficient information about Pap smears. Women need to know that Pap smears screen for cervical cancer and that they are a valuable tool in the identification and prevention of the disease. Women in developed and developing countries need more information on the risk factors for cervical cancer. There is a need for further research in this area to educate populations on

the value of screening in detecting and reducing the rates of cervical cancer. Screening should be a standard part of government policy on women's health in developing countries, and its importance to women's health should be disseminated much more widely through health institutions and the mass media. Continued education should also be stressed among clinicians and other health care providers.

Background of the Study{ TC "Background of the Study" \f C \l "1" }

The health care system, traditional beliefs, and practices are factors that impact the Pap smear screening behavior of women in Nigeria. Some background information about Nigeria is presented in this study to facilitate the understanding of these factors.

Country Profile{ TC "Country Profile" \f C \l "3" }

Nigeria is Africa's most populous country and has a great ethnic, cultural and religious diversity (Mundo, 2002). Nigeria is geographically the largest country on the west coast of Africa. It is bounded to the south by the Gulf of Guinea, bounded to the east by Benin, and bounded to the west by Cameroon (see Figure 1). Nigeria has a land area of about 923,770 sq. km (George, 1999). The climate in Nigeria varies according to the region. It is equatorial in the south, tropical in the central areas, and semiarid in the north. The average temperature is 32 degrees Celsius. There are two seasons in Nigeria: rainy and dry. In most parts of Nigeria, the dry season extends from November to March. During the dry season, winds carrying tiny particles of sand from the Sahara Desert create a hazy cloud in the atmosphere, especially in the north. The rainy season is from April to September in the north and from March to November in the south. More than half of Nigeria's land surface is pastures, forests, and woodlands. About one third is arable land. Oil, palm, cocoa, and timber grow abundantly in the western region. The

natural resources of Nigeria are petroleum, tin, columbite, iron ore, coal, limestone, lead, zinc, and natural gas.

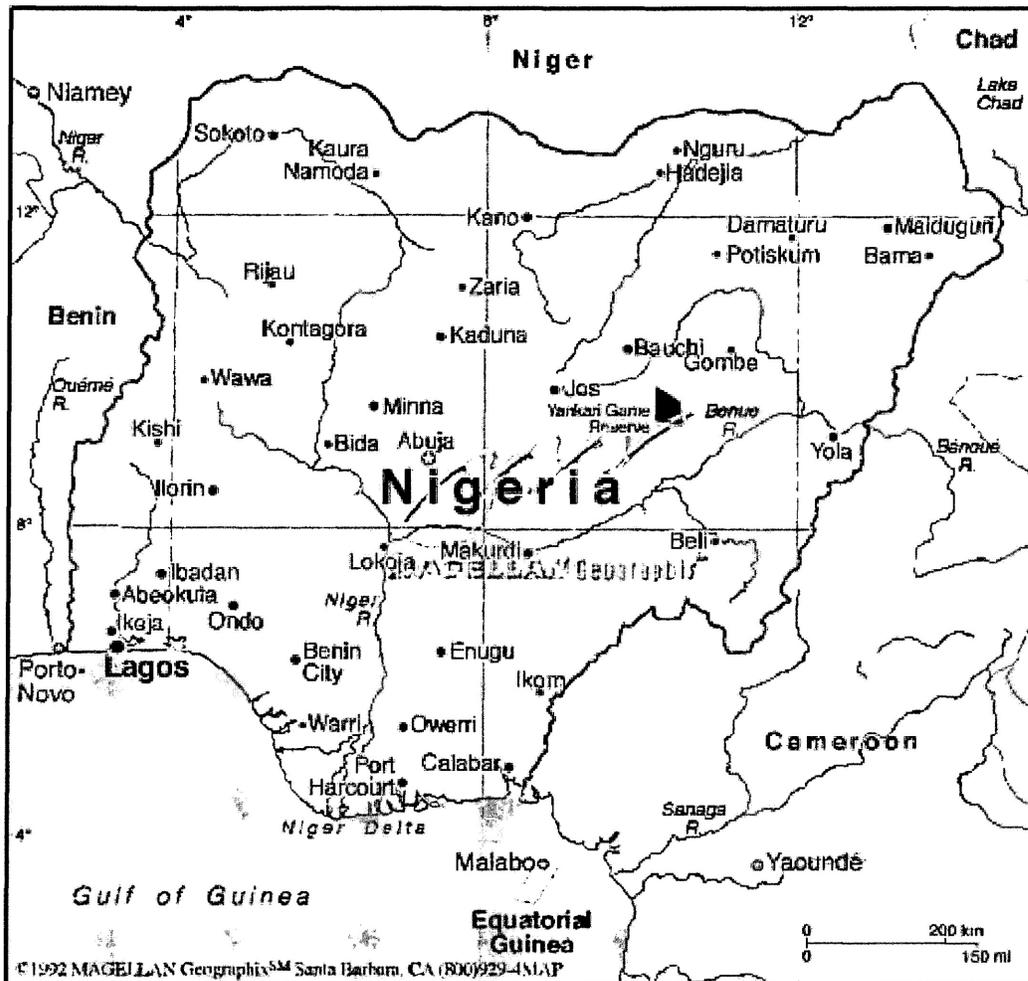


Figure 2. Map of Nigeria. { TC "Figure 2. Map of Nigeria." \f A \l "1" }

Population { TC "Population" \f C \l "3" }

The population of Nigeria is 107 million, and 70% of Nigeria's population is rural based (George, 1999). Most rural residents are farmers who cultivate yams, cocoyam, cassava, potatoes, sweet potatoes, and grains. Many Nigerians work in the oil and gas industries. Nigeria is the sixth largest producer and exporter of petroleum in the world. The manufacturing sector also provides employment to city dwellers (George). There are more than 300 recognized ethnic groups in Nigeria with their own languages, dialects,

and customs. The most important ethno linguistic categories are Hausa and Fulani in north, Yoruba in southwest, and Igbo in southeast, all internally subdivided (Library of Congress, 1991). The official language in Nigeria is English. The study was carried out in Nkwerre, a village in eastern Nigeria with a population of about 16,000 people.

Nigeria's Health Care System { TC "Nigeria's Health Care System" \f C \l "3" }

Nigerians practice traditional and Western medicine. Traditional medicine is often associated with magic, or "juju." Native doctors are widely consulted in rural areas. A variety of herbs and animals are used as remedies in traditional medicine. Many natural, traditional medicine remedies are kept as family secrets. The practice of Western medicine is expanding in Nigeria. Primary health care is available and provided in both rural and urban areas. Religious groups support many hospitals in Nigeria. However, there remains a shortage of medical facilities, supplies, equipment, and staff in certain areas. An inadequate water supply and insufficient sanitation treatment facilities in rapidly growing cities are increasing the threat of infectious diseases. The life expectancy in Nigeria is 46 years for women and 45 years for men (WHO, 2006).

Role of Women { TC "Role of Women" \f C \l "3" }

Understanding the role of women in Nigerian society was important for this study because the role is tied to women's cultural beliefs and societal expectations. Nigeria is Africa's most populous country and has great ethnic, cultural and religious diversity. However, the general picture is that of a country struck by poverty, misadministration and increasing internal conflict (Mundo, 2002). Nigeria has a population of over 60 million women (George, 1999). While women in Nigeria have made considerable individual progress in both academic and business world, women still

remain underprivileged. Traditionally, the central role of women has been that of housewife who is home bound. Historically, they were expected to take care of the home and children, as well as extended family members, while their husbands provided economically for their families. However, with rising educational opportunities for women and urban migration for employment, women have expanded their roles to include financial support for their families. Nigerian women are discriminated against in access to education for social and economic reasons. The literacy rate for males is 58% and only 41% for females. Women in rural areas are even more disadvantaged than their urban counterparts. Only 42% of rural girls are enrolled in school compared with 72% of the urban girls. In the northern parts of the country, Muslim communities favor boys over girls in deciding which children enroll in secondary and elementary schools. In the south, economic hardship may also restrict a family's ability to send girls to school and, instead, they are directed into commercial activities such as trading and street merchandising (Mundo, 2002). In regards to land ownership in Nigeria, although women are not barred legally from owning land, under most customary land tenure systems only men can own land, and women can gain access to land only through marriage or family. In addition, many customary practices do not recognize a woman's right to inherit husband's property, and many widows are rendered destitute when their in-laws take virtually all of the deceased husband's property.

Nigerian women today are assuming the simultaneous roles of wife, mother, and provider. These roles put demands on their time that may explain why women in Nigeria do not make time for routine health needs like screening for cervical cancer which is not perceived as necessary.

In Nigeria, cervical cancer is a significant cause of distaff mortality and morbidity, and there are no national screening services available (Ayinde et al., 1998). National data revealed that the screening rates of cervical cancer are lower in Nigeria (Audu et al., 1999). Many reasons have been postulated for this; however, further research is required to identify the demographic factors as well as the environmental and cultural practices that impact the acceptance of and participation in preventative measures, especially in Nigerian women ages 19 to 65. Given that cervical cancer is preventable through routine medical examinations, the prevalence of this illness is sufficient to warrant substantial investigation.

Nigeria's population is at a higher risk for developing the disease because of lower screening rates. In Nigeria, cervical cancer screening needs a major national commitment, whereby obstetricians and gynecologists can play a central role in educating the population about the benefits of regular screening for cervical cancer. Factors identified by Nigerians as responsible for the non-utilization of screening services include culturally based embarrassment, fear, and hopelessness concerning a diagnosis of cervical cancer; cost and access barriers; a lack of physician referral; and the misconception that the test is unnecessary or painful. Other factors identified are fear of vaginal exposure, and gender of practitioner. However, there has been no research to validate these factors.

