KNOWLEDGE, PERCEPTION AND PRACTICES TOWARDS CERVICAL CANCER PREVENTION AMONG FEMALE SECONDARY SCHOOL TEACHERS IN IBADAN NORTH LOCAL GOVERNMENT AREA, OYO STATE

BY

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MBBS (UNILAG)

A Project in the Department of Health Promotion and Education Submitted to Faculty of Public Health

In Partial Fulfilment of the Requirement for the Degree of

MASTER OF PUBLIC HEALTH

Of the

UNIVERSITY OF IBADAN

FEBRUARY 2020

ABSTRACT

Cervical cancer is a major public health challenge among women in developing countries and the second most common gynecologic cancer. Poor practices towards cervical cancer prevention have been shown to contribute to this challenge. Although teachers are respected role models and opinion leaders who can play pivotal roles in facilitating vaccination, screening and other preventive practices at community level there is a dearth of information on secondary school teachers' cervical cancer prevention knowledge and practices. Therefore, this study assessed the knowledge, perception and cervical cancer prevention practices among female public secondary school teachers in Ibadan North Local Government Area, Oyo State.

A descriptive cross-sectional study design used. A multi-stage sampling technique was used to select 374 respondents from the 42 public secondary schools in Ibadan North Local Government Area (IBNLGA). A semi-structured self-administered questionnaire containing 46-point knowledge scale, 18-point perception scale and 15-point practice scale was used to collect data. Knowledge scores of 0-≤14, >14–≤29, >29–≤46 were classified as poor, fair and good respectively; scores of 0–≤8 and >8–≤18 were categorized as negative and positive perception respectively and scores of 0–≤7 and >7–≤15 were graded as poor and good practice. Data was sorted, coded and analyzed using descriptive statistics at $p \leq 0.05$ level of significance.

Respondents mean age was 42.3±9.2 with more than one third (38.2%) between 41 – 50 years old. Majority (85.8%) has heard about cervical cancer with the social media (24.0%) being the most common source of information. Slightly above half (54.0%) of respondents correctly identified sexually transmitted infections, sexual intercourse at the age of 16 or less (47.6%), and females having multiple sexual partners (68.4%) as risk factors. The mean knowledge score of cervical cancer and its prevention was 2.1±0.7 with majority (49.2%) having fair knowledge. The mean perception score was 1.86±0.34. Most (90.1%) e respondents never had of HPV vaccination while (78.9%) of the respondents never had Pap smear. The mean prevention of cervical cancer practice score was 6.9±2.5 with slightly above half (54.5%) graded as poor...

This study show that female public secondary school teachers in Ibadan North LGA had poor knowledge about cervical cancer and low cervical cancer prevention practices. A comprehensive approach including training on cervical cancer and prevention practices inclusive of vaccination and screening for female secondary school teachers is recommended.

Keywords: Cervical cancer, knowledge, perception, preventive practice, teachers
Word count: 429

DEDICATION

This research is dedicated to my loving and strong mother, Mrs. K.T. Adetuyi. May God Almighty bless your days.

ACKNOWLEDGEMENT

All thanks go to God for giving me the grace and strength throughout the course of this program.

My sincere appreciation goes to my supervisor, Prof. O. Oladepo, who made it possible to ensure that this research work is a success. I appreciate his words of encouragement, patience, guidance, support and advice. I am very grateful.

I sincerely thank the Acting Head of Department - Dr. M.A. Titiloye, and my lecturers, Dr. O.E. Oyewole, Prof. Oyedunni S. Arulogun, Prof. A.J. Ajuwon, Dr. Yetunde. O. John-Akinola, Dr. O.I. Dipeolu, Dr. F.O. Oshiname (Late), Dr. Moji M. Oluwasanu, Dr. Adeyimika. T. Desmennu, and Mr. John Imaledo who all taught me well and shared their personal and professional experiences, in the process of building me up to become a Public Health Specialist. The knowledge and values they imparted on me will forever be appreciated. Further appreciation goes to the administrative staff of the department: Mr. Oyeyemi and Mr. Lanre for their contributions and support.

My appreciation goes to my loving mother, Mrs. K.T. Adetuyi and my wonderful siblings, Sileola, Tayo and Tola, for their unwavering support and guidance throughout the programme. I would like to thank my friends: Dolapo Ojo, Tolu Ambali, Esosa Igbinosun, Favour Oboijagbe, Temitayo Olabode, Iyetade Ayorinde, Egwu Jennifer, Alaba Florence for their positive vibes and other contributions to my work.

CERTIFICATION

I certify that this work was carried out by Adetokunbo Abiodun ADETUYI of the Department of Health Promotion and Education, Faculty of Public Health, University of Ibadan, Nigeria, under my supervision.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

GLOSSARY OF ABBREVIATIONS

WHO- World Health Organization

CDC – Center for Disease Control and Prevention

LGA – Local Government Area

HPV – Human Papillomavirus

CIN – Cervical Intraepithelial Neoplasia

SPSS – Statistical Package for Social Sciences

Operational Definition of Terms

Knowledge: Information, facts that one gets from education or experience.

Perception: The way that one thinks about or understands someone or something.

Practice: Something that an individual has done, is doing or intends to do in the future.

Cancer: A generic term for a large group of diseases characterized by the growth of abnormal cells beyond their usual boundaries that can then invade adjoining parts of the body and/or spread to other organs (World Health Organization, 2019).

Cervical cancer: Cervical cancer is a type of cancer that starts in the cervix.

Pap smear test: A Pap smear, also called a Pap test, is a screening procedure for cervical cancer. It tests for the presence of precancerous or cancerous cells on your cervix. The cervix is the opening of the uterus.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Cervical, breast, colorectal, lung and thyroid cancers are the most common cancers among women globally. In 2018, approximately 311 000 women died from cervical cancer worldwide (WHO, 2019). Cervical cancer is the second most common cancer in women living in less developed regions with an estimated 570 000 new cases in 2018, more than 85% of deaths from cervical cancer occurred in low- and middle-income countries. In the United States, cervical cancer which was once one of the most common cancers among women is now relatively uncommon (Boardman, 2019). Cervical cancer now ranks 14th among the most common cancers affecting women in the United States (National Institute of Health, 2018). The significant reduction in the incidence of cervical cancer in Europe and America is due in large part to the adoption of screening procedures in the second half of the twentieth century (Kwame-Aryee, 2008).

According to Anorlu and Deng (2012), more than 80 000 African women are diagnosed with cervical cancer annually with 75% mortality rate and mostly are found in Sub-Saharan Africa. The crude incidence rate of cervical cancer in Western Africa is 19.9, 19.3 in Nigeria and 15.8 globally. In Nigeria, it has been estimated that are 14,550 new cases of cervical cancer are diagnosed and 9,659 die from the disease annually (Akanbi, Iyanda, Osundare and Opaleye, 2015).

Human papillomavirus (HPV) is associated with almost all cases of cervical cancer (National Cancer Institute, 2019), There are more than 100 types of HPV, of which more than 40 can be transmitted via sexual contact and about 15 of those are considered to be high-risk or oncogenic types (American Association of Family Physicians, 2010). Seventy percent of pre-cancerous cervical lesions and cervical cancers are caused by HPV-16 and HPV-18 which are high-risk types (WHO, 2019).

The other category of HPV consists of low-risk strains which cause genital warts but do not cause cancer (Office of Population Affairs, 2019). Human papillomavirus (HPV) is also linked with oral cancer, anal cancer, vulvar and vaginal cancers in women and penile cancers in men (American Society of Clinical Oncology, 2019). Human papillomavirus (HPV) transmission is not completely prevented by condoms and dental dams but they reduce the risk of transmission (NCI, 2019). The Centre for Disease Control and Prevention (2015) reports that there are other risk factors for cervical cancer development like immunosuppression caused by HIV or high-dose steroid use, early age of sexual activity, tobacco smoking, infection with herpes simplex virus and use of contraceptives. Other risks factors reported by the American Cancer Society are age, alcohol consumption and vaginal irritation.

A comprehensive approach to cervical cancer prevention and control that includes community education, social mobilization, vaccination, screening, treatment and palliative care is recommended by the World Health Organization (2019). Almost all of cervical cancer deaths could be avoided if known effective interventions were available to all women and implemented, including immunizing adolescent girls against human papillomavirus (HPV) and cervical screening and treatment of pre-cancerous lesions (WHO, 2019). The comprehensive cervical cancer control includes primary prevention (vaccination against HPV), secondary prevention (screening and treatment of pre-cancerous lesions), tertiary prevention (diagnosis and treatment of invasive cervical cancer) and palliative care.

Cervarix, Gardasil and Gardasil-9 are the three vaccines available to protect against human papillomavirus. The vaccines are available to girls as young as 9 and adults up to the age 26. Some countries now make the vaccines also available to boys to help prevent genital cancers (Todd, 2017, WHO, 2019). In Nigeria and other countries in Sub-Saharan Africa, the uptake of HPV vaccination and cervical screening however still remains low for various reasons. A Systematic Review on Barriers to Utilisation of Cervical Cancer Screening in Sub-Saharan Africa (Lim and Ojo, 2017) revealed that there were personal and institutional barriers to the utilization of cervical cancer screening. Eight (8) of the studies involved in this review revealed that many females do not undergo cervical screening due to fear of pain from cervical cancer procedure and fear of the outcome of the screening while 6 studies revealed that low level of knowledge and awareness about cervical cancer and screening was a reason why women did not

undergo cervical screening. Five (5) studies showed that there was a link between knowledge and perception of susceptibility as women who had insufficient knowledge about cervical cancer screening showed little concern about screening. Other reasons cited by these studies include negative healthcare worker attitude, misconceptions, financial constraints, lack of spousal support, cultural issues and modesty.

Cervical cancer is a gynaecologic cancer that is easy to prevent with regular screening tests and follow-up. When detected and treated early, it is highly curable (CDC, 2016). Teachers in secondary schools have pivotal roles to play in the prevention of cervical cancer. They can be used to carry out social marketing of HPV vaccines and cervical cancer screening among in-school adolescents and vulnerable population. As change agents and role models to girls and women, the level of knowledge of teachers as relating to cervical cancer, their perception and practices relating to the disease which have not been explored thus constitute the focus of the study.

1.2 Statement of Problem

On a global scale, cervical cancer is the eighth most common cancer among men and women, the fourth most commonly occurring cancer in women and the second most common among women in less developed regions (World Cancer Research Fund, 2018).