This study examined the knowledge and practices of cervical cancer screening in women ages 19 to 65 years in Nigeria. This study included women in this age range because a more heterogeneous population might exhibit a different pattern of behavior. This study explored areas that had not been explored in previous studies on cervical cancer. This study compared the age groups in the study to determine if differences exist

in the variables such as knowledge of risk factors for cervical cancer and participation in routine screening.

Methodology{ TC "Methodology" \f C \l "1" }

Research Design{ TC "*Research Design*" \f C \l "3" }

The study was qualitative in nature. A descriptive exploratory design was used to provide a detailed exploration of the knowledge, beliefs, and practices regarding cervical cancer and Pap smear screening of women in Nkwerre, Nigeria. The descriptive exploratory design is used when little is known about the phenomenon under study or when a specific population has been understudied. This design provided detailed observations, descriptions, and documentation of the variables of interest. As mentioned previously, there is very little information available from Nigeria or other sub-Saharan countries.

Data were collected through the use of a questionnaire (see Appendix A) and in-depth individualized interviews (see Appendix B) as is consistent with the descriptive exploratory study design. The HBM was used as the organizing framework for data collection and analysis. The questionnaire and the in-depth interviews were designed to obtain information about the participants' knowledge, attitudes, and practices of cervical cancer in Nkwerre, Nigeria. The interviews were limited to the phenomenon of interest and allowed the researcher to explore cultural values and beliefs that influenced the women's attitudes toward cervical cancer and cervical cancer screening. Consistent with the HBM, the participants were asked to provide demographic information relating to age, gender, education, employment, and marital status. This information was transcribed, analyzed, and categorized into themes. The questionnaire was adapted from

Steven et al. (2004). The questionnaire was reviewed by nursing researchers across Canada to enhance validity and reliability and was pilot tested on 25 women of various cultural backgrounds.

Sample Selection

The target population for this study was Nigerian women residing in Nkwerre, a village in the eastern region of Nigeria. The sample was selected from all income levels living in Nkwerre. Nkwerre was chosen as the study site because the researcher is originally from this village; her ancestry can be traced there for generations. The researcher also has strong concerns and interests in the health of the women residing in this village because her grandmother and most of her family members still reside there. Pap smear tests are not provided in this village by the government. Participation in the study was limited to women ages 19 to 65 because women in this age range are at the highest risk for cervical cancer (Centers for Disease Control and Prevention, 2005).

Nigerian women who live in urban areas and were in Nkwerre at the time of study were excluded from the study. Nigerian women of foreign descent who were vacationing in Nkwerre at time of study also were excluded because their belief systems about cervical cancer and Pap smear screening may have been influenced by the mainstream views of countries where they now reside. There are 66,942 women who currently reside in Nkwerre. In total, 112 women volunteered to participate in this study. Of the 112 women who completed the questionnaire, 10 women volunteered to also be interviewed as well. None of the 10 women who volunteered for the interview had any previous experience with cervical cancer screening. None of the women had ever been diagnosed

with cervical cancer. All 10 participants were married and had an average of 5.6 children each.

Recruitment { TC "Recruitment" \f C.A1 "3" }

A community advisory committee was formed to advise the researcher throughout the study, assist in introducing the study to the community, and recruit participants. Its membership included six representatives from 2 local Nigerian-Igbo organizations serving the eastern Igbo-speaking communities. The representatives included one doctor; two nurses; one teacher, who was also the president of the local women's association; one village chief, and the researcher's mother, who is originally from the village.

Publicity about the study was done through a town crier and word of mouth.

A town crier was used to recruit participants for the study (see Appendix C). Town criers are an integral part of the Nigerian rural community. Information sharing and communication in most rural African societies is still done through the town crier (Mbakogu, 2004). The duty of the town crier is to go through the streets, welding his gong, in the evening after the villagers have returned from their farms to deliver messages to all the villagers. The town crier hired for this study informed the villagers about the study and that volunteers were needed to participate in the study. Participants were also recruited by the community advisory research committee at social gatherings, weddings, chieftaincy celebrations, masquerade festival celebrations, new-yam festival celebration, and personal contact. Potential participants also were recruited at the local market, local churches, and at the village square.

The research station was located at the village square, which is located in the centre of the village opposite the open market. The participants were told to gather at the

village square at noon to participate in the study. A snowball sampling approach was also used because of its usefulness in identifying individuals to meet the eligibility criteria. Snowball sampling is a technique used to identify potential subjects when appropriate candidates for study are hard to locate. Snowball sampling is designed to identify people with particular knowledge, skills or characteristics that are needed as part of a committee and/or consultative process (Galloway, 2005). Snowball sampling uses recommendations to find people with the specific range of skills that has been determined as being useful, as such, snowball sampling aims to make use of community knowledge about those who have skills or information in particular areas (Galloway, 2005).

Women who had been recruited by the committee advisory group and town crier were then encouraged to recruit other women who were interested in participating in the study. Through this method, the researcher was able to include women of all SES levels and from all parts of Nkwerre. After being surveyed, the initial participants provided the names of other women interested in participating until at least 200 women were surveyed.

Ethical Considerations { TC "Ethical Considerations" \f C \l "3" }

The study was designed to investigate a convenience sample of 112 women aged 19 to 65 years old. All the participants were residents of Nkwerre, Nigeria. Approval for this research project was initially obtained from Lakehead University. The proposal was approved by the ethical review board of Lakehead University, Thunder Bay Ontario, Canada. Following the approval, permission to conduct research in Nigeria was obtained on February 23, 2006. Informed consent forms were also developed for this study. The informed consent forms were written in English and translated for those participants who could not read or write English. Participants were informed that they could terminate the

interview at any time and refuse to answer any questions that they felt uncomfortable with. None of the participants were pressured into participating in this study or answering any questions that they did not wish to answer.

Participants were informed that their responses would be strictly anonymous and confidential. Anonymity of the responses was ensured through the use of coded numbers rather than names of participants. To ensure validity and reliability, the forms were confirmed as accurate by another member of the research team.

Data Collection{ TC "Data Collection" \f C \l "1" }

The information from the participants was obtained using two data collection tools: a questionnaire and a semi structured interview. The questionnaire was adapted from a questionnaire developed by Steven et al. (2004) for their study on cervical cancer screening among Native Canadians in Northwestern Ontario. This questionnaire collected demographic information such as the participant's age, education level, income bracket, employment, marital status, number of children. The questionnaire also collected information on knowledge, attitude, and practices of cervical cancer screening. This questionnaire was in English and elicited through paper and pencil.

The semistructured interview was done with each participant. The interview guide was developed by the researcher following an extensive review of the literature on cervical cancer and Pap smear screening. The interview was approximately 90 – 120 minutes in length. The semi structured interview focused on knowledge of cervical cancer, barriers to screening, practice of cervical cancer screening and attitudes towards cervical cancer screening.

The questionnaire and the interview were piloted on 5 women in Nkwerre prior to the study. These women were similar to the target population of interest for the study. Based on this pilot testing, some revisions were made to the questionnaire, including simplifying the language so that it can be translated with ease and not lose any meaning.

Prior to the collection of the data, the researcher introduced herself and explained the purpose and the procedures of the study. Participants who could read and write English were given the consent forms to read (see Appendix D). Participants who could not read and write in English had the researcher read the consent forms in the local language and translate the questionnaire questions as well.

The researcher was born in Canada but was raised in Nigeria. She is fluent in English as well as Igbo, the local language. The questionnaire took 30 minutes to complete; each interview lasted 1 to 2 hours and was conducted at the village square or in the participants' homes. The researcher asked structured questions during the interviews, but the participants were also allowed to speak freely as well of their experiences. The participants were informed that all their responses would be recorded by hand by the researcher and the community advisory committee. The researcher assured the participants that the data would be kept confidential and secure. The participants were also informed that they could voluntarily withdraw from the study at any time without any consequences.

Data Analysis{ TC "Data Analysis" \f C \l "1" }

Demographic information was summarized for descriptive purposes. The researcher computed the mean, ranges, percentages and standard deviations. The interviews were analyzed using content analysis, which enabled the researcher to sift through large volumes of data with relative ease and in a systematic fashion (Stemler, 2001). Following data collection, the interview data were transcribed verbatim by the researcher. The interviews that were conducted in Igbo were translated into English by the researcher. The translations of the interviews were confirmed as accurate by another member of the research team.

Validity and Reliability{ TC "*Validity and Reliability*" \f C \l "3" }

Transferability (external validity) involves the ability to generalize findings to the population from which the sample was drawn. Various approaches were taken by the researcher in this study to increase generalizability of this study's findings. The researcher sampled several networks of women with various incomes from different parts of the village of Nkwerre. The researcher also made sure that the various socio economic groups were equally represented in the sample.

Reliability was confirmed in this study through keeping field notes and transcribing the interview data verbatim. The verbatim translation was to ensure that the participant's responses were not misrepresented. Dependability was achieved by having a second person fluent in both English and Igbo confirm the translations and transcriptions. The objectivity of the researcher was achieved by reading the data several times to confirm the relationships between the responses.

Results { TC "Results" \f C \l "3" }

This section of this report will only report on the observations and findings from the study. The significance and implications will be addressed in the discussion section to follow. A total of 10 interviews were completed and a total of 112 questionnaires were completed. The demographic data included age, marital status, education, employment, number of children, and whether the resided in an urban city or a rural village (see Table 1).