Locally, it is one of the leading (second) causes of cancer-related morbidity and mortality recorded among women of reproductive age group in Nigeria where over 53.3 million women are estimated to be at risk of developing cervical cancer (IARC/ICO, 2017). In Oyo state, a study found a prevalence of 7.6% for cervical abnormalities (Thomas, Ojemakinde, Omigbodun, Ajayi, Fawole and Oladepo, 2012). The high cost of treatment of close to a million naira which placed medical financial burden on the affected individuals, collective healthcare finance burden on the struggling healthcare system and national economy (Akinfenwa and Monsur, 2018). Therefore, there is need for prevention of cervical cancer among these people in order to avert these entire burdens on individuals, healthcare sector and the country as a whole

According to a report by the Catalan Institute of Oncology/International Agency for Research on Cancer (2018), Nigeria has a population of 50.33 million women aged 15 years or older who are at risk of developing cervical cancer. In a study carried out in Ibadan, Oyo state, only 4.1% of the

respondents had taken the HPV vaccine before the study which proves that despite that high risk of developing cervical cancer among that category of women, the screening for cervical cancer and is low compared to the expected figures as well as the burden of cervical cancer (Ndikom and Oboh, 2017).

The practice relating to cervical cancer prevention in Nigeria has remained very low due to several reasons ranging from poor knowledge of cervical cancer, poverty, lack of resources and infrastructure and marginalization of women to inaccessibility and unavailability of the services in most of our healthcare facilities, lack of policy on population based cervical cancer screening programmes etc., which invariably translated to increased mortality and morbidity (Adekanle et al, 2011, Oluwole et al., 2017).

There is a dearth of information concerning what secondary school teachers know about the disease or what their perception of the disease is. Yet teachers have pivotal roles to play relating to the social marketing of HPV vaccine among female adolescent students. In addition, many teachers are respected opinion leaders in the communities where they live. They can, therefore, be used to facilitate the cervical cancer prevention and HPV vaccination in their various communities and provide appropriate social support for candidates of cervical cancer including their female relatives (Ubajak, Ukegbu, Ilikannu, Ibeh, Onyeonoro and Ezeanyim, 2015)

This study is therefore designed to document knowledge, perception and practices towards cervical cancer prevention among female public secondary school teachers in Ibadan North Local Government Area, Oyo state.

1.3 Justification of the Study

Increased HPV vaccination and cervical cancer screening are largely responsible for reduced incidence of cervical cancer in developed countries. In less developed regions, HPV vaccine uptake and other primary prevention measures are low. The World Health Organization (2019) states that primary prevention involves HPV vaccination of girls aged 9 – 14 years, health information about cervical cancer risk factors, sex education tailored to age and culture and condom promotion and provision for those engaged in sexual activity. Teachers have the advantage of interacting directly with children and their parents, they serve as role models and mentors to students while many parents respect them as agents of enlightenment and change. If

teachers have adequate knowledge and a positive perception of the elements of primary prevention for cervical cancer, they become potential agents that facilitate the willing uptake of HPV vaccination and other prevention by students and their parents/guardians.

School-based delivery of HPV vaccines is cost-effective and successful uptake depends on teachers' knowledge and acceptability of the vaccine. Empowering teachers to be vaccine champions in their community may be feasible way of disseminating information about HPV vaccine and cervical cancer (Moses, Javier, Chabeda, Wamai and Mugo, 2015).

Teachers have access to a large population of students. In 2016, 2,786,332 females were enrolled in junior secondary schools nationally (Federal Ministry of Education, 2016). In Oyo state, there were 295,580 students enrolled in junior secondary schools, out of which 148,830 were females. Nationally, there were 2,058,117 females enrolled in senior secondary schools while in Oyo state, there were 1,236,033 females enrolled in senior secondary schools across the state (Federal Ministry of Education, 2016). The access to this large number of the adolescent population makes teachers an important target population.

There is also a large population of secondary school teachers. According to the Federal Ministry of Education, there were a total of 584,160 teachers in Nigeria in 2016. Adequate knowledge of cervical cancer and a positive perception of cervical cancer screening and other prevention measures may influence the uptake of cervical cancer screening by the teachers themselves.

Therefore, the data that generated from this study are useful in designing health promotion and education programmes regarding cervical cancer prevention. It can also be used in generating baseline information for policy formulation relating to family life education and school-based HPV vaccine uptake promotion in order to prevent the burden of cervical cancer, promote health of these female adolescents and other females in the society, which will invariably promote the overall health of the nation with respect to the importance of women in the society.

1.4 Research Questions

1. What is the level of knowledge towards cervical cancer prevention among female secondary school teachers in Ibadan North Local Government Area?
2. What are the perceptions towards cervical cancer prevention among female secondary school teachers in Ibadan North Local Government Area?
3. What are preventive practices towards cervical cancer among female secondary school teachers in Ibadan North Local Government Area?

1.5 Broad Objective

To assess the knowledge, perception and preventive practices towards cervical cancer among female secondary school teachers in Ibadan North Local Government Area, Oyo state.

1.6 Specific Objectives

The specific objectives are to:

1. Assess the level of knowledge towards cervical cancer prevention among female secondary school teachers in Ibadan North Local Government Area.
2. Assess the perceptions towards cervical cancer prevention among female secondary school teachers in Ibadan North Local Government Area.
3. Assess the preventive practices towards cervical cancer among female secondary school teachers in Ibadan North Local Government Area.

1.7 Research Hypotheses

The following null hypotheses will be tested:

Ho1 – There is no association between socio-demographic characteristics (level of education, years of experienced, disciplines and position held in school) and the teachers' level of knowledge of cervical cancer prevention.

Ho2 – There is no association between the level of knowledge of cervical cancer and the teachers' perceptions of cervical cancer prevention.

Ho3 – There is no association between perception of cervical cancer and the preventive practice of cervical cancer.

CHAPTER TWO

LITERATURE REVIEW

2.1 Concept of Cervical Cancer

Cancer is a generic term for a large group of diseases characterized by the growth of abnormal cells beyond their usual boundaries that can then invade adjoining parts of the body and/or spread to other organs (World Health Organization, 2019). Cancer is always named for the part of the body where it starts, even if it spreads to other body parts later. Thus, cancer that starts in cells of the cervix is called cervical cancer (CDC, 2016).

Knowledge of the anatomy of the cervix will help one understand cervical cancer better. The cervix is a cylinder-shaped composed of stroma and epithelium that connects the vagina and uterus (Bhatia, Aoki and Sankaranarayanan, 2018). It is characterized by two main portions:

- The ectocervix which is the part of the cervix that can be seen during a speculum examination. It includes an opening called the external os which opens to allow passage between the uterus and vagina. The ectocervix is lined by squamous epithelium.
- The endocervix, or endocervical canal, is a passageway that extends from the external os to the internal os and it is lined by columnar epithelium (Vassilakos and Pinto, 2017).

The overlapping border between the endocervix and ectocervix is called the transformation zone. This zone is the area of the cervix between the old and new squamocolumnar junction. The ecto- or endocervical mucosa in the transformation zone is where almost all cases of cervical carcinoma arise (Bhatia et al, 2018). It is recognized that the transformation zone of the cervical epithelium is the site in which HPV infection tends to cause cancer, and the susceptibility of this area is believed to be related to its denudation of the stratified epithelium, thus facilitating exposure of the basal layer to HPV with minimal trauma (Louie, Sanjose, Diaz, Castellsague, Herrero, Meijer, Shah, Franceschi, Munoz and Bosch, 2009).

2.2 Burden of Cervical Cancer

According to WHO, cancer is a major cause of death worldwide. In 2008, 12.7 million cases of the disease were diagnosed globally and 7.6 million individuals lost their lives as a result of the condition (WHO, 2012). Cervical cancer is a leading public health concern globally.

According to Cecilia, Rosliza and Suriani (2017) in a literature review done on global burden of cervical cancer, they discovered that cervical cancer alone accounted for more than 266,000 deaths and 528,000 new cases in 2012. They further reported that the incidence of cervical cancer varied widely among countries with world age-standardized rates (ASR) ranging from 4.4 to 75.9 per 100 000 population. Developing countries carries the greatest burden according to Cecilia et al. (2017) with about 85% of all new cervical cancer cases and 87% of all cervical cancer deaths occurring there. The estimated age-standardized rates for countries considered as high-risk regions were listed as follows; Eastern Africa (42.7), Melanesia (33.3), Southern (31.5) and Middle (30.6) Africa. Rates are lowest in Australia/New Zealand (5.5) and Western Asia (4.4). Cervical cancer accounts for 7.5% of all female cancer deaths. Mortality varied 18-fold between the different regions of the world, with rates ranging from less than 2/100,000 in Western Asia, Western Europe and Australia/New Zealand to more than 20/100,000 in Melanesia (20.6), Middle (22.2) and Eastern (27.6) Africa (Nwabichie, Rosliza and Suriani, 2017).

Although a decline has been observed in cervical cancer incidence and deaths in the developed world over the past 20 years, there has not been a significant change in the same key indicators in poor resource settings. According to Okunnu (2010), It is second most common cancer in women worldwide and most common in African women thus the most leading cause of cancer deaths in women in sub-Saharan Africa including Nigeria with a very poor survival rate (Okunnu, 2010).

In Nigeria, the second most frequent cancer among women and about 9 659 women die annually (Committee on Adolescent Health Care and Immunization Expert Work Group of the ACOG, 2014). According to Ayinde, Omigbodun and Ilesanmi (2004), they asserted that cervical cancer is one of the commonest cancers affecting women in Nigeria as a result of lack of effective screening programs aimed at detecting and treating precancerous conditions while Ogundipe and

Obinna (2008) reported the incidence rate of cervical cancer as 25 in 100,000. In a retrospective study carried out among patients at the Gynaecologic Oncology Unit of Ahmadu Bello University Teaching Hospital, Zaria, Nigeria between November 2005 and November 2009, carcinoma of the cervix accounted for 65.7% (267 out of 406 study participants) of the histologically confirmed gynaecological cancers (Oguntayo, Zayyan, Kolawole, Adewuyi, Ismail and Koledade, 2011).