Table 1 { TC "Table 1" \f F \l "1" }

Summary of Demographic Information { TC "Summary of Demographic Information" \f F \l "1" }

Demographic Information	M	Range
Age in years	46.7	19-65
Number of Children	5.7	3-13
Marital Status	Frequency	%
Single	26	23.2
Monogamous Wife	41	36.6
Polygamous Wife	21	18.8
Living Together	0	0
Separated	0	0
Widowed	18	16.1
Divorced	4	3.6
Education		
Kindergarten	5	4.5
Primary	46	37.5
Secondary	39	32.2
University	13	8.9
None of the above	9	15.0
Employment		
Yes	97	86.6
No	15	13.3
Live		
Urban	0	0
Rural	112	100
Family Doctor		
Yes	29	25.8
No	83	74.1
Gender of family doctor		
Male	8	7.1
Female	21	18.7
I do not have a family doctor	81	72.3

Characteristics{ TC "Characteristics" \f C \l "3" }

The sample was comprised of women between the ages of 19 and 65. The majority of the participants were older between the ages of 48 and 62. This is consistent with the population of Nkwere and other rural areas. In Nigerian rural areas, the population is relatively older because the people generally migrate to urban areas in search of work and generally return to their villages in the later parts of their lives. A larger percentage (55.4%) of the participants was married. The married women are in monogamous or polygamous marriages. Most of the participants (84.8%) are literate (primary education or higher); however, a large percentage (15.1%) had no formal education.

Almost all of the participants (86.6%) were employed outside of their homes, which is typical in rural Nigeria. Women in Nkwere and other rural areas, regardless of level of education and marital status, are expected to work and provide for their families. Traditionally, women assume the roles of wife, mother, and provider. They are responsible for providing for their children, especially in polygamous families, where the husband might be unable to care for all of his wives and children. The majority of the participants in this study were nonprofessional or unskilled workers. Most of the women were farmers, petty traders, herbalists, fishers, weavers, potters and bronze casters.

Eighty-three (74%) of the participants did not have family doctors whom they saw on a regular basis. Although reasons for not having family doctors were not asked for in the questionnaire as part of the data collection, some of the interviewed participants reported a lack of primary physicians in the village and financial constraints as reasons

for not having family doctors. Of the participants who had family doctors, 81 of them (72%) had female doctors; only 8 (7%) women had male family doctors.

In summary, the participants were all mothers, generally older, somewhat educated, and employed. They all resided in Nkwerre. A few of the participants had family doctors. None of the participants was in common-law relationships or separated from their husbands.

Table 2 summarizes the participants' general health indices. The vast majority of the participants (60.7%) had been for at least one checkup in 5 years. A large number of the participants (35.7%) had never had a checkup. Although reasons for not having a check up were not asked for in the questionnaire, some of the women identified limited access to clinics and doctors and high levels of poverty as possible reasons for not having regular checkups. One of the participants explained that for a visit to a doctor, she would have to travel long distances to reach the clinics, and transportation is very expensive, so regular checkups are a luxury, and thus not a common practice. The participants were much more likely to have never smoked (98.2%). None of the participants currently smoked. Smoking is not traditionally accepted for women in Nigeria, especially in the rural areas.

In response to the question about birth control use, 65.1% of the respondents answered yes, and 29.4% answered no. When asked what type of birth control they have used, 53.4% (39) respondents reported having never used birth control, 31.5% used the rhythm method, and only 10% used the pill. None of the respondents used the IUD, a spermicide, or the cervical cap.

The women were asked if they had ever been diagnosed with several illnesses. The most frequent response fell into diabetes (33%). Only 2 of the participants had been diagnosed with cancer. When asked if they are currently taking any medication, 29 of the respondents answered yes, 17.8% of the respondents were on medication for diabetes.

Table 2{ TC "Table 2" \f F \l "1" }

General Health Indices of the Participants{ TC "General Health Indices of the Participants" \f F \l "1" }

General health indices	Frequency	%
Last Check Up		
Within the last 5 years	26	23.2
More than 5 years	42	37.5
Never	40	35.7*
I don't know	4	3.6
Illness		
High Blood Pressure	12	10.7
Cholesterol	4	3.6
Heart disease	5	4.5
Diabetes	37	33.0*
Cancer	2	1.8
Medication		
Blood pressure	7	8.3
Cholesterol	0	0
Heart disease	0	0
Diabetes	20	54*
Cancer	2	100
Hormone replacement therapy	0	0
Smoking Behaviors		
Ever smoked?	2	1.78
Currently smoke	0	0
Birth Control		
Yes	73	65.1
No	33	29.4*
Did not answer	6	5.4
Type of birth control used		
Pill	8	10.9
IUD	0	0
Rhythm	23	31.5
Cervical cap	0	0
Sponge	2	2.7
Spermicide	0	0
Don't use any	39	53.4*

In summary, most of the participants were nonsmokers who were on medication for diabetes and used the rhythm method for birth control. There were some significant findings that need to be addressed. There was a high rate of diabetes (33.0%), high rates of participants that did not use birth control (29.4%) and a high rate of participants that did not regularly see a physician (35.7%).

Knowledge of Cervical Cancer { TC "Knowledge of Cervical Cancer" \f C \l "3" }

This section addresses the causes of cervical cancer. The questions were designed to determine the participants' general knowledge of cervical cancer and its risk factors. This finding suggested that the participants' knowledge of cervical cancer is generally inadequate. The participants' knowledge of the Pap smear was categorized as good, fair, limited, or none for the 10 women who were interviewed. Knowledge was described as good if the client has heard about the test, can describe and define it correctly, and knows the purpose of and recommended frequency of Pap smear testing. Fair knowledge of the Pap smear test was based on knowing two of the aforementioned three criteria. If the participant was able to state only one or none of the above criteria, her knowledge of Pap smear testing was categorized as limited.

Of the 10 women interviewed, only 3 have relatively good knowledge, 1 has a fair knowledge of cervical cancer, and 6 have limited knowledge of the disease. It is also important to note that the 3 women with good knowledge of the disease also are highly educated. One is a midwife, one is a teacher, and one is a pharmacist who is also the wife of the local family physician.

During the interviews, it was evident that most of the women had never heard of cervical cancer but had heard about other cancers. For example, one of the participants stated, "I have only heard about the cancer that cuts off the breast... I have not heard about this one that you are speaking about."

The women were asked to identify what they perceive to be the causes of cervical cancer. The causes mentioned by the participants with good knowledge included multiple sexual partners, STIs, oral contraception, and multiple parity. Some of the other women

blamed the disease on men's infidelity, dishonesty, and polygamy. The participants with good knowledge of the disease were also knowledgeable about the projected trajectory for the disease. The following statements were typical of the clients with relatively good knowledge:

- Cervical cancer cells are caused by abnormal cells that can be identified through a Pap smear test and, if not treated, can cause cervical cancer down the road.
- It can also be caused by starting at an early age. That is why we encourage our daughters that they should wait until they marry before they start to do it (sex). In the old days women did it for the first time on their wedding night. But today girls start at a very early age. Girls nowadays are very loose.
- Cervical cancer is a disease that affects women of childbearing age. Women who are in polygamous marriages and whose husbands are involved with many mistresses can have this type of cancer.
- Having children does wonders for a woman's status in the village, especially if the child is a boy. It brings her a lot of joy, and you know that when you grow old, they will take care of you, but it also spoils your body, so I suppose that when you start having children; you will start having diseases like the one you are talking about.

One of the participants commented:

I know very little about cervical cancer... I know that this type of cancer will eat up your womb and it is caused by a woman jumping from man to man and having plenty children or sexual relations with different men and doing it without rubber (condom) because each man can carry his own sickness. I also know that if you

start sex at small age, you can get the disease. Even gonorrhoea can cause the disease, and you know say that if a man carries that disease, he will not tell you.

Most of the interviewed women who had limited knowledge of the disease described cervical cancer as a curse by the gods and associated the disease with wickedness, abortions, and bareness. Some other causes of cervical cancer reported by this group included the use of love potions that are inserted into women's vagina, abortions, washing the vagina by inserting the finger into it, traditional cleansing baths with detergents and rough substances, some sanitary pads, and the use of dirty pit toilets.

These participants commented:

I guess that too much sex, especially rough one, will cause the disease. If your husband is wanting sex every day and every time, you cannot say no because he will just go and get it with another women. You have no choice but to do it.

You know that when you have baby, your thing gets bigger. Men do not like that because they cannot make their things too big and fit the size...they like it to be small and tight. So for that reason, when you deliver you child, you will be given some herbs to put there that will shrink the size. This is what causes the cervical cancer disease.

Table 3 summarizes the responses as reported by the participants who answered the question in the questionnaires addressing the risk factors of cervical cancer.

Table 3{ TC "Table 3" \f F \l "1" }

Risk Factors for Cervical Cancer{ TC "Risk Factors for Cervical Cancer" \f F \l "1" }

Knowledge of Cervical Cancer Risk Factors	Frequency	%
Early onset of sexual activity	9	8.3
Multiple sexual partners	16	14.2
Family history of cervical cancer	7	6.2
Oral contraception	2	1.8
Cigarette smoking	4	3.6
Sexually transmitted disease	31	27.6
I don't know	43	38.3

Nine women (8.3%) reported that early onset of sexual activity is a risk factor for cervical cancer. Some of the respondents (27.6%) reported that sexually transmitted diseases were a risk factor for cervical cancer. The respondents with limited education (primary education or less) referred to STIs as “oria otu,” which means “disease of sex.” Disease of sex refers to gonorrhoea, a venereal disease that is contracted by having sex with an infected man. The participants made comments like, “Women say that disease of sex causes cancer” or “Diseases that you get from sharing your bed with a man, such as syphilis causes cancer.”