2.3 Symptoms of Cervical Cancer

Some of the first symptoms and signs of cervical cancer include abnormal vaginal bleeding, spotting, watery discharge from the vagina, heavy menstrual bleeding and post-coital bleeding. Advanced cervical cancer may present with pelvic pain, problems urinating, and swollen legs. When metastasis to nearby organs or the lymph nodes occurs, the function of the organs that the cancer has spread to may be affected (ACOG, 2019). Other signs of cervical cancer include intermenstrual bleeding and post-menopausal bleeding. Mwaka, Orach, Were, Lyratzopoulos, Wabinga and Roland (2015) carried out a cross-sectional community survey in post-conflict northern Uganda to know the level of awareness of cervical cancer symptoms, 85% of the participants recognized intermenstrual bleeding as a symptom of cervical cancer while 84% and 83% of the participants recognized post-menopausal bleeding and offensive vaginal discharge respectively as cervical cancer symptoms. In a study on cervical cancer screening amongst nurses in Lagos University Teaching Hospital, 12.5% of the respondents knew that dysmenorrhea is a sign of cervical cancer while 27.5% and 19% knew that foul-smelling vaginal discharge and post-menopausal bleeding are signs of cervical cancer (Adeyemoye, Awodele, Kwashi, Awodele and Dolapo, 2011).

2.4 Cause of Cervical Cancer

Human papillomavirus (HPV) is a known cause of cervical cancers as well as some vulvar, vaginal, penile, oropharyngeal, anal, and rectal cancers (CDC, 2016). Persistent infection by certain oncogenic HPV types is firmly established as the necessary cause of most premalignant and malignant epithelial lesions of the cervix and of a variable fraction of neoplastic lesions of the vulva, vagina, anus, penis and oropharynx (Castellsague, 2008). The concept of a necessary

cause implies that cervical cancer does not and will not develop in the absence of the persistent presence of HPV DNA (Bosch, Lorincz, Munoz, Meijer and Shah, 2002).

The HPV family of viruses comprises more than 100 different viral genotypes (Rama, 2010). These viruses are classified into high-risk and low-risk HPV types. Many anogenital cancers and almost all cases of cervical cancer are caused by high-risk HPV types (Doorbar, Quint, Banks, Bravo, Stoler, Broker and Stanley, 2012). High-risk HPV types include HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73 and 82 (Rasool, Zahid, Malik, Begum, Choudry, Ansari, Gan, Kamal, Asif, Bokhari, Helmi, Zeyadi, Al-Qahtani and Jamal, 2019). HPV 16 and 18 are the most common high-risk HPV types, responsible for nearly 76.7% of cervical cancer globally (Kaarthigeyan, 2012). Low-risk viruses, the most common of which are HPV 6 and HPV 11, occasionally cause cancers and papillomatosis especially in individuals with immune defects. Most HPV infections resolve within two (2) years (Schiffman, Doorbar, Wentzensen, Fakhry, Monk, Stanley and Franceschi, 2016).

2.5 Risk Factors for Cervical Cancer

Cervical infection by HPV usually requires cofactors to progress to cervical cancer (Mazarico, Gomez, Guirado, Lorente and Gonzalez-Bosquet, 2015). Some of the risk factors are:

2.5.1 Sexual Risk Factors

Sexual risk factors such as having multiple sexual partners, unprotected coitus and women's partners having multiple sexual partners and early sexual debut are well recognized behavioural risk factors. However, early age at first sexual intercourse (AFSI) is of major importance. Increased risk of HPV is linked with the fact that the cervix is immature in adolescents so early sexual intercourse can make it more vulnerable toward the infection of HPV and finally the development of cervical cancer (Rasool et al, 2019). In a study to assess risk factors of HPV infection, coitarche before age 16 was significantly associated with a positive HPV test (Ribeiro, Costa, Alves, Villa, Saddi, Carneiro, Zeferino and Helena, 2015). Early Age at Marriage is another risk factor. El-Moselhy, Borg and Atlam (2016) in a case-control study carried out to determine the sociodemographic and clinical risk factors among Egyptian females showed that early age at marriage (<18years) is a significant risk factor for cervical cancer (OR=2.63, 95% CI: 1.44 – 4.83). Women who experience their first pregnancy at a young age are at increased

risk of cervical cancer (Louie et al, 2009). Females who are married at an early age have an increased chance at early coital debut and early pregnancy which all increase the risk of HPV infection and cervical cancer. According to a study done across developing countries, Age at first marriage (AFM), Age at first sexual intercourse (AFSI) and risk of cervical cancer was compared between AFSI less than 16 years and 21 years and above. The respondents that had their first sexual intercourse at less than 16 years had a 35.1% risk of cervical cancer and the respondents that had their first sexual intercourse at more than 21 years had a 16.9% risk of cervical cancer (Louie et al, 2009).

Girls who have coitarche when they are 14 years old or younger are less likely to use contraception on this occasion, take more time before they start using contraception in subsequent sexual relations, are more likely to have several sex partners, have a higher risk for depression, have lower self-esteem and more episodes of repentance and have a higher risk for sexually transmitted disease and cervical cancer (Lara and Abdo, 2016).

2.5.2 Smoking

Tobacco smoking is associated with the risk of causing pre-carcinogenic lesions and cervical cancer. Tobacco is an important cofactor of progression in females infected with HPV. In the study carried out by Mazarico et al (2015) to find the relationship between smoking, HPV infection and the risk of cervical cancer among patients seen at the cervical pathology clinic of Sant Joan de Deu University Hospital, Barcelona, tobacco was shown to increase the risk for cervical cancer from two to four times in women who smoke compared to non-smoking women, an increase that was also identified in passive smokers. It has also been shown that the more the intensity and duration of smoking the higher the risk of having cervical cancer (Gadducci et al, 2011). Also, in a study carried out by Kabir et al (2012), smoking tobacco was found to be a risk factor of cervical cancer (Kabir, Osagbemi, Salaudeen and Musa, 2012)

2.5.3 Obesity

Obesity, physical activity and calorie intake have been linked with CIN and cervical cancer. A study by Lee, So, Piyathilake and Kim (2013) showed that cervical cancer risk increased as body mass index (BMI) increased and decreased with increased physical activity.

Poorolajal and Jenabi (2016) carried out a meta-analysis to estimate the association between overweight and obesity and cervical cancer risk. The findings from the meta-analysis indicate that overweight is not associated with an increased risk of cervical cancer but obesity is weakly associated with an increased risk of cervical cancer.

2.5.4 Immunosuppression

Women with Acquired Immune Deficiency Syndrome (AIDS) or those undergoing therapy following organ transplantation have an increased risk of CIN or cervical cancer (Dugue, Rebolj, Garred and Lynge, 2013). End-stage renal disease patients and patients with autoimmune diseases being treated with immunosuppressants seem to be at an increased risk of cervical precancerous lesions and cervical cancer. Poor diet, a behavioural factor which weakens the immune system, moderately increases the risk of cervical cancer (Dugue et al, 2013).

2.5.4 Family history of cervical cancer

Females with a family history of cervical cancer are at risk of developing cervical cancer themselves (ACOG, 2018). Daughters and sisters of women with cervical cancer have been reported to have a relative risk of 1.5 – 2.3 to develop cervical cancer. Shared exogenic risk factors, shared genetic risk factors or a combination of these factors may be responsible for the familial clustering of cervical cancer (Zoodsma, Sijmons, de Vries and van der Zee, 2004).

In a cross-sectional study among women in the Kermanshah County, the west of Iran, there was significant correlation between knowledge about cervical cancer with age and positive family history of cervical cancer (Karami-Matin, Barati, Javadzade, Resi, Hatamzadeha and Mahboubi, 2016). A study carried out in Ibadan Nigeria, showed a significant correlation between perception and positive family history of cervical cancer (Ilevbare, Adegoke and Adelowo, 2020). There is no evidence yet for the existence of a highly penetrant cervical cancer predisposition gene. To identify candidate genes associated with genetic susceptibility to cervical cancer, genes currently under investigation are the HLA genes and other genes that are involved in cell-mediated immunity like IL-10, Tp53 and genes involved in detoxification of carcinogens found in tobacco smoke (Zoodsma, Sijmons, de Vries and van der Zee, 2004).

2.6 Cervical Cancer Prevention and Control

The World Health Organization (2019) recommends a comprehensive approach to cervical cancer prevention and control which includes primary prevention (vaccination against HPV), secondary prevention (screening and treatment of pre-cancerous lesions), tertiary prevention (diagnosis and treatment of invasive cancer) and palliative care.

2.6.1 Primary Prevention of Cervical Cancer with HPV Vaccination

Currently, there are three (3) HPV vaccines: Gardasil, Cervarix and Gardasil 9 (Tjalma, 2019). These vaccines protect against the most common high-risk HPV types, HPV 16 and 18. Gardasil 9 has the additional benefit of protecting against three additional oncogenetic HPV types responsible for a further 20% of cervical cancers. Human papillomavirus vaccines protect against HPV types 16 and 18 but do not eliminate the need for secondary screening to detect pre-cancerous lesions (Xu et al, 2018).

The WHO recommends offering HPV vaccine to girls at ages 9 – 14 years, prior to sexual exposure, since the vaccine has the highest efficacy if the girls have not already acquired HPV (WHO, 2009). In the United States, vaccination is recommended at ages 11 – 12 years and through age 26 years for females and age 21 years for males, if they were not previously vaccinated (CDC, 2016). In October 2018, the U.S. Food and Drug Administration (FDA) approved the HPV vaccine for people aged 27 – 45 years. The vaccine was already approved for people aged 9 – 26 years. The vaccine is safe and effective in preventing new HPV infections in people aged 27 – 45 years (ACOG, 2018).

The Nigerian Federal Ministry of Health targets girls at ages of 9 – 15 years for HPV vaccination (Federal Ministry of Health, 2008). Unlike the vaccines for childhood diseases, HPV vaccination in Nigeria is not currently provided during free mass immunization programmes but the vaccine is available for individual use at a rather expensive rate. Both the bivalent and quadrivalent vaccines are available in Nigeria: the bivalent vaccine which is more widely available costs about $50 (N8,000) while the quadrivalent costs about $100 (N16,200), exclusive of the cost of giving the injection (de Sanjose, Castellsague, Brotons, Munoz and Bruni, 2012).

2.6.2 Secondary Prevention by Cervical Cancer Screening

Cervical cancer screening involves testing for pre-cancer and cancer among women who have no symptoms and may feel perfectly healthy (WHO, 2019). It is a health intervention done to detect the precancerous stage early for appropriate management but the problem of late reporting, ignorance and cultural issues relating to cervical cancer screening are major factors influencing the disease control in Nigeria (Adewole, 2008, WHO, 2008).

Screening which is recommended for every woman from age 30 is ethical when it is linked to treatment and management of positive screening tests. Treatment of pre-cancer lesions is done with cryotherapy and Loop Electrosurgical Excision Procedure (LEEP). The WHO (2019) recommends the following screening tests: HPV testing for high risk HPV types, Visual inspection with Acetic Acid (VIA) and Pap test/liquid-based cytology (LBC).