Sixteen women (14.2%) reported that having multiple sexual partners is a risk factor for cervical cancer. One woman commented:

If your husband sleeps with many women, when you sleep with him, you will have problems. In our culture, it is acceptable for a man to have many wives and mistresses, so you have to advise him to use rubber (condom) so that you will not catch any of these women's disease.

The majority of the women blamed the disease on men's infidelity and dishonesty. One of the women commented, “Men will even tell you that if they are not unfaithful, where do you think that unmarried women should get sex from?” Another stated:

In this village, some of the men believe that it is unnatural for a man to be with just one woman. Even the laws of the land say that if a man can take care of them, he can have as many wives as he can. The culture also promotes children as wealth, so the more children a man has, the richer he is.

Seven women (6.2%) reported that having a family history of cervical cancer is a risk factor for cervical cancer. One of the participants believed that “if a woman’s mother dies from the disease, the woman is more likely to have the disease when they [*sic*] grow up.”

Two women (1.8%) reported that oral contraception is a risk factor for cervical cancer. Some of these women espoused the belief that oral contraceptives are capable of causing abortions by eating the insides of the womb and are thus capable of making women barren. One participant suggested:

When a woman takes oral contraceptive, that medicine that you drink every day that is very expensive, it prevents her from having children by killing all the babies in the womb. If you take it for a long time, it will cause cervical cancer. Is this not true, madam researcher?

Only 4 of the women reported that cigarette smoking is a risk factor for cervical cancer. The fact that smoking was reported by very few of the participants could be tied to the fact that most women in Nigeria do not smoke. As such, smoking has never been associated with major diseases. Some of the women had difficulty connecting smoking to cervical cancer. To the women, cervical cancer must be associated with materials or objects that have direct contact with the cervix or the vagina. One of the participants

commented, "I thought that for a person to have cervical cancer, they must have come in contact with something inside there. How can smoking cause a disease down there?"

Traditional Beliefs { TC "Traditional Beliefs" \f C \l "3" }

Although the participants in this study had inadequate knowledge of the empirical risk factors of the disease, they reported cervical irritants such as love potions, traditional sitz baths, vaginal suppositories, and intrauterine devices as possibly being responsible for the high incidence of cervical cancer in Nigeria. Cervical irritants are substances that come into direct contact with the cervix and may irritate it. Although not medically established as carcinogens, these irritants may be carcinogenic.

Some of the participants reported being aware that some women vaginally insert traditional medicines for various reasons. These women stated that traditional love potions are intended to make women more sexually pleasing. The most popularly mentioned love potion is a concoction of rare herbs and guinea fowl eggs. Some of these potions are usually in powder form that is inserted into a woman's vagina before intercourse. The traditional belief is that any man who has sex with such a woman will always come back to her when he is sexually aroused. These herbs, which are usually obtained from the local traditional medicine man, can be very expensive, depending on the intensity of the attraction to the man and its duration.

One participant mentioned:

You know that in our culture, it is very common for men to have plenty of women. So we women, we try everything to keep our husband in the home. Some women try love medicine that they put deep inside there to make their husbands love them. Some women also use Dettol and other chemicals to clean down there

to make it nice so that their husband will enjoy it, and they also use the Dettol to clean up after so that they will not get any of the bad disease from the man.

Maybe this kind of practice can cause the cervical cancer disease

The intended use of Dettol is to clean cuts and wounds, but some of the participants believed that they can use these antiseptic or disinfectant solutions to keep themselves fresh for their husbands or kill any diseases or germs that may have been passed on from their husbands or other male partners.

In summary, the most dramatic finding was that majority of the women are unaware of the risk factors and symptoms of cervical cancer. Their knowledge of empirical data was lacking. STIs were reported by the majority of the participants as a risk factor for cervical cancer. Some of the women believed that some vaginally inserted traditional medicines, which make women more sexually pleasing to their husbands, maybe also be risk factors for cervical cancer.

Knowledge of Pap Smear{ TC "Knowledge of Pap Smear" \f C \l "3" }

The participants' knowledge of the Pap smear was categorized as good, fair, limited, or none for the 10 women who were interviewed. Knowledge was described as good if the client has heard about the test, can describe and define it correctly, and knows the purpose of and recommended frequency of Pap smear testing. Fair knowledge of the Pap smear test was based on knowing two of the aforementioned three criteria. If the participant was able to state only one or none of the above criteria, her knowledge of Pap smear testing was categorized as limited.

Of the 10 women interviewed, 3 (30%) had good knowledge, 2 (20%) had fair knowledge, 2 (20%) had limited knowledge, and 3 (30%) had no knowledge of Pap

smear testing. One participant who had good knowledge defined it by stating, “My doctor says women are supposed to check themselves every year for cervical cancer.” Another participant whose knowledge was good said, “[The] Pap test is a test for abnormal cells in the cervix that can cause cervical cancer.”

All of the women with fair knowledge of the disease had heard about the Pap smear. One participant defined it as “a test that tells you if you have cervical cancer or not”; another participant with fair knowledge commented, “The Pap test should be done regularly as soon as a woman reaches childbearing age.”

A few of the participants with limited knowledge of the disease had heard about it, but could not describe it. One of them commented that “[The] Pap test is a woman’s test... I am not sure what it is, but my daughter makes me do it every time she takes me in for a check-up... I just know that it is good for me, and it can tell me whether I am well or not.”

One participant who had no knowledge of the disease simply stated, “I do not know what it is... or I have never heard of that one before.”

Of the 112 women who responded to the questionnaire, 15 (13.3%) reported that the Pap smear is an examination to detect cervical cancer. During the interview, the participants who had good knowledge of cervical cancer were also the participants with the highest knowledge of the Pap smear. For example, one of the participants said, “I know that the Pap smear test is a test to detect cervical cancer... I know that the test can reveal cancer cells on a slide.” Sixteen of the women surveyed reported that the Pap test is an examination to detect other cancers. The majority of the women surveyed reported that the Pap test is an examination to treat STIs (22.3%, $n = 25$), and 13 (11.6%, $n = 13$)

reported that the Pap test is an examination to clean the womb. Twenty-one women (18.7%) reported that they do not know what the test is for; none of the women thought that the Pap test is an examination to treat infertility (see Table 4).

Table 4{ TC "Table 4" \f F \l "1" }

Reasons for Pap Smear{ TC "Reasons for Pap Smear" \f F \l "1" }

Knowledge of Reasons for Pap Smear	Frequency	%
To detect cervical cancer	15	13.3
To detect other cancers	16	14.2
To treat STIs	25	22.3
To prevent cervical cancer	22	19.6
To clean the womb	13	11.6
To treat infertility	0	0
I don't know	21	18.7
How often should a woman get screened?		
Yearly	24	21.4
Every 2 years	26	23.2
Every 3-5 years	40	35.7
Every 10 years	1	0.9
I don't know	21	18.7

When asked if the Pap test is an important test for women, the majority of the respondents (67.8% $n = 76$) answered yes. Eighty-one percent of the participants reported that they would recommend the Pap smear test to their friends (see Table 5).

Table 5{ TC "Table 5" \f F \l "1" }

Importance of Pap Smear{ TC "Importance of Pap Smear" \f F \l "1" }

Knowledge of Pap Smear	Frequency	%
Is the Pap smear test an important test for women?		
Yes	76	67.8
No	2	1.8
I don't know	34	30.3
Would you recommend the Pap smear test to your friend?		
Yes	81	72.3
No	3	2.6
I don't know	28	25.0

In summary, knowledge of the Pap smear among the participants was limited. Even though the participants responded that the test is important and that they would recommend it to their friends, the majority of the respondents did not know what the test is for. One of the women, who reported that it was not an important test, also believed

that she cannot contract the disease because she is past the childbearing age. She commented:

Well, madam researcher, I do not think I can get this disease because I had my last child 40 years ago, and my husband is dead. So if I am not having sex, and I am not at the age where I can get pregnant, I do not need to go for the test because I cannot get this disease that you are talking about.

Practice of Pap Smear Examination{ TC "Practice of Pap Smear Examination" \f C \l "3"

The questions about Pap smear practices were designed to elicit information about the participants' Pap smear history and the reasons, if any, for not having the test. Pap smear utilization was also influenced by the participants' level of education (see Table 6). Of the 112 women surveyed, only 3.5% are screened yearly; 6.3% have a Pap smear examination every 2 years. Some of the respondents (24.1%) have the examination every 3 to 5 years, and 46.6% of the participants had never had a Pap test (see Table 7).

Table 6{ TC "Table 6" \f F \l "1" }

Pap Smear Utilization based on Education{ TC "Pap Smear Utilization based on Education" \f F \l "1" }

Have you ever had a Pap smear?	Yes (47)	%	No (61)	%	Don't know (4)	%
Highest level of Education						
Kindergarten (5)	0	0	4	80.0	1	20.0
Primary (46)	14	30.4	31	67.3	1	2.17
Secondary (39)	19	48.7	18	46.1	2	5.12
University (13)	12	92.2	1	7.7	0	0
None (9)	2	22.2	7	77.8	0	0

Table 7{ TC "Table 7" \f F \l "1" }

<i>Pap Smear Practices</i> { TC "Pap Smear Practices" \f F \l "1" }	Frequency	%
Have you ever had a Pap smear?		
Yes	47	41.9
No	61	54.5
I don't know	4	3.6
If no, why have you not had the test?		
I don't know what the test is for	17	27.8
I don't know where to go get it	12	19.6
I don't need it	2	3.2
It is too expensive	23	37.7
It is against my religious beliefs	5	8.1
There are no screening clinics in my area	2	3.2
No particular reason	0	0.0
How often do you have a Pap test?		
Yearly	4	3.5
Every 2 years	7	6.3
3-5 years	27	24.1
Every 10 years	9	8.0
I have never had a pap test done	52	46.4
Who did your last Pap test?		
Male doctor	17	36.1
Female doctor	30	63.8
Nurse	0	0

Increased Pap smear utilization is related to higher educational levels attained by the participants. The majority of participants (54%) reported that they have never had a Pap test, 41% reported that they have had a Pap smear. Pap smear utilization was the highest among the participants with a university education (12, 92.2%) and among those with secondary school education (31, 48.7%). Fourteen (30.4%) of the 46 participants whose highest educational level is primary school have had the Pap test once. Only 2 of the participants with no formal education at all have had a Pap test. The trend from the data showed that the better educated the participants were, the more likely it was that they had had a Pap smear test at least once in their lifetime.