Early screening for cervical cancer is a key intervention in reduction of maternal deaths. Cervical cancer screening has been consistently shown to be effective in reducing the incidence rate or the occurrence of new cervical cancer cases and mortality from cervical cancer (Jemal, Bray and Forman, 2012). However, cervical screening attendance rates are still far from satisfactory in many countries (Ayinde and Omigbodun, 2004). Perhaps, cervical cancer screening facilities are limited because of poor infrastructure, staff, poor knowledge about cervical cancer, and illiteracy; the uptake of cervical cancer screening is poor among women who live in the places where the screening facilities are available. Challenges of cervical cancer screening in developing countries include limited access to health services and laboratories, no screening programs, limited or non-existent awareness among populations and health workers, and poor referral and follow up (Adewole, 2008).

2.6.2.1 Prevalence of screening

Prevalence of cervical cancer screening varies across different age category of women, profession, location, countries, social class and cultural diversities. According to Kileo et al (2015) in their study conducted on utilization of cervical cancer screening services and its associated factors among primary school teachers in Ilala Municipality, Dar es Salaam, Tanzania, they reported that out of 512 female primary school teachers, only 108 (21%) reported to ever been screened for cervical cancer, with the higher screening prevalence recorded among

varying the age group researched; 28% among those aged 20–29, higher among those with married status; 22% among married and 24% among those with higher level of education. Women were more likely to utilize the cancer-screening service if they were multiparous. A study to assess the awareness of cervical cancer and determine the uptake of cervical cancer screening services among Igbo women in Afikpo, Ebonyi State, Nigeria showed that cervical cancer screening, screening centres were as low as 25% and 20.8% respectively among 500 respondents. Screening uptake was even lower (0.6%) among the respondents. Reasons cited for the low uptake include lack of awareness, non-availability of screening centers locally, cost and time (Eze, Umeora, Obuna, Egwuatu and Ejikeme, 2012). Nationwide, cervical screening among Nigerian women is low, it is reported that less than 7.1% of them have had cervical screening and of those who attended clinic between 2010 and 2011, a low percentage (8%) of them had HPV vaccination (Akanbi et al, 2015).

2.7 Knowledge of Cervical Cancer and Preventive Practices

Knowledge of cervical cancer and its prevention varies among different groups of people researched in various literature reviewed in this study. According to Ebu, Mupepi, Siakwa and Sampselle (2014) in their study on knowledge, practice and barriers toward cervical cancer screening in Elmina, Southern Ghana, the study showed that 93.6% among the total 392 randomly selected sexually active females aged 10–74 years had no knowledge on the risk factors, nine (2.3%) reported multiple sexual partners and being sexually active as risk factors, and 92% did not know about the prevention and treatment of cervical cancer. The majority (97.7%) had never heard of the Pap smear test. Only three (0.8%) women out of 392 had had a Pap smear test. Reasons for seeking a Pap smear test included referral, fear of cervical cancer, and radio campaigns.

In a similar study conducted among Nurses in Adobo Maternity Teaching Hospital in Ibadan by Akinpelu, Agboola and Umezurike (2018), showed that their knowledge of cervical cancer was not poor; 97.7% of the respondents have heard of cervical cancer screening as a form of cervical cancer prevention and 168 (94.9%) are familiar with the age range (between 16-65 years old) that are eligible to go for the screening, only 128 (72.3%) were aware of modern day screening equipment under the state hospital management board facilities. Only 16 (9.0%) had worked in the Screening Unit and only 8 (4.5%) had been privileged to attend refresher course training to

enhance their knowledge of screening practice. This was related to another study conducted in Yucatan, Mexico among women of reproductive age by Laura Conde-Ferráez et al. (2012) where practice of cervical cancer screening was determined by knowledge with more than 50% of the participants showing low knowledge of HPV, while 38.9% and 25% knew about Pap smear and cervical cancer and this resulted in low practice among this group of people.

A Systematic Review of Knowledge and Awareness of HPV vaccine and Acceptability to Vaccinate in Sub-Saharan Africa revealed that women's level of knowledge on cervical cancer was low. Of the 16 studies examining knowledge of cervical cancer, HPV and HPV vaccine, all noted low levels of knowledge, 3 reported low knowledge and 2 reported moderate knowledge (Perlman, Wamai, Bain, Welty, Welty and Ogembo, 2014).

Abiodun, Fatungase and Olu-Abiodun (2014) conducted a cross-sectional study to assess the knowledge, perception and predictors of uptake of cervical screening among rural Nigerian women in Odogbolu and Ikenne LGAs of Ogun State, South-West, Nigeria which showed that a large proportion (93.9%) of the 700 respondents involved in the study had poor knowledge of cervical cancer while 94% had poor perception about cervical cancer. The respondents had poor knowledge of the cause, risk factors and symptoms of cervical cancer. More than half of the respondents (n=429, 61.3%) completed secondary school or higher level while as much as 50 (7.1%) had received no formal education. One hundred and nine (15.6%) respondents were aware of cervical cancer, only 27 (3.9%) had ever had cervical screening done.

In a study among female secondary school teachers in Nnewi North LGA of Anambra State, South Eastern, Nigeria, 50.9% of the respondents knew that having multiple sexual partners was a risk factor for cervical cancer. Other risk factors that they had knowledge of include early age at first intercourse (50%), smoking (19.8%), diet (8.5%), low socioeconomic factors (5.7%) and HPV (30%). Their sources of information include radio/TV (62%), magazine/newspapers (51%), hospital (22%), friends (30%), schools (19%) and parents (10%). The highest source of information on cervical cancer was radio/TV while the least source of information was parents (Ubajaka et al, 2015).

According to a study carried out in Abakaliki to know the association between knowledge of cervical cancer/screening and attitude of teachers to immunization of adolescent girls with HPV

vaccine in Abakaliki, Nigeria, approximately 78% were aware of cervical cancer and 75% of these were aware of at least one method of cervical cancer prevention. Eighty-six percent of those aware of cervical cancer that HPV infection was the cause of cervical cancer; although only 40.3% of these knew that HPV vaccine that protected against cervical cancer was available in the city. A total of 412 teachers participated in the study (Ajah, Iyoke, Ezeonu, Ugwu, Onoh and Ibo, 2015).

2.8 Perception of Cervical Cancer Prevention

Perception also influence practice according to Akinpelu, Agboola and Umezurike (2018), in their study on awareness and perception towards the utilization of cervical cancer screening services among Nurses in Adobo Teaching Hospital in Ibadan, Nigeria, The study showed a high level of perception 106 (59.9%) among the nurses within that study and that those nurses researched had positive perception, but only 8 (19.0%) had undergone cervical cancer screening in the past.

In another similar study conducted by Nene et al. (2007) among women in Maharashtra, India, it was reported that predisposing factors that pushed the category of women researched to practice cervical cancer screening include younger age, high level of education, marital status (being), use of contraception as well as number of pregnancies.

Another contrasting angle to the perception of the cervical cancer screening was observed by Ndikom and Ofi (2012), in their study on awareness, perception and factors affecting utilization of cervical cancer screening services among women in Ibadan, Nigeria, which is a qualitative study, it was reported that the influence of knowledge on perception can be positive or negative irrespective of the level of the knowledge. They reported that the participants believed that cervical screening is important just as screening for other diseases will help in early detection and treatment which is a form of a good perception despite the fact that their knowledge is poor. The major factors identified by the women that influence screening utilization were ignorance, Illiteracy, belief in not being at risk, having many contending issues, nonchalant attitude to their health, financial constraint and fear of having a positive result.

In a study carried out by Toye, Okunade, Roberts, Salako, Oridota and Onajole (2017) among female secondary school teachers in in Mushin LGA of Lagos, Nigeria, a majority of the women

surveyed (95.7%) agreed that cervical cancer can be prevented. A large proportion (96.2%) also agreed that awareness of risk factors and healthy lifestyle can prevent cervical cancer. A vast majority of respondents (87.6%) agreed that women should be screened at least once in their lifetime while up to 76.2% of respondents favoured vaccination of their teenage girls with the HPV vaccine.

2.9 Practices towards Cervical Cancer Prevention

Akanbi et al (2015) carried out a cross-sectional survey to assess the perception of women in Oyo and Osun states about HPV, cervical cancer, Pap smear test and HPV vaccine. The study involved 737 women, 103 (14.0%) had more than 3 sexual partners, 421 (57.1%) of them had between 1 – 2 sexual partners, 64 (8.7%) of the respondents had no sexual partners while 149 (20.2%) did not disclose. Only 14.9% of the respondents had taken Pap smear test before.

According to a study carried out by Toye et al., (2017) among female secondary school teachers in in Mushin LGA of Lagos, Nigeria, more than half of the respondents (67.0%) had had at least one cervical cancer screening done previously. Among those respondents who had never been screened, the most common reason adduced for this was that they never thought that it was necessary (49.2%). Only 2.2% of the respondents have had HPV vaccine given to their female teenage children in the past and this was despite the acceptance rate of HPV vaccination being 76.2% among the respondents. The vast majority of the women (54.1%) who never had any of their children vaccinated attributed this to lack of awareness of the existence of the vaccine and its benefits.

Among female secondary school teachers in a study conducted in Nnewi, only 25% of the respondents had ever done a Pap smear while 79.5% had never done it. Of the respondents who had ever had a Pap smear, most (66.6%) of them did so for early detection and treatment, 22.2% of them did it because their husband/friend/close relative told them to do the test while another 22.2% did it because of advice from a doctor/nurse (Ubajaka et al., 2015).

A study carried out in Abakaliki by Ajah et al (2015) to know the association between knowledge of cervical cancer/screening and attitude of teachers to immunization of adolescent girls with HPV vaccine in Abakaliki, Nigeria, approximately 70% of teachers who were aware of cervical cancer were willing to recommend HPV vaccination to children under their care. Age ≥

31 years, knowledge of cervical cancer screening, knowledge of the relationship of HPV to cervical cancer and previous experience of cervical cancer screening, were significantly associated with the acceptability of HPV vaccine by secondary school teachers.

2.10 Conceptual Framework

The Health Belief Model (HBM) was one of the first theories of health behaviour, and remains one of the most widely recognized in the field. It was developed in the 1950s by a group of U.S. Public Health Service social psychologists who wanted to explain why so few people were participating in programs to prevent and detect disease. The six key concepts of this model are explained below:

Perceived Susceptibility: This refers to belief that an individual is likely to get a disease or condition. An individual may not seek care if they do not perceive themselves as being at risk of a condition.

Perceived Severity: This refers to the belief that a disease or condition has serious consequences on individual. If an individual perceives a problem as being insignificant, then little attention will be paid to it.

Perceived Benefit: The belief that taking action would reduce their susceptibility to the condition or its severity

Perceived Barriers: The belief that the costs of taking action outweigh the benefits

Cue to Action: The act of being exposed to factors that prompt action (e.g., a television ad or a reminder from one's physician to get a mammogram)

Self-efficacy: The act of having confidence in their ability to successfully perform an action

2.11 Application of the Model

Perceived Susceptibility: A female secondary school teacher who has knowledge about factors that put one at a high risk of developing cervical cancer such as having a family history of cervical cancer, tobacco smoking, having multiple sexual partners or having a sexual partner

who has multiple sexual partners may be more willing to be screened for cervical cancer and engage in other preventive practices.

Perceived Severity: A female secondary school teacher who has knowledge about the morbidity and mortality burden associated with cervical cancer and other cancers like anogenital cancer caused by persistent HPV infection is most likely going to accept being screened for cervical cancer and practice other means of prevention

Perceived Benefit: Preventive practices like HPV vaccination and cervical screening services like Pap smear offer the advantage of preventing the onset of cervical cancer or help to detect cervical pre-cancerous lesions or cancer at an early stage. These lead to a reduced risk of disability and death, increases life expectancy and ensure that the individual leads a healthier and more productive life.

Perceived Barriers: The cost of HPV vaccines, Pap smear and other screening services, the perceived stress of accessing health facilities, the unfriendly nature of healthcare providers, and the unavailability of vaccines, equipment for cervical screening or inadequate manpower are barriers which may hinder female secondary school teachers from accessing cervical screening.

Cue to Action: Information from healthcare workers, friends and family, information propagated in mass media like radio jingles sponsored by the Ministry of Health, social media campaigns to raise awareness on availability and easy accessibility of vaccines and screening services at government-owned healthcare facilities, awareness of subsidized cost of vaccines in all healthcare facilities may spur female teachers to action.

Self-efficacy: The female teacher's confidence to practice and promote cervical cancer prevention/uptake cervical screening services, confidence to promote cervical screening among colleagues at work and HPV vaccination among their female adolescent students and other females in the society.

CONCEPTUAL FRAMEWORK

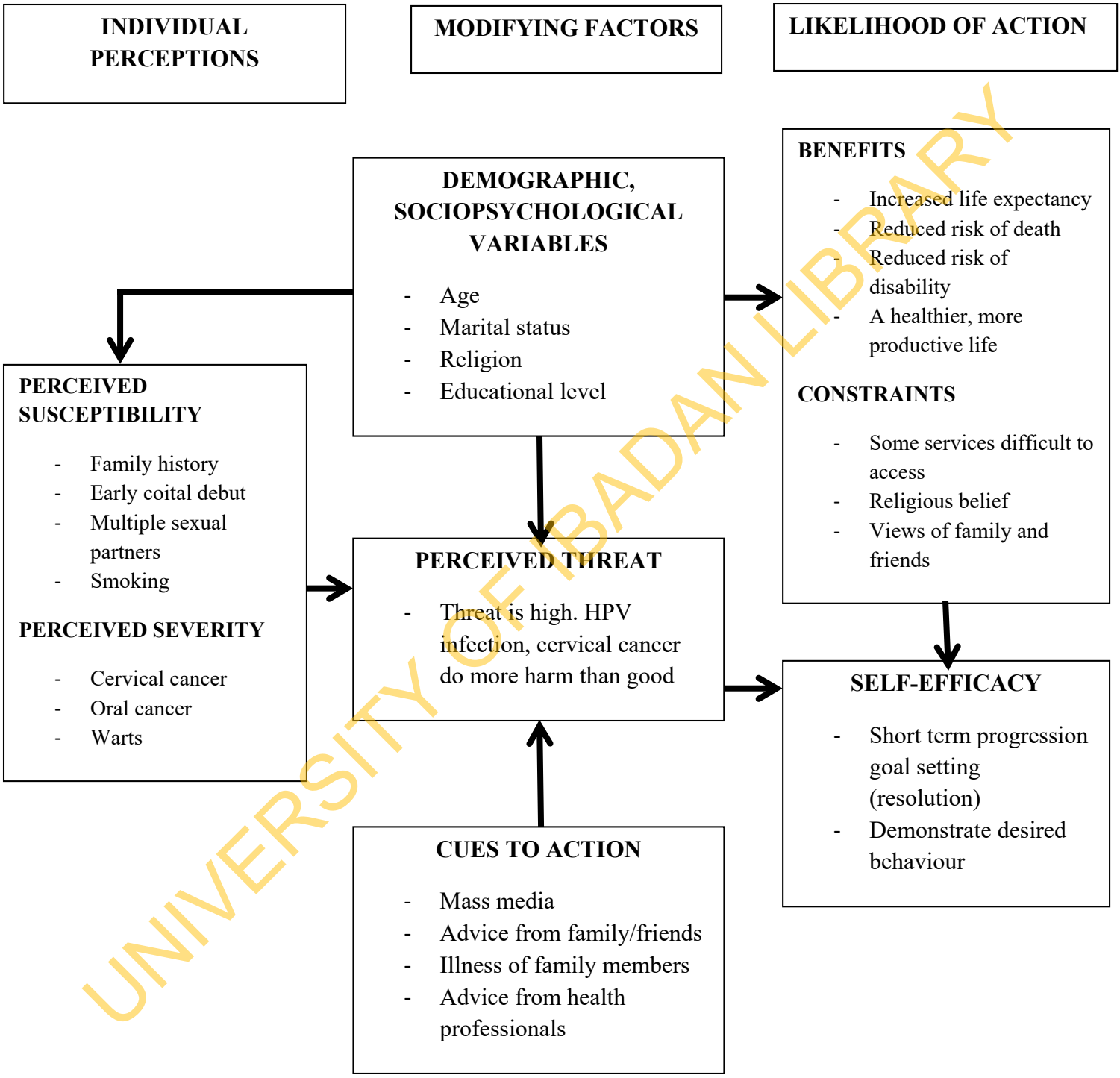

Figure 1: Application of the Health Belief Model to Practices towards Cervical Cancer Prevention

CHAPTER THREE

METHODOLOGY

3.1 Study Design

This study is a descriptive cross-sectional study focusing on female secondary school teachers in Ibadan North Local Government Area, using semi-structured self-administered questionnaire to find out their knowledge, perception and practices towards cervical cancer prevention.

3.2 Description of the Study Area

The study was carried out in Ibadan North Local Government Area (IBNLGA) of Oyo state which was created by the Federal Military Government of Nigeria on September 27, 1991. This Local Government Area (LGA) is bounded on the west by Ido and Ibadan North-West LGA. It is bounded on the east by Lagelu, Egbeda and Ibadan South-East LGAs. It is bounded on the north by Akinyele local government. Ibadan North Local Government Secretariat is situated at Agodi-Gate, opposite the Oyo State Government House, Ibadan.

Ibadan North LGA is located approximately on Longitude 8°5' East of the Greenwich Meridian and Latitude 7°23' north of the Equator. According to the 2006, National Population Census, the population of Ibadan North LGA was about 306,795 with an area of 27-kilometre square (km^2). There are twelve (12) wards in IBNLGA and the communities in the LGA include Bere, Oke Are, Adeoyo, Oje, Yemetu, Bodija, Ashi, Sabo, Mokola, Sango, Awolowo, Samonda, University of Ibadan, Agbowo, Total Garden, Ikolaba etc.

Ibadan North LGA is the largest local government in terms of population in the state with diverse socio-demographic characteristics comprising mainly of Yoruba and other ethnic groups from other parts of the country, e.g. Igbo, Hausa, Edo, Urhobo, etc. Therefore, carrying out this study at this location will ensure that the results and recommendations from the study can be adopted by other researchers working on cervical cancer prevention related study among school teachers schools in the state and the country as a whole.

There are 42 public secondary schools and 47 registered private schools in the local government with over six hundred (600) teachers. The location of the schools includes but not limited to the following areas; University of Ibadan, Bodija, Yemetu, Agbowo, Ijokodo, Mokola, Sango, Ikolaba and Sabo amongst others. In this study area, cervical cancer screenings used to be done in the University College Hospital (Konje, Ogunniyi, Otolorin, Odusoga, Ogunlusi, Obisesan, Ladipo, 1991). According to Cancer Aware Nigeria (2019) cervical cancer screenings are currently being done at ABC Foundation and Family Specialist Hospital Akobo and Family Specialist Hospital Bashorun.

3.3 Study Population

The study population consisted of female secondary school teachers in the 42 public secondary schools in IBNLGA.

3.4 Inclusion criteria

All female secondary school teachers teaching within IBNLGA who consented to participating in the study were included in the study.

3.5 Exclusion criteria

Part-time female teachers and female student-teachers on teaching practice were excluded from this study.

3.6 Sample Size Determination

The sample size for this study was estimated using Cochran formula (Cochran, 1977) formula for single proportion which is as follows;

$$n = \frac{Z^2pq}{e^2}$$ (Cochran, 1977)

Where:

n = sample size,

Z_α = standardized normal deviation which is a constant (1.96) at 95% confidence interval.

p = prevalence of HPV in Nigeria = 67.0% (Toye et al, 2017);

$1q = 1 - p$; q= 1 - 0.67= 0.33

d = degree of precision, usually set at 0.05 (margin of error at 5%)

Therefore, n = $\underline{1.96^2 \times 0.67 \times 0.33} / 0.05^2$

$$= \frac{3.8416 \times 0.25 \times 0.75}{0.0025}$$

$$= 339.751 \sim 340$$

Where, non-response rate is 10% of the sample size 340 + 34 = 374.

Therefore, the new sample size is 374.

3.7 Sampling Technique

A multi-stage random sampling technique involving two stages was employed in selecting respondents from public secondary schools in the local government. From the information gathered at the records of the Local Inspectorate of Education (LIE) office, the number of the registered public secondary schools is 42.

The stages in the sampling process are as follow:

Stage I: A list of the 42 public secondary schools and the total number of male and female teachers in each school was obtained from the State Ministry of Education. Proportionate sampling technique was used to determine the number of female teachers to be selected from each school. The proportionate number of respondents from each public school in IBNLGA is shown in table 3.7.1a and 3.7.1b

The number of respondents =

Number of female teachers in each school X $\frac{\text{Sample size}}{\text{Total number of female teachers}}$

Stage II: Simple random sampling was then used in selecting the female teachers in each school for the study.