Barriers to Obtaining a Pap Smear{ TC "Barriers to Obtaining a Pap Smear" \f C \l "3" }

The barriers to obtaining a Pap smear included such factors as inadequate knowledge about Pap smear screening, financial difficulties, absence of illness, fear of the test, not knowing where to go to obtain the test, cultural beliefs, and gender of the health care provider (see Table 8).

Table 8{ TC "Table 8" \f F \l "1" }

Barriers to Pap Smear Testing{ TC "Barriers to Pap Smear Testing" \f F \l "1" }

Pap Smear Practices	Frequency	%
If no, why have you not done the test?		
I don't know what the test is for	17	27.8
I don't know where to go get it	12	19.6
I don't need it	2	3.2
It is too expensive	23	37.7
It is against my religious beliefs	5	8.1
There are no screening clinics in my area	2	3.2
No particular reason	0	0.0

Cost of the Pap Test{ TC "Cost of the Pap Test" \f C \l "3" }

The most frequently cited barrier, which was reported by 23 participants (37.7%), was financial constraint. Some of the interviewed participants mentioned that they do not earn enough money to comfortably pay for the Pap test. The Pap smear test in Nigeria is not subsidized by the government and costs upwards from 10,000 naira which is equivalent to half of a monthly salary of an administrative assistant working for a government agency. The following statements were made in reference to this barrier:

- Before the test can be done, you have to pay first, and if you cannot pay, they will not do the test.
- I only make 500 naira a day selling groundnuts and banana.... It is not even enough for me to feed my children, talk less of doctor test.
- Madam Researcher, you no ask me whether I don't eat today... if I have not been able to eat today, how can I afford to pay for the test?

Limited Knowledge about the Pap Smear{ TC "Limited Knowledge about the Pap Smear"
 \f C \l "3" }

Seventeen of the participants (27.8%) reported that they do not know what the test is for. Among these women, 78% have never had a Pap smear. One of the clients stated:

In Nigeria, we women are not told about these illnesses.... We are not aware that we have to check ourselves. We only go to the hospital when we have pain or if we are really sick. We do not go to the hospital when we are well.... Now that you have told me that this is important, I will try my best to go and check myself so that I will not catch the disease and die.

Ignorance... ignorance... ignorance is a disease on its own ooh.... I do not think that many women know about this disease that you are talking about.... We know about HIV and AIDS, but not this one.... Is this cervical cancer like HIV? Does it make people slim and sick like HIV? Now that I know, I will tell my daughters.

Thank you.

I have heard all that you have said about this disease of **ebe ana si a mu nwa** (disease of the birth canal), but I am old and my husband is dead.... I am a widow... my children are grown, and they all have children, and their children have children.... I think that it is too late for all of these tests now... I will go when the Lord calls me... whatever way He chooses.

Limited Access to Screening Clinics and Doctors{ TC "Limited Access to Screening
 Clinics and Doctors" \f C \l "3" }

Twelve of the participants reported that they do not know where to go for the test. They reported that the Pap test is neither available nor easily accessible. In Nkwerre,

there are no clinics or hospitals. The residents have to travel at least 40 miles to the closest treatment centers. Some of the comments from participants are as follows:

My son had a high fever 3 months ago... it took me 2 hours to rush him to the hospital, and when I got there I had to wait for 4 hours because they said that the doctor was not there yet.... My son almost died. There are not enough doctors to see the patients at the hospital, and that is why people here are dying like flies.

I lost my baby because she was born premature, and they did not have incubators.... By the time they could rush the baby to another hospital, she died.

The hospital does not have enough doctors or equipment to treat sick people.

Does this Pap test you are talking about need big equipment to test people?

Because the hospital may not have it...and if they do not have the machine to test us, what should we do?

Two of the participants (3.2%) reported that their reasons for not obtaining the test are related to the fact that there are no screening clinics in the village. One of them commented, "Look, there is no hospital in our village. The closest clinic to this village is 40 miles.... I do not have a car, and I cannot afford to go for the test.

Lack of Illness{ TC "*Lack of Illness*" \f C \l "3" }

Two participants (3.2%) reported that the reason for not obtaining a Pap smear is because they do not need the test. The following comments were made in response:

- "Well, madam researcher, I am perfectly fine. There is nothing wrong with me.... I am not sick.... I do not have pain; therefore, I will not take the test until there is something wrong with me."

I know this woman that was well she was perfect before.... she was going to farm and doing all her housework ... and after she went for the test, the doctor told her she had the cancer, and now she cannot do any work... she cannot even get up from bed.... Sometimes, I think the doctor makes you sick... I swear she was strong before that doctor visit.

Lack of Time{ TC "*Lack of Time*" \f C \l "3" }

A lack of time was another barrier identified by some of the women who were interviewed. One of these women stated:

I wake up at 6 a.m. I go to farm, I cook, I clean, I go to the market because I am a petty trader, I take care of my grandsons, I do not get back home until dark. When do I have time to go to the hospital?

Religious Beliefs{ TC "*Religious Beliefs*" \f C \l "3" }

Five of the participants (8.1%) reported that they have not had a Pap smear because it is against their religious beliefs. One of the women commented: "I believe that God will not allow me to get any disease... it is not in His plan for me... cervical cancer is not my portion."

Other reasons cited for not getting screened include gender of the health care provider, fear of the test, and lack of transportation. One of the participants reported that having the test administered by a male provider is likely to prevent her from having the test. She commented:

I do not feel comfortable exposing my privates to another person that is not my husband.... In the clinic in Orlu, only the men doctors perform the test... there is

one woman doctor, but she is the only one... you have to wait very long before you can see her.

In summary, 47 (41.8%) of the participants have had at least one Pap smear.

When the women who were interviewed were asked to provide reasons for not getting tested regularly, they mentioned that the test is too expensive, there are no screening clinics in the village, the test is against their traditional beliefs, and they do not know where to get it.

Discussion{ TC "Discussion" \f C \l "1" }

This section discusses the major findings and their implications and offers recommendations for action and further research. This descriptive exploratory study investigated the knowledge and practices about cervical cancer and Pap smear screening test among a sample of women in rural Nigeria. No other research has been done on the knowledge and practice of cervical cancer screening with this population in Nigeria. Findings from this study suggest that cultural beliefs, attitudes, and practices of health promotion are important aspects for encouraging women especially those with little or no education to participate in regular cervical cancer screening procedures. Overall, 112 women completed the questionnaires, and 10 women agreed to be interviewed. Although their responses further explore beliefs, their expressions may not be representative of the entire population. However, considering the general level of education, awareness and cultural beliefs among the group, their statements may apply to Nkwerre women and indeed similar populations around the world. In combination with the views expressed in the interviews three themes emerged from the findings. This study will discuss education

as an indicator for socioeconomic status and a modifying factor specified in the health belief model and will discuss the three themes that emerged from the findings.

Socioeconomic Status (Education) as a Modifying Factor { TC "Socioeconomic Status (Education) as a Modifying Factor" \f C \l "3" }

Socioeconomic factors are among the modifying factors specified in the health belief model (HBM). In this study, education as an indicator for socio economic status was related to knowledge of cervical cancer as a disease. Specifically, high university education was related to increased knowledge of the disease. This finding is consistent with the HBM.

The finding in this study that good knowledge of cervical cancer was related to having a university education is consistent with a study conducted among women in Botswana (McFarland, 2003). In the 2003 study, 83.3% of the women with a university education had good knowledge of cervical cancer. Similarly, 75% of the participants with university education in this study had good knowledge of cervical cancer. In another study of Armenian/ Lebanese women (Arevian et al. 1997), knowledge and screening practices increased with socioeconomic status and level of education. These consistencies in findings may be explained by the fact that women with higher socioeconomic status may have access to regular and preventive healthcare. Private doctors were reported as providing adequate information about cervical cancer and Pap smear testing.

Theme 1: Lack of Knowledge of Cervical Cancer { TC "Theme 1: Lack of Knowledge of Cervical Cancer" \f C \l "3" }

This study found that overall, the participants had very limited knowledge of cervical cancer, its risk factors and its screening methods. More than one third of the

participants in this study had never heard of cervical cancer and did not know and could not mention a single cause for cervical cancer. This is likely due to lack of education. The finding is consistent with results from other studies even in diverse populations. For example, in a study conducted in a rural village in North Western Germany, two thirds of their sample could not identify any risk factors for the development of cervical cancer and did not know what the screening test was for (Klug, Hertzner & Blettner, 2005).

Another similar study in the northern part of Nigeria, reported that knowledge of signs and symptoms of cervical cancer was lacking among Maiduguri women who presented at the health clinic in the department of obstetrics and gynecology of the university of Maiduguri teaching hospital (Audu et al, 1999).