Table 3.7.1a Total number of respondents in public schools in IBNLGA

S/N	Name of school	No of female teachers	Sample size determination	No of respondents
1	Abadina College U.I. (I) Ibadan Snr	18	18 X 374/958	7
2	Abadina College U.I. (II) Ibadan Snr	22	22 X 374/958	9
3	Abadina Grammar School, Ibadan	-	-	-
4	Ang. Comm. Gram. Schl (I) Total Garden Snr	20	20 X 374/958	8
5	Ang. Comm. Gram. School (II) Total Garden Jnr	11	11 X 374/958	4
6	Basorun/Ojoo High School	41	41 X 374/958	16
7	Bishop Onabanjo High School, Bodija	30	30 X 374/958	12
8	Chesire High School	32	32 X 374/958	12
9	Comm. Gram. School, Mokola	18	18 X 374/958	7
10	Comm. High School, Agbowo/Bodija	32	32 X 374/958	12
11	Community Grammar School, Ijokodo	22	22 X 374/958	9
12	Community High School, Samonda	20	20 X 374/958	8
13	Community Sec. School, Ikolaba	-	-	-
14	Community Sec. School, Samonda	22	22 X 374/958	9
15	Ebenezer Gram. School, Nalende	8	8 X 374/958	3
16	Humani Alaga High School, Sango	14	14 X 374/958	5
17	I.M.G. Gram. School, Yemetu Aladorin	23	23 X 374/958	9
18	I.M.G. Gram. School, Yemetu Igosun	25	25 X 374/958	10
19	Ijokodo High School	32	32 X 374/958	12
20	Ikolaba Grammar School	40	40 X 374/958	16

21	Ikolaba High School, Ikolaba	33	33 X 374/958	13
22	Immanuel College High Sch. (I), Orita U.I.	22	22 X 374/958	9
23	Immanuel College High Sch. (II), Orita U.I.	15	15 X 374/958	6
24	Immanuel Grammar Sch. (I), Orita U.I.	26	26 X 374/958	10
25	Islamic Day Secondary School, Basorun	31	31 X 374/958	12

Table 3.7.1b Total number of respondents in public schools in IBNLGA

S/N	Name of school	No of female teachers	Sample size determination	No of respondents
26	Islamic High Scool, Basorun	51	51 X 374/958	20
27	Methodist Gram.School (I), Bodija Snr	23	23 X 374/958	9
28	Methodist Gram.School (II), Bodija Snr	17	17 X 374/958	7
29	Methodist Sec. School, Bodija	27	27 X 374/958	11
30	Mount Olivet Grammar School	28	28 X 374/958	11
31	Nawar-ul-deen High School, Nalende	11	11 X 374/958	4
32	Oba Akinbiyi H/S I, Mokola Cultural Centre	24	24 X 374/958	9
33	Oba Akinbiyi H/S II, Mokola-Oremeji	22	22 X 374/958	9
34	Oba Akinyele Memorial High School	35	35 X 374/958	14
35	Polytechnic High School, Polytechnic Campus	33	33 X 374/958	13
36	St Brigids Sec. School, Mokola	11	11 X 374/958	4
37	St. Gabriel Sec. Comm. G/S (I), Sabo Snr	7	7 X 374/958	3
38	St. Gabriel Sec. Comm. G/S (II), Sabo Snr	9	9 X 374/958	4
39	St. Louis Grammar School (I), Mokola	23	23 X 374/958	9
40	St. Louis Grammar School (II), Mokola	17	17 X 374/958	7
41	St. Patrick Gram. School, Orita Basorun	42	42 X 374/958	16
42	United Secondary School, Ijokodo	20	20 X 374/958	8
	Grand Total	**958**		**374**

3.8 Method and Instrument for Data Collection

Quantitative data was collected in this study through the use of semi-structured self-administered questionnaire and copies of the questionnaire were serially numbered. The questionnaire was developed using information obtained from literature review on knowledge, perception and practices towards cervical cancer and its prevention. The questionnaire was structured into five sections in order to measure the variables that were identified according to the health belief model and literature search. The sections were:

Section A: Demographic Information

These included age (as at last birthday), ethnicity, religion, family background, level of education, discipline, years of experience and position held in the school. The responses will be analysed based on frequencies of the respondents.

Section B: Knowledge Section

Questions asked were intended to measure their knowledge of cervical cancer symptoms and signs, HPV infection, risk factors, HPV vaccination and cervical screening techniques which includes Pap smear test.

Section C: Perception Section

This section focused on the perception of severity and susceptibility of cervical cancer, the perception of HPV vaccination, perception of factors that influence uptake of cervical screening services, perception about positive result at early stage of the disease.

Section D: Practices towards Cervical Cancer Prevention

This section focused on practices towards cervical cancer prevention with reference to safe sex practices, HPV vaccination, cervical screening.

3.9 Validity of Instrument

In order to ensure the validity of the instrument, an extensive review of literature was done in designing the instrument. The questionnaire was given to the project supervisor, lecturers within the Health Promotion department. The supervisor's corrections and suggestions were used to improve the draft before the actual administration of the questionnaire to the study participants.

3.10 Reliability of Instrument

The questionnaire was pretested among female teachers in public secondary schools in Ibadan North-East LGA which have a similar socio-demographic characteristic with the study population. The questionnaires were administered among 38 teachers (10% of the sample size). A coding guide was developed and used to enter the data into a computer facilitated by the use of the Statistical Package for the Social Scientists (SPSS) version 22 followed by data analysis using descriptive statistics such as percentages and bar chart. Inferential statistics employed the use of Chi-square to test the level of significance at 0.05% level of significance.

The instrument's reliability was determined using the Cronbach alpha model technique and a reliability coefficient of 0.9 was obtained. The outcome of the pre-test was used to correct and modify the questions that were ambiguous to the respondents.

3.11 Data Collection Procedure

For this study, serially numbered self-administered questionnaires were used. Data was collected by the researcher and three (3) properly trained research assistants. Both the benefits and the possible harms that may arise as a result of participating in the study were explained to the respondents. The informed consent forms (attached to the questionnaires) were distributed to the potential respondents after they would have been given adequate information about the study. Instructions and directions on how to respond to the items in the questionnaire were read to the respondents for adequate understanding. Then, after the questionnaires had been filled, the researcher and assistants checked for completeness and errors before leaving the field.

3.12 Data Management and Analysis

Copies of the questionnaire were reviewed to ensure completeness and accuracy. A coding guide was developed to facilitate data entry and entered into a computer. The analysis was facilitated by using SPSS version 22.

Every correct response for questions in sections on knowledge relating cervical cancer prevention among respondents, perception of cervical cancer prevention among respondents, practices towards cervical cancer prevention among respondents was scored 1 while wrong responses were scored 0.

Respondents' knowledge of cervical cancer prevention was measured on a 46-point knowledge scale. Knowledge Score (KS) of ≤14 was rated as poor knowledge, KS of >14≤29 was considered fair and KS ≥29 was rated as good knowledge. Respondents' perception towards cervical cancer prevention was measured on an 18-point perception scale. Perception Score of ≤8 was rated as negative perception and perception score >8 – 18 was rated as positive perception. Respondents' practice towards cervical cancer prevention was measured on a 15-point scale. Practice Score of ≤7 was rated as poor practice and practice score >7 – 15 was rated as good practice. The result was presented using descriptive statistics such as mean, mode, minimum, maximum, standard deviation, percentages and bar charts. Chi-square was used to test if there were significant differences between the categorical variables e.g. knowledge of cervical cancer prevention.

3.13 Ethical consideration

Ethical clearance was obtained from the Oyo State Ethical Review Committee before the study was conducted. Approval to carry out the study was also obtained from the Oyo State Ministry of Education, Teaching Service Commission and principals of the selected schools. Informed consent was obtained from each participant after explaining to them the purpose and objectives of the study.

The confidentiality of the responses was ensured by not having any form of identifiers such as name or name of the school. The respondents were also adequately informed about the voluntary nature of participation, the right to withdraw from the study, the benefits of participating in the study and risks associated with the study.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic Characteristics of Respondents

Out of the total 374 respondents recruited in this study, majority 143 (38.2%) of the respondents were between the ages of 41 to 50 years with the mean age of 42.3 ± 9.2. Among the respondents, 195 (52.1%) teach senior secondary classes while 179 (47.9%) of the respondents teach junior secondary classes. Most of the respondents 297 (79.4%) are married with 75.4% of the respondents practicing monogamous type of marriage. Majority (62.3%) of the respondents practiced Christianity. More than half (56.4%) of the respondents have a Bachelor's degree as their highest educational qualification while 45.2% of the respondents' husbands' have a Bachelor's degree. One third (36.9 %) of the respondents teach classes in the commercial discipline while 30.5% teach classes in the sciences. Few (20.9%) of the respondents' have husbands who are academicians while 20.6% are business men (see table 4.1 for details). One third (34.5%) of the respondents have three (3) children and half (50.3%) of the respondents earn an average monthly income within the range of fifty-one thousand naira to one hundred thousand naira (₦51,000-₦100,000).

Table 4.1a Socio-demographic Characteristics of Respondents (n=374)

Variables	Frequency	Percentage (%)
Age (in years)		
20-30	47	12.6
31-40	110	29.4
41-50	143	38.2
51-60	74	19.8
Class		
Junior secondary	179	47.9
Senior secondary	195	52.1
Marital status		
Single	49	13.1
Married	297	79.4
Widowed	20	5.3
Separated	8	2.1
Type of marriage		
Monogamy	245	75.4
Polygamy	80	24.6
Religion		
Christianity	233	62.3
Islam	138	36.9
Traditional	2	0.5
Others	1	0.3
Ethnicity		
Yoruba	333	89.0
Igbo	22	5.9
Hausa	11	2.9
Others	8	2.1
Highest educational qualification		
NCE	42	11.2
HND	54	14.4
Bachelor degree	211	56.4
Master degree	63	16.8
PhD	3	0.8
Others	1	0.3

Table 4.1b Socio-demographic Characteristics of Respondents (n=374)

Characteristics	Frequency	Percentage (%)
Husband's educational qualification		
NCE	3	0.9
HND	64	19.7
Bachelor degree	147	45.2
Master degree	77	23.7
PhD	27	8.3
Others	7	2.2
Discipline		
Arts	102	27.3
Commercial	138	36.9
Science	114	30.5
Others	20	5.3
Husband's occupation		
Academician	68	20.9
Business	67	20.6
Civil servant	62	19.1
Artisan	69	21.2
Others	59	18.2
Number of children		
1	23	7.1
2	79	24.3
3	112	34.5
4	78	24.0
5	27	8.3
6	5	1.5
10	1	0.3
Average monthly income		
<50000	174	46.5
51000-100000	188	50.3
101000-150000	10	2.7
151000-200000	1	0.3
201000-250000	1	0.3

4.2 Knowledge of Cervical Cancer and Cervical Cancer Prevention

Most (85.8%) of the respondents had heard of cervical cancer. Social media (24.0%) and medical personnel (23.4%) were the most common sources of information. Majority (66.0%) of the respondents was able to answer correctly, that cervical cancer is a major cancer that occurs in women while half (50%) of them believed that human papillomavirus (HPV) causes cervical cancer. More than half of the respondents (54.5%) did not know whether HPV is sexually transmitted while 48.1% did not know if cervical cancer can be transmitted from parents to children (Table 4.2a).