The knowledge of the causes of cervical cancer was categorized according to scientifically established causes and folk beliefs. Scientific established causes are causes that are documented in the medical literature. These causes include multiple parity, multiple sexual partners, sexually transmitted diseases, oral contraceptives, smoking and early coitus.

The scientifically established causes of cervical cancer that were most frequently identified by the women in this study included sexually transmitted diseases, multiple parity and multiple sexual partners. These findings suggest that women predominantly associated cervical cancer with childbearing and sexual activity rather than other factors. For example it was difficult for some women to see the relationship between smoking or oral contraceptives and cervical cancer. To them, cervical cancer must be related to things that touch the cervix and are likely to irritate it. Folk beliefs were also mentioned by the participants. Folk beliefs are causes that have not yet been scientifically

established. They included cervical irritants and non irritants. Some of the women identified that using love potions or herbs, especially those that were vaginally inserted and using antiseptics like Dettol to clean the vaginal area were possible explanations for high incidences of cervical cancer in Nkwere. According to these women, these substances are important for inducing vaginal characteristics that are desirable to them and their sexual partners, including vaginal tightness, cleanliness and dryness. The main reason for the use of these substances is to attract or keep men. Tight, clean, and dry vagina was reported as sexually pleasing to men. Although the health hazards of these substances have not yet been documented in medical literature, this study suggests that their use is problematic. Having these wrong notions of the disease as stated above may contribute to the reasons why women are under screened in Nigeria.

Besides lack of knowledge of the causes of cervical cancer, there is also a general misconception of what cervical cancer is. This study documented that some women, especially the older ones, generally described cervical cancer a disease that eats the inside of a womb. Others reported that it was a curse from the gods and associated the disease with having abortions, wickedness and bareness. These beliefs were reported by both women from higher socio economic status and lower economic status. These were cultural beliefs and in other African settings, this maybe the way the women view cervical cancer. The belief that cancer eats the inside of a womb fits the traditional understanding of cancer in Nigeria. The belief that cancer eats body parts is similar to the findings in another study conducted among African women (McFarland, 2003). In that study, cancer was also described as a disease that eats inside of the womb. This rural

population certainly gives us an insight to the importance of education and increased awareness of cervical cancer.

Knowledge of the Pap smear test as a screening tool for cervical cancer among the participants was limited as well. Majority of the women reported that the Pap test was a test to treat sexually transmitted infections. They also reported that the test should be done every three to five years. Even though a large number of the participants did not know what the test was for, they reported that they thought the test was important and would recommend it to their friends. One of the women interviewed, who reported that it was not an important test, also believed that she could not contract the disease because she was past childbearing age. This further shows the lack of knowledge of this population about cervical cancer screening and highlights the need for increased awareness and education within the social, economical and cultural environments.

Although a substantial number of the participants (33%) were on prescription medication, majority of the women interviewed reported that they did not have a regular physician and did not see a physician on a regular basis. It is plausible that these women do not seek regular preventive and maintenance care. However they attend to urgent care which is consistent with their report that they only seek treatment when they are very ill. This maybe a reason why a lot of the women had never heard of the disease or have limited knowledge of it, as in most developed countries referral for a Pap test is part of a routine physical examination conducted by a family physician.

In summary, the lack of knowledge about cervical cancer and its risk factors is closely linked to lack of education and awareness of the disease; and the lack of routine screening programs in the environment.

Theme 2: Lack of Utilization of Cervical Cancer Screening Test { TC "Theme 2: Lack of Utilization of Cervical Cancer Screening Test" \f C \l "3" }

Consistent with the HBM, socio economic status was related to the knowledge about Pap smear screening. This study found associations between knowledge of cervical cancer and women's educational level. In addition, increased Pap smear utilization was related to a higher socio economic status (educational level). In this study, the participants with higher levels of education had more knowledge of cervical cancer and also had more Pap smear tests than women with lower socio economic status. The finding that higher educated women had a better knowledge about cervical cancer and Pap smear test as well as higher utilization of Pap smear tests may be explained by the fact that the more educated participants were more likely to have access to private hospitals and private doctors because the test can be very costly. The more educated participants were also more likely to afford transportation costs to the hospitals where screenings were held.

The findings in this study were similar to a few other studies. Arevian et. al, in 1997 found that among Armenian/ Lebanese women, screening practices increased with socio economic status mainly level of education. These findings however, contrast with those reported by two other researchers. Ayinde et al. (2004) found that Pap smear utilization was low among female undergraduate students in Ibadan, Nigeria. Another researcher Adanu (2002) surveyed well educated women at the university of Ghana main campus and medical campuses in Accra and found also that utilization of the test was low among the students. One possible explanation could be that university students, like most

Nigerian women had multiple barriers that limited their access to the screening services. The other reason could be that university students though educated are generally more risk takers and thus university students may not be representative of the general population. These studies show that increase knowledge of the disease due to higher levels of educations does not generally lead to increase utilization of screening facilities because of multiple barriers that exist. There is a need to increase health education in rural communities to help improve Pap smear use.

The utilization of Pap smear was very limited by the participants in this study which is consistent in other studies conducted in sub Saharan Africa. For example, in Maiduguri Nigeria, of the 500 women surveyed, only one of the participants responded that she had had a Pap smear test before (Audu et al, 1999). In another study by Chukwuali, Onuigbo, & Mgbor in 2003 of women in Enugu, Nigeria, of the 815 participants, only four had had a previous experience with the Pap smear test. Although the percentage of utilization in this study has improved from the last two mentioned previously, utilization is relatively low. In this study, 54.3%, ($n = 61$) of the participants reported that they had never had a pap smear test done in the past. The findings that an increased Pap smear utilization was related to having a higher education level is consistent with results from a study conducted Botswana women (McFarland, 2003). In the 2003 study, 83.3% of the clients with university education in this study had a good knowledge of cervical cancer. Similarly, 92.2% of the participants with university education had had a Pap smear test.

However, studies consistently suggest that a national screening program for Nigeria is overdue. A subsidized cervical screening program will result in a significant

increase in the number of women screened in Nigeria. As a first step, increased education and awareness of cervical cancer is needed to increase the utilization of Pap smear test.

Theme 3: Cost, Access to Screening Facilities, and Inadequate Knowledge of Pap Smear Screening are the Major Barriers to Cervical Cancer Screening { TC "Theme 3: Cost, Access to Screening Facilities, and Inadequate Knowledge of Pap Smear Screening are the Major Barriers to Cervical Cancer Screening" \f C \l "3" }

The major barriers that were most reported by the participants were financial constraints, inadequate knowledge of Pap smear screening and limited access to Pap smear screening services. These findings are consistent with the literature available on the topic. Inadequate knowledge of Pap smear screening as a major barrier to obtaining Pap smear test was also reported by studies conducted with various ethnic groups throughout the world (Hasenyager, 1999; McFarland, 2003; Reid, 2001; Badrinath, Ghazal-Aswa, Osman, Deemas & McIlvenny, 2004).

Financial constraint was the most frequently cited barrier reported by approximately 40% of the participants to obtaining Pap smear tests. Some of the women reported that they did not earn enough to comfortably pay for the test. The Pap smear test in Nigeria cost upward from 10,000 naira which is equivalent to half of a monthly salary of an administrative assistant working for a government agency. This was not a surprising finding given the cost of the test and the fact that health services in Nigeria are not subsidized by the government.

Limited access to Pap smear screening was a major barrier reported among Tanzanians (Tarwireyi et al., 2003), Chinese women in British Columbia (Hislop et al., 2004) and South African women (Lartey, Joubert & Cronje, 2003). Approximately 20%

of the participants in this study mentioned limited access to screening clinics and doctors as a barrier to obtaining Pap smear tests. This finding is also consistent with other studies. For example one of the major reasons for lack of routine Pap smear testing among Ghanaian and Nigerian women was limited access to screening clinics (Adanu 2002; Aboyeji, Ijaiya, & Jimoh 2004). Some of the participants reported that the local hospitals are understaffed and the wait times are very high. Another woman commented that even if you are able to see a doctor, the local hospitals usually do not have the equipment needed to perform the tests. This finding is consistent with the findings of other studies.

Some of the women interviewed in this study mentioned that staff attitudes and mistrust of providers were barriers to obtaining the Pap smear tests. They also indicated that they perceived the doctors and nurses in the local hospitals as rude and perceived them to not have the patient's best interest at heart. Other studies of various ethnic groups in Nigeria (Aboyeji, Ijaiya, & Jimoh., 2004; Odusanya & Tayo., 2001) and Botswana (McFarland, 2003) have also reported mistrust of the provider and embarrassment of the test as barriers to obtaining the Pap smear test. Another study from New England (Burak & Meyer, 1997), reported pain, embarrassment and cost as major barriers to cervical cancer screening. These studies recommend that a female provider should offer the test.

Consistent with the health belief model, perceived barriers were good indicators of Pap smear screening. Women who perceived fewer barriers initiated more routine Pap smear tests than women who perceived more barriers.

Limitations{ TC "Limitations" \f C \l "1" }

Two limitations were noted in this study. First, the sample consisted of 112 women who completed a questionnaire and out of that, 10 women were interviewed. The size of 10 women for the interview portion of the study may be small and the information gathered may not be generalized to other communities. Although small, the sample represented women from all SES levels in Nkwerre. The sample in this study is a true representation of the rural communities in Nigeria and may not be different from samples in other rural areas in Nigeria and thus can be generalized to in this regard. The sample provided new information about Nigerian women's hygiene practices and cultural beliefs. In addition, this sample provided information that could be used as the basis for policy decisions and intervention studies to increase Pap smear utilization and reduce the incidence of cervical cancer.

Another limitation was that, the sample was recruited using a snowball sampling technique which may have resulted in a convenience or self selected sample so that people with similar characteristics may have been recruited into the study. The responses may also be biased to those with vested interests and therefore may have overestimated their knowledge and practices of cervical cancer that were explored. The study may have been limited also by the fact that some of the participants were recruited personally by the researcher. As such, selection bias may have been introduced unintentionally. However, to minimize this limitation, the sample included several women from various parts of the village.

Recommendations{ TC "Recommendations" \f C \l "1" }

Education{ TC "Education" \f C \l "3" }

1. Develop community-based educational and support programs for health care professionals on cultural sensitivity about cervical cancer for specific populations.
2. Develop educational programs for women in rural settings regarding the importance of screening for the early detection of cervical cancer.
3. Develop culturally sensitive education programs and resources (pamphlets, video, television, and media programs).
4. Develop educational programs for younger adults in the school system regarding the importance of screening in the prevention of cervical cancer.
5. Develop culturally sensitive health information in languages spoken by the women who are the most at risk. Services should be made available at locations and times (i.e., evenings and weekends) that are convenient to women.
6. Develop culturally sensitive health education written materials with consideration for literacy and visual appeal.
7. Use the appropriate channels to disseminate educational information to women in rural areas (women's groups, churches, market, traditional leaders, etc.).
8. Raise awareness among professionals about the prevalence of cervical cancer and lack of utilization of screening services
9. Increase health service professionals engagement in promoting cervical cancer screening programs

Access to Screening Services { TC "Access to Screening Services" \f C \l "3" }

1. Provide a cost-effective, community-based national screening program to enable women to participate in cervical cancer screening. Cost should not place services out of reach for women in rural areas.

2. Provide services that meet cultural, emotional, and practical needs and reduce apprehension surrounding screening procedures e.g. embarrassment of having pelvic exams and the misconception that they are being tested for HIV.
3. Provide accessible screening programs in rural areas.
4. Ensure a positive provider-client relationship. Women are more likely to seek cervical cancer prevention services from providers who are sensitive and responsive to their needs.
5. Train female examiners in cervical screening programs at all levels e.g. doctors, nurses, nurse practitioners and midwives.
6. Work in collaboration with women's groups and traditional community leaders to overcome barriers to accessing services.
7. Address women's wages to decrease poverty and overcome barriers (i.e., transportation, travel, child care, etc.) to accessing services.

Research { TC "Research" \f C \l "3" }

1. Undertake a comparative study with women in other developing countries to determine geographic differences and similarities in knowledge and beliefs about cervical cancer and its prevention.
2. Develop a quantitative design using a larger randomly selected sample to provide standardized measurement of knowledge about cervical cancer and Pap smears.
3. Evaluate the effects of poverty on women's knowledge, attitudes, and beliefs about cervical cancer.
4. Determine men's views regarding their role in the spread of cervical cancer.

5. Explore women's beliefs and practices regarding rural practices to attracting their male counterparts.

Conclusion{ TC "Conclusion" \f C \l "1" }

This study reviewed the knowledge and practices of women in Nkwere Nigeria regarding cervical cancer and cervical cancer screening. The findings from this study have a number of significant implications for designing and implementing policies aimed at improving the outcomes in the field of cervical cancer screening. This study also provides insights into the health needs of Nigerian women living in Nkwere, Nigeria. The results from this study may be used to help health care providers understand the challenges facing women in developing countries who are contemplating cervical screening tests. The findings of this study indicate the women in Nkwere, specifically low income women know very little about cervical cancer and its prevention. The findings also suggest that utilization is low among women in this community and some of the major barriers to cervical cancer screening are financial constraints, decreased knowledge, access to screening facilities and traditional attitudes and beliefs. Interventions are needed to raise awareness about the causes and signs and symptoms of cervical cancer. There is a need to educate women to prioritize health and about the importance of early detection of cervical cancer and also about existing Pap smear services available in their community.

Furthermore, effective campaigns aimed at reducing the risk of cervical cancer require a multidisciplinary effort. This project provides policy makers and health care practitioners with a series of strategies for improving access to cervical cancer screening among under screened groups of Nigerian women and other vulnerable populations.

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APPENDIX A: Cervical Cancer Screening Questionnaire{ TC "APPENDIX A: Cervical
Cancer Screening Questionnaire" \f C \l "1" }

I am currently enrolled at Lakehead University, Thunder bay, Canada. I am conducting a study concerning practices of women 19 - 65 on cervical cancer screening. The purpose of this research project is to examine the knowledge and practices regarding cervical cancer screening of Women in Nkwerre, Nigeria

Your response is important to this research study. All responses will remain anonymous. This survey will take less than 30 minutes to complete. Thank you for your time.

Directions: Please check the appropriate response. .

Demographic Data

This information is for informational purposes only and will be kept confidential.

1. What is your age?

20 - 29

30 – 39

40 – 49

50 – 59

60 – 69

2. What is the highest education you received?

Kindergarten

Primary

Secondary

University

3. Marital status?

Single

Monogamous

Polygamous

Living together

Separated

Widowed

Divorced

- Please turn over to complete the survey -

4. If married, what is your husband's highest level of education?

Kindergarten

Primary

Secondary

University

Post graduate

5. Are you currently working?

Yes

No

6. Where do you live?

Urban City

Rural Village

7. Do you have a family doctor?

Yes

No

8. What gender is your family doctor?

Male

Female

I do not have a family doctor

General Health

9. When did you have your last check up?

0-2 years ago

3-5 years ago

5 or more years ago

Never

I don't know

10. Was an internal examination done?

Yes

No

I don't know

11. Have you ever been diagnosed with High blood pressure?

Yes

No

12. Have ever been diagnosed with high blood cholesterol?

Yes

No

13. Have you ever been diagnosed with heart disease?

Yes

No

14. Have you ever been diagnosed with diabetes?

Yes

No

15. Have you ever been diagnosed with Cancer?

Yes

No

16. Are you currently taking any medications?

Yes

No

If yes what medication _____

- Please turn over to complete the survey -

17. Are you currently taking hormone replacement therapy?

Yes

No

18. Have you ever smoked cigarette?

Yes

No

19. Do you currently smoke?

Yes

No

20. Have you ever used birth control?

Yes

No

If yes, what type?

Pill

IUD

Rhythm

Cervical cap

Sponge

Spermicide

Don't use any

Reproductive History

21. Have you ever had a STD (Sexually Transmitted Disease)? STD's include HPV (Human Papillomavirus), herpes, gonorrhea, Chlamydia and HIV/AIDS.

Yes

No

22. Do you have children?

Yes

No

23. How many children have you given birth to?

None

2 or more

24. What age did you have your first child? -----

Pap Smear

25. Have you ever done a Pap smear test?

Yes

No

I don't know

26. If no, why have you not done a pap smear test?

I don't know what the test is for

- I do not know where to go for the test
- I don't need it
- My husband disapproves it
- It is too expensive
- It is against my religious beliefs
- No particular reason
27. How often do you have your pap smear test done?
- Yearly
- Every 2 years
- 3 – 5 years
- Every 10 years
- I have never had a Pap smear test done
28. who did your last pap smear examination?
- Male doctor
- Female doctor
- Nurse
- 29 At what age did you get your first Pap smear?
30. Who did you first learn about the Pap smear from?
- | | |
|-----------------------|------------------------------------|
| Doctor/hospital visit | Family member |
| Friend | School lecture |
| Internet | Media |
| Colleague | I have never heard about Pap smear |
31. What is the Pap smear test for?
- | | |
|--|---------------------------------|
| To detect cancer of the cervix | To prevent cancer of the cervix |
| To detect other cancers | To clean the womb |
| To treat sexually transmitted diseases | To treat infertility |
| Other (please specify) | I do not know |
32. Is the Pap smear test an important test?
- Yes
- No
33. Is the Pap smear test useful to women?

Yes

No

34. Would you recommend Pap smear test to your friend?

Yes

No

35. Where do you obtain a pap smear test?

Family planning clinic

Primary health care center

Specialist teaching hospital

I do not know

36. Choice of doctor to take a Pap?

Male

Female

37. How do you feel about having this examination done?

38. What are some of the reasons why you would not have a Pap smear test?

39. Are there any strategies that you could suggest to prepare you for this examination?

Cervical Cancer

40. What are the symptoms associated with cervical cancer?

Abdominal pain

Foul smelling vaginal discharge

Postcoital bleeding

Weight loss

I don't know

41. Is Pap smear a screening procedure for cervical cancer?

Yes

No

42. Are you aware of the causes and risk factors of cervical cancer?

Yes

No

43. Is cervical cancer a sexuality-transmitted disease?

Yes

No

44. What is the cause or risk factor associated with cervical cancer?

Early onset of sexual activity

Vulval warts

Multiple sexual partners

Cigarette smoking

Family history of cervical cancer

Others

I don't know

45. Can cervical cancer be treated?

Yes

No

46. Is cervical cancer preventable?

Yes

No

47. Is cervical cancer curable?

Yes

No

48. The stage at which cervical cancer be cured is

Early

Late

Not curable

49. At which age do you think that women should begin regular screening for cervical cancer?

Less than 20 years

Over 20 years

Over 30 years

Over 40 years

Over 50 years

I do not have an idea about screening intervals

50. How often should women get screened for cervical cancer?

Yearly

2 and 3 years

Every 5 years

Every 10 years

Never

I have no idea

51. What should I do if I am diagnosed with cervical cancer?

Be scared

See a doctor

Go to a prayer house

Use traditional medicine

Agree to surgery take out cervix

Delivery of Screening Information

52. I would prefer to receive information about cervical cancer screening through this channel?

Direct personal contact

Community meetings

Posters and pamphlets

Newspapers and articles

Radio messages

Television messages

53. I would prefer to receive information about cervical cancer from this specific community member?

My peers

Traditional healers

Leaders of women's groups

Community health promoters

My church pastor

Midwife

Nurse

Doctor

54. I would prefer to receive information about cervical cancer screening in this particular place

At home

Local market

My place of worship

School

Family planning clinic

Hospital

Thank you for your time and participation. We appreciate your help.