Many (68.4%) of the respondents knew that females who have more than one sexual partners are at risk of developing cervical cancer, 49.7% identified that female circumcision can put women at risk of having cervical cancer while 43.3% said smoking cannot put women at risk of cervical cancer and 59.4% believed that husband having multiple sexual partners can put women at risk of having cervical cancer. More than one third (43.3%) of the respondents did not know if weight gain is a symptom experienced by someone with cervical cancer, 65.5%said foul-smelling vaginal discharge is a symptom of cervical cancer, 54.3%, 53.7% and 53.2% said abnormal vaginal discharge, bleeding after sexual intercourse and painful sexual intercourse respectively are symptoms of cervical cancer (Table 4.2b).

Many (68.2%) of the respondents knew that cervical cancer is preventable by HPV vaccination and a higher proportion (71.7%) believed that cervical cancer can be prevented by avoiding multiple sexual partners, (51.6%) did not believed that cervical cancer can be prevented by cigarette smoking, 74.6% said cervical cancer can be prevented by cervical screening (see table 4.2c for details).

About one third (37.7%) of the respondents incorrectly said that HPV vaccination cures cervical cancer, 40.4% stated that HPV vaccines can be given to females who have already had sex and 48.1% said HPV vaccine can lessen the chance of having genital warts. Furthermore, 69.3% believed that cervical screening is used to detect cervical cancer early while 72.2% believed that early detection of cervical cancer is good for treatment outcome. Majority (70.9%) of the respondents said Pap smear can be used to detect cervical cancer before symptoms appear, 47.6%saidVisual Inspection with Acetic acid can be used to detect cervical cancer before

symptoms appear, 54.8% did not know if Visual Inspection with Lugols Iodine can be used to detect cervical cancer while 59.4%believed that HPV test can be used to detect cervical cancer. More than half (59.9%) of the respondents stated that women greater than or equal to 30 years should be screened for cervical cancer while 56.1% said that women less than or equal to 21 years of age should be screened for cervical cancer. Some (47.6%) said the screening interval should be every year, 54.0% said it should not be every two years, 57.5% said it should not be every three years while 65.2% said it should not be only when symptoms arise.

Mean knowledge score obtained by the respondents was 22.6±0.7. The respondent's category of knowledge scores was as follow: 20.1% had poor knowledge on cervical cancer scoring 0-14 point on a 46-point knowledge scale, 49.2% of the respondents had fair knowledge of cervical cancer scoring >14-29 point on a 46-point knowledge scale while 30.7% of the respondents had good knowledge scoring >29 points on the same scale (Table 4.2).

Table 4.2a: Respondents' Knowledge of Cervical Cancer (n=374)

Variables	Frequency	Percentage (%)
Ever heard of cervical cancer		
Yes	321	85.8
No	51	13.6
I didn't know	2	0.5
Source of information on cervical cancer		
Radio	50	15.6
Television	66	20.6
Social media	77	24.0
Internet search engine	16	5.0
Friends	22	6.9
Family	4	1.2
Hospital/medical personnel	75	23.4
Newspapers	8	2.5
Other sources	3	0.8
Cervical cancer is a major cancer seen in women		
Yes	247	66.0
No	40	10.7
I didn't know	87	23.3
Human Papillomavirus (HPV) causes cervical cancer		
Yes	187	50.0
No	20	5.3
I didn't know	167	44.7
Cervical cancer can be transferred from parents to children		
Yes	78	20.9
No	116	31.0
I didn't know	180	48.1
HPV is sexually transmitted		
Yes	103	27.5
No	67	17.9
I didn't know	204	54.5

Table 4.2b: Respondents' Knowledge of Cervical Cancer (n=374)

Variables	Frequency	Percentage (%)
Female having more than one sexual partner		
Yes	256	68.4
No	31	8.3
I didn't know	87	23.3
Female circumcision		
Yes	186	49.7
No	59	15.8
I didn't know	129	34.5
Smoking		
Yes	84	22.5
No	162	43.3
I didn't know	128	34.2
Husband having multiple sexual partners		
Yes	222	59.4
No	68	18.2
I didn't know	84	22.5
Good Hygiene		
Yes	51	13.6
No	222	59.4
I didn't know	101	27.0
Early age of marriage at less than 18 years		
Yes	156	41.7
No	54	14.4
I didn't know	164	43.9
Family history of cervical cancer		
Yes	113	30.2
No	100	26.7
I didn't know	161	43.0
Witchcraft		
Yes	56	15.0
No	209	55.9
I didn't know	109	29.1
Pregnancy at an early age		
Yes	124	33.2
No	98	26.2
I didn't know	152	40.6

Table 4.2c: Respondents' Knowledge of Cervical Cancer (n=374)

Variables	Frequency	Percentage (%)
Sexual intercourse at the age of 16 or less		
Yes	178	47.6
No	70	18.7
I didn't know	126	33.7
Sexually transmitted disease		
Yes	202	54.0
No	64	17.1
I didn't know	108	28.9
Someone with cervical cancer may experience the following symptoms:		
Weight gain		
Yes	64	17.1
No	148	39.6
I didn't know	162	43.3
Foul-smelling vaginal discharge		
Yes	245	65.5
No	36	9.6
I didn't know	93	24.9
Abnormal vaginal discharge		
Yes	203	54.3
No	54	14.4
I didn't know	117	31.3
Regular menstruation		
Yes	155	41.4
No	70	18.7
I didn't know	149	39.8
Menstrual bleeding heavier than normal		
Yes	192	51.3
No	32	8.6
I didn't know	150	40.1
Painful sexual intercourse		
Yes	199	53.2
No	25	6.7
I didn't know	150	40

Table 4.2d: Respondents' Knowledge of Cervical Cancer (n=374)

Variables	Frequency	Percentage (%)
Bleeding after sexual intercourse		
Yes	201	53.7
No	25	6.7
I didn't know	148	39.6
Cervical cancer is preventable by:		
HPV vaccination		
Yes	255	68.2
No	26	7.0
I didn't know	93	24.9
Avoiding multiple sexual partners		
Yes	268	71.7
No	34	9.1
I didn't know	72	19.3
Cigarette smoking		
Yes	73	19.5
No	193	51.6
I didn't know	108	28.9
Cervical screening		
Yes	279	74.6
No	18	4.8
I didn't know	77	20.6
Avoiding early sexual intercourse		
Yes	223	59.6
No	33	8.8
I didn't know	118	31.6
HPV vaccination cures cervical cancer		
Yes	141	37.7
No	75	20.1
I didn't know	158	42.2

Table 4.2e: Respondents' Knowledge of Cervical Cancer (n=374)

Variables	Frequency	Percentage (%)
HPV can be given to females who have already had sex		
Yes	151	40.4
No	48	12.8
I didn't know	175	46.8
HPV vaccine can lessen the chance of having genital warts		
Yes	180	48.1
No	35	9.4
I didn't know	159	42.5
Cervical screening is used to detect cervical cancer early		
Yes	259	69.3
No	21	5.6
I didn't know	94	25.1
Is early detection of cervical cancer good for treatment outcome		
Yes	270	72.2
No	17	4.5
I didn't know	87	23.3
Early cervical changes are easily curable		
Yes	265	70.9
No	21	5.6
I didn't know	88	23.5
Pap smear		
Yes	262	70.1
No	13	3.5
I didn't know	99	26.5
Visual inspection with acetic acid		
Yes	178	47.6
No	28	7.5
I didn't know	168	44.9
Visual inspection with Lugols iodine		
Yes	141	37.7
No	28	7.5
I didn't know	205	54.8

Table 4.2f: Respondents' Knowledge of Cervical Cancer (n=374)

Variables	Frequency	Percentage (%)
HPV test		
Yes	222	59.4
No	17	4.5
I didn't know	135	36.1
Colposcopy		
Yes	157	42.0
No	30	8.0
I didn't know	187	50.0
Cervical biopsy		
Yes	213	57.0
No	31	8.3
I didn't know	130	34.8
Who should be screened for cervical cancer (women greater than or equal to 30 years of age)		
Yes	224	59.9
No	77	20.6
I didn't know	73	19.5
Women less than or equal to 21 years of age		
Yes	210	56.1
No	72	19.3
I didn't know	92	24.6
What should be the screening interval (every year		
Yes	178	47.6
No	97	25.9
I didn't know	99	26.5
Two years		
Yes	74	19.8
No	202	54.0
I didn't know	98	26.2
Three years		
Yes	65	17.4
No	215	57.5
I didn't know	94	25.1
Screen only when symptoms arise		
Yes	56	15.0
No	244	65.2
I didn't know	74	19.8