Please return survey to Cynthia Ihekwoaba

APPENDIX B: Open-Ended Questions to Guide Interview{ TC "APPENDIX B: Open-Ended Questions to Guide Interview" \f C \l "1" }

1. Tell me what you know about cervical cancer.
2. Can you describe the causes of cervical cancer?
3. Can you describe how you can prevent it?
4. Do you think it is important for you to know about cervical cancer?
5. Can you tell me what a Pap smear is?
6. What will motivate you to have a Pap smear?
7. Why would you not have a Pap smear?
8. What are your experiences with a Pap smear?

APPENDIX C: Town Crier Message for March 30, 2006{ TC "APPENDIX C: Town Crier
Message for March 30, 2006" \f C \l "1" }

Women of Nkwerre, I greet you all... Women of Nkwerre, today is a great day. One of our daughters residing in Canada is conducting research on cervical cancer and is inviting all women ages 19 – 60 to participate in this study. If you are interested please gather at the local market at 2.00pm today. It will take about 30 minutes of your time. There will be refreshments provided.

Women of Nkwerre I thank you all!!!!!!!

Town Crier Message for March 31st 2006

Women of Nkwerre, I greet you all. Women of Nkwerre, today is a great day. One of our daughters residing in Canada is conducting research on cervical cancer and is inviting all women ages 19 – 60 to participate in this study. If you are interested please gather at St. Paul's Anglican Church, Obinocha Nkwerre at 2.00pm today. It will take about 30 minutes of your time. There will be refreshments provided.

Women of Nkwerre, I thank you all!!!!!!!

Town Crier Message for April 1st 2006

Women of Nkwerre, I greet you all. Women of Nkwerre, today is a great day. One of our daughters residing in Canada is conducting research on cervical cancer and is inviting all women ages 19 – 60 to participate in this study. If you are interested please gather at the

local town hall, at Obinocha Nkwerre at 2.00pm today. It will take about 30 minutes of your time. There will be refreshments provided.

Women of Nkwerre, I thank you all!!!!!!!!!!

APPENDIX D: Consent Form{ TC "APPENDIX D: Consent Form" \f C \l "1" }

My signature on this sheet indicates that I agree to participate in a study conducted by Cynthia Ihekwoaba, Graduate student of the Master of Public Health Program, Lakehead University, Thunder Bay, on

**KNOWLEDGE & PRACTICES OF WOMEN IN NKWERRE, NIGERIA REGARDING
CERVICAL CANCER SCREENING**

It also indicates that I understand the following:

1. I have received explanations about the nature of the study, its purpose, and procedures.
2. I am a volunteer and can withdraw at any time from the study
3. There is no apparent risk of physical or psychological harm
4. The data I provide will be securely stored at Lakehead University for seven years.
5. I will receive a summary of the project, upon request, following the completion of the project.

Signature of Participant

Date

Signature of Research Assistant

Date

APPENDIX E: Tables of Data Not Analyzed{ TC "APPENDIX E: Tables of Data Not Analyzed" \f C \l "1" }

Table E1

Delivery of Cervical Cancer Information	Frequency	%
How would you like to receive information about cervical cancer?		
Direct personal contact	51	45.6
Community meetings	44	39.3
Posters and pamphlets	5	4.5
Newspapers and articles	3	2.7
Town crier	8	7.1
Radio and television messages	1	0.9
I do not want to receive any messages	0	0
Which specific community member would you like to receive information about cervical cancer from?		
Peers	39	34.8
Traditional healers	11	9.8
Leaders of your women's groups	16	14.2
Community health promoters	7	6.25
Church pastor	9	8.0
Midwife	2	1.7
Nurse	7	6.25
Doctor	21	18.7
I do not want to receive any messages	0	0
In what particular place would you like to receive cervical cancer information?		
At home	8	7.1
In the local market	3	2.6
Place of worship	19	16.9
School	3	2.6
Family planning clinic	17	15.1
Hospital	21	18.7
Women's yearly meeting	41	36.6

Table E2

Knowledge of Cervical Cancer	Frequency	%
Have you ever heard of cervical cancer?		
Yes	43	38.3
No	68	60.7
What are the symptoms associated with cervical cancer?		
Abdominal pain	19	16.9
Foul smelling vaginal discharge	17	15.1
Postcoital bleeding	7	6.25
Weight loss	2	1.7
I don't know	67	59.8
Are you aware of the causes of cervical cancer?		
Yes	21	18.7
No	91	81.2
Is cervical cancer Curable?		

Yes	72	64.2
No	36	32.1
I don't know	4	3.5
Is cervical cancer preventable?		
Yes	76	67.8
No	29	25.8
I don't know	7	6.2
Is cervical cancer a STI?		
Yes	82	73.2
No	13	11.6
I don't know	17	15.1
Is the Pap smear test a screening procedure for cervical cancer?		
Yes	52	46.4
No	29	25.8
I don't know	31	27.6
What should I do if I am diagnosed with cervical cancer?		
Be scared	6	5.4
See a doctor	66	58.9
Go to a prayer house	12	10.7
Use traditional medicine	21	18.7
Agree to a surgery to take out the cervix	7	6.25
How often should a woman get screened for cervical cancer using the Pap test?		
Yearly	24	21.4
Every 2 years	26	23.2
Every 3-5 years	40	35.7
Every 10 years	1	0.9
I don't know	21	18.7
What is the Pap test for?		
To detect cervical cancer	21	18.7
To detect other cancers	16	14.2
To treat STIs	25	22.3
To prevent cervical cancer	22	19.6
To clean the womb	13	11.6
To treat infertility	0	0
I don't know	15	13.3
Yes	76	67.8
No	2	1.8
I don't know	34	30.3
Would you recommend the Pap smear test to your friend?		
Yes	81	72.3
No	3	2.6
I don't know	28	25.0

Table E3

Pap Smear Practices	Frequency	%
Have you ever had a Pap smear test?		
Yes	47	41.9
No	61	54.5
I don't know	4	3.6
If no why have you not done the test?		
I don't know what the test is for	17	27.8
I don't know where to go get it	12	19.6
I don't need it	2	3.2
It is too expensive	23	37.7
It is against my religious beliefs	5	8.1
There are no screening clinics in my area	2	3.2
No particular reason	0	0.0
How often do you have the Pap test done?		
Yearly	4	3.5
Every 2 years	7	6.3
3-5 years	27	24.1
Every 10 years	9	8.0
I have never had a pap test done	52	46.4
Who did you last pap test?		
Male doctor	17	36.1
Female doctor	30	63.8
Nurse	0	0

APPENDIX F: Ethical Approval{ TC "APPENDIX F: Ethical Approval" \f C \l "1" }

August 24, 2006

Cynthia Ihekwoaba

Public Health Program

Lakehead University

955 Oliver Road

Thunder Bay, Ontario P7B 5E1

Dear Ms. Ihekwoaba:

Re: REB Project #: 051 05-06

Granting Agency name: N/A

Granting Agency Project #: N/A

I am pleased to inform you that all conditions of ethics approval have been met for your research project entitled, “Knowledge and Practices of Women in Nkwerre, Nigeria Regarding Cervical Cancer Screening”, as described in correspondence from the Research Ethics Board dated February 23, 2006.

Best wishes for a successful research project.

Sincerely,

APPENDIX G: Cover Letter{ TC "APPENDIX G: Cover Letter" \f C \l "1" }

January 26, 2006

Dear Potential Participant:

I would like to invite you to participate in a study that I am conducting concerning practices of women 19 and older regarding cervical cancer screening in Nkwerre, Eastern Nigeria.

The purpose of this research project is to assess the knowledge and practices regarding cervical cancer screening of Eastern Nigerian women in order to provide this population with programs designed to meet their cultural needs. A sub objective is to identify environment, lifestyle and cultural aspects that have impact on the acceptance of and participation in preventative measures (e.g. lack of knowledge, fear, urban/rural status, income, marital status, extent of physician contact, transportation to screening clinics, and lack of female physicians in the community)

To accomplish this goal, I would like to ask you to fill out a questionnaire which will contain questions including, but not limited to the following: age, gender, educational and economic status, general health, and cervical cancer related questions. This will require approximately 30 minutes of your time.

There is no risk of physical or psychological harm but there is a risk that some of the questions asked in this study may cause feelings of discomfort. You may at any time choose not to answer one or more of the questions asked in the questionnaire or you may withdraw from the study..

All information you provide will be confidential and be securely stored at Lakehead University for seven years. However, the findings of this project will be made available to you at your request upon the completion of the project. Your name, or any other identifying information, will not be revealed in any published materials.

If you have any questions or concerns, please do not hesitate to contact me at (905) 712-1213, or at cihekwoa@lakeheadu.ca. You may contact my supervisor Dr. Darlene Stevens at (807) 343-8643.

Thank you for your participation in this study.

Sincerely

Cynthia Ihekwoaba
MPH Candidate,
Lakehead University
955 Oliver Road
Thunder Bay, Ontario
Telephone: (905)-712-1213