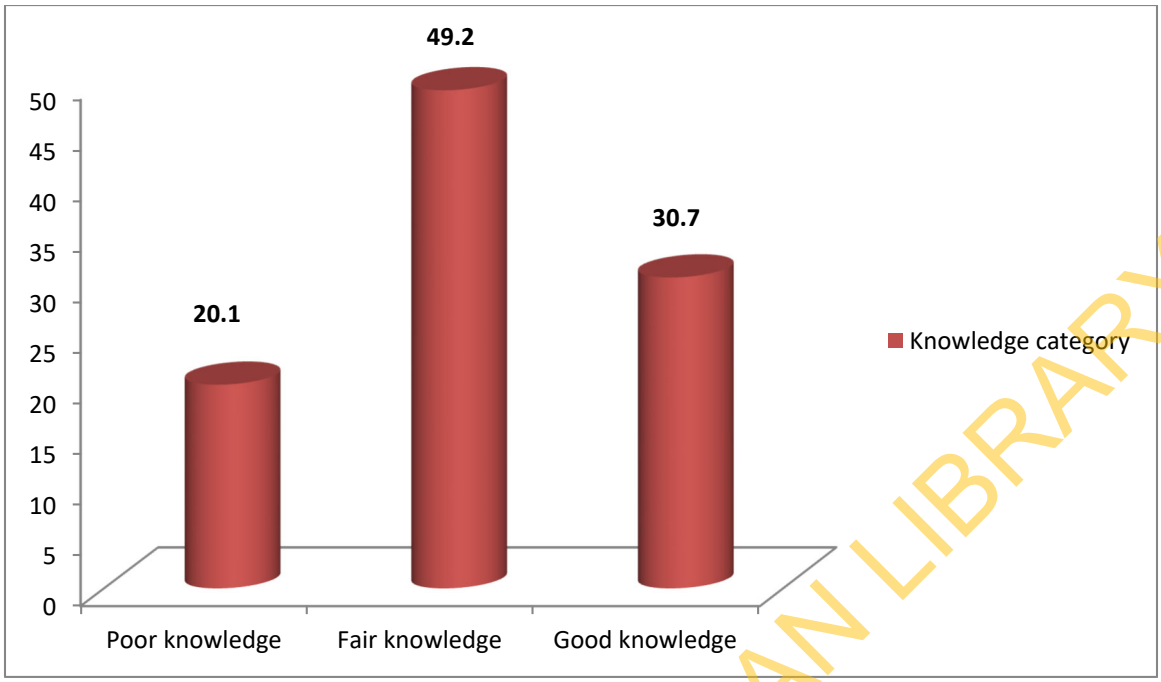

Figure 4.1: Knowledge of Respondents on Cervical Cancer

4.3 Perceptions of Cervical Cancer and Cervical Cancer Prevention

Table 4.3 presents respondents' perception of cervical cancer and cervical prevention. Respondents mean perception score was 11.9±3.3, proportion of respondents' level of perception of cervical cancer was as follows: 13.6% had negative perception (0-8), while 86.4% had positive perception (>8-18) on cervical cancer all on an 18-point perception scale. Many (73.3%) of the respondents disagreed that they cannot develop cervical cancer because they are young while most (83.7%) of the respondents disagreed that cervical cancer is not serious because the doctor did not tell them about It. Also, 70.9% of the respondents agreed that majority of women did not have information on cervical cancer, and 79.4% disagreed that it is embarrassing to go for Pap smear test, while many (75.1%) disagreed that only promiscuous women go for cervical screening. Most (82.1%) disagreed that going for screening is a lack of faith in God and (80.5%) respondents disagreed that cervical screening is for the rich.

Two hundred and forty-two (64.7%) agreed that if tested positive for cervical cancer at an early stage, they can receive effective treatment and few (10.2%) respondents agreed that they will lose their virginity during the screening. Also, (76.7%) of the respondents agreed that appropriate sex education will help teenage girls avoid risk factors for HPV infection. Many (74.1%) of the respondents agreed that majority of girls did not have information on HPV vaccination, may while, (9.9%) of the respondents agreed that that HPV vaccine can expose them to other infection and (5.6%) agreed that their students are too young to get HPV vaccination (Table 4.3 for details).

Table 4.3a: Perception of Respondents on Cervical Cancer and Cervical Cancer Prevention (n=374)

Statement	Agree		Undecided		Disagree	
	N	(%)	N	(%)	N	(%)
I am young and cannot develop cervical cancer	48	12.8	52	13.9	274	73.3
The doctor did not tell me about cervical cancer, so it is not a serious disease	15	4.0	46	12.3	313	83.7
Majority of women did not have information on cervical screening	265	70.9	24	6.4	85	22.7
It is embarrassing to go for pap smear test	22	5.9	55	14.7	297	79.4
Only promiscuous women go for cervical screening	36	9.6	57	15.2	281	75.1
The procedure for cervical cancer screening is painful	48	12.8	168	44.9	158	42.2
Going for screening is a lack of faith in God	12	3.2	55	14.7	307	82.1
Cervical screening is for the rich	8	2.1	65	17.4	301	80.5
Pap smear test is expensive	55	14.7	145	38.8	174	46.5
I will be stigmatized if i test positive	55	14.7	55	14.7	264	70.6
If i test positive for cervical cancer at an early stage, i can receive effective treatment	242	64.7	62	16.6	70	18.7
I will lose my virginity during the screening	38	10.2	107	28.6)	229	61.2
Cervical cancer is a disease of illiterates	20	5.3	34	9.1	320	85.6
HPV vaccination is unnecessary for teenage girls	55	14.7	121	32.4	198	52.9
Appropriate sex education will help teenage girls avoid risk factors for HPV infection	287	76.7	29	7.8	58	15.5
Majority of girls did not have information on HPV vaccination	277	74.1	39	10.4	58	15.5
HPV vaccine can expose me to other infections	37	9.9	131	35.0	206	55.1
My students are too young to get HP vaccination	21	5.6	136	36.4	217	58.0

Table 4.3b: Respondents' perception score of cervical cancer and its prevention

Perception of cervical cancer	Frequency	Percentage (%)
Negative (0 – 8)	51	13.6
Positive (>8 – 18)	323	86.4
Total	374	100.0

*Mean perception score: 11.9±3.3

*Scale: 18 point

*Negative perception score (0-8)

*Positive perception score (>8-18)

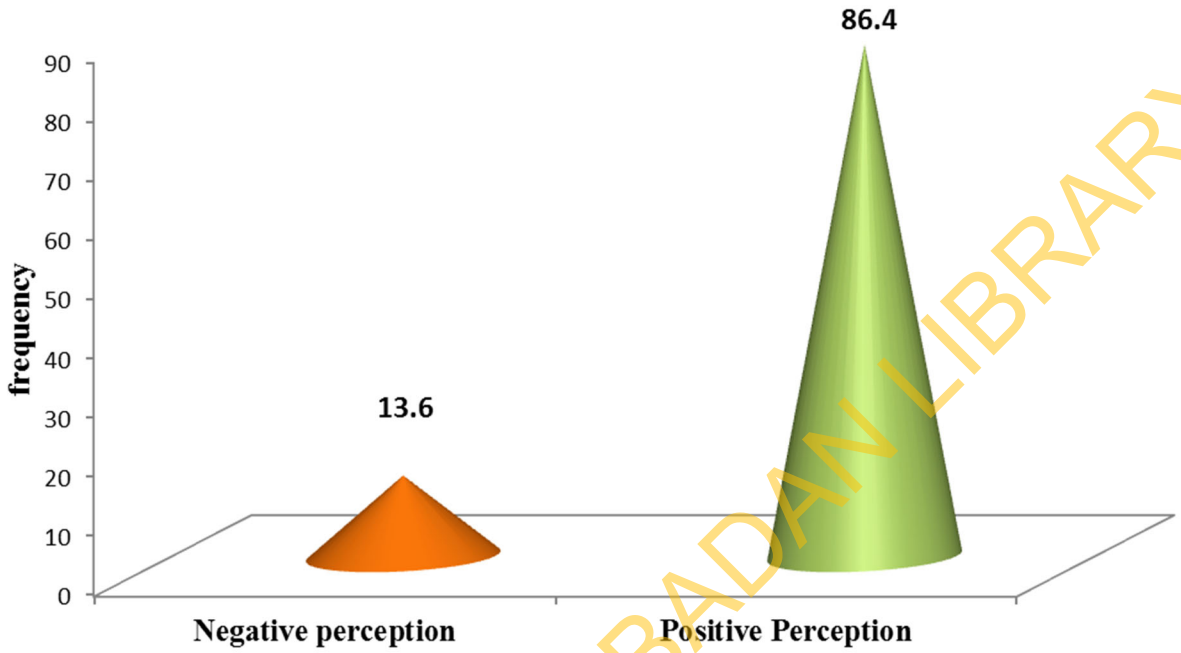

Figure 4.2: Perception of Cervical Cancer

4.4 Respondents' Practices towards Cervical Cancer and Cervical Cancer Prevention

Majority (90.1%) of the respondents never had HPV vaccination while (78.9%) of respondents have not had Pap smear test before and 50.2% did not plan to have Pap smear test in the nearest future. Many (78.3%) of the respondents were willing to recommend Pap smear to other women, and to participate in a national cervical screening programme, 287 (76.7%)

Many (62.3%) of respondents have had a female child but 71.9% of these never had their female teenage children vaccinated of HPV, though more than half (52.4%) would allow their female teenage children to be vaccinated of HPV.

Less than one third (25.9%) of the respondents have never examined their vagina for possible abnormalities while few (10.7%) said they wash their vagina with soap and water regularly. Some (48.7%) of respondents eats fruit and vegetable to prevent cervical cancer. Many (75.7%) of respondents reported that they take measures to avoid contracting sexually transmitted infections (STI), more than half (57.5%) of respondents said they avoided oral contraceptive due to its side effects, and few (27.0%) said they have never gone for treatment when they see any sign of STI.

Mean practice score obtained by the respondents was 6.94±2.5. The respondents' category of practice scores was: 54.5% had poor practice towards cervical cancer scoring 0-7 point on a 15-point scale while 45.5% of respondents had good practice scoring >7-15 points on the same scale (Figure 4.3).

Table 4.4a: Respondents' Practices towards Cervical Cancer Prevention (n=374)

Variables	Frequency	Percent (%)
I have had HPV vaccination before		
Yes	37	9.9
No	337	90.1
I have had pap smear test before		
Yes	79	21.1
No	295	78.9
If no, did you plan to have pap smear test in the nearest future?		
Yes	147	49.8
No	148	50.2
Are you willing to recommend pap smear to other women		
Yes	293	78.3
No	81	21.7
I am willing to participate in a national cervical screening programme		
Yes	287	76.7
No	87	23.3
Did you have a female child?		
Yes	233	62.3
No	141	37.7
I have had HPV vaccine given to my female teenage child		
Yes	105	28.1
No	269	71.9
I will allow HPV vaccination of my female teenage child		
Yes	196	52.4
No	178	47.6
I examine my vagina for possible abnormality		
Always	85	22.7
Occasionally	192	51.3
Never	97	25.9

Table 4.4b: Respondents' Practices towards Cervical Cancer Prevention

Variables	Frequency	Percent (%)
I wash my vagina with soap regularly		
Always	40	10.7
Occasionally	98	26.2
Never	236	63.1
I eat fruit and vegetable to prevent cervical cancer		
Always	182	48.7
Occasionally	147	39.3
Never	45	12.0
I did not keep multiple sexual partners		
Always	250	66.8
Occasionally	31	8.3
Never	93	24.9
I take measures to avoid contracting sexually transmitted infections (STI)		
Always	283	75.7
Occasionally	56	15.0
Never	35	9.4
I avoid oral contraceptives due to its side effects		
Always	215	57.5
Occasionally	100	26.7
Never	59	15.8
I go for treatment when i see any sign of STI		
Always	178	47.6
Occasionally	95	25.4
Never	101	27.0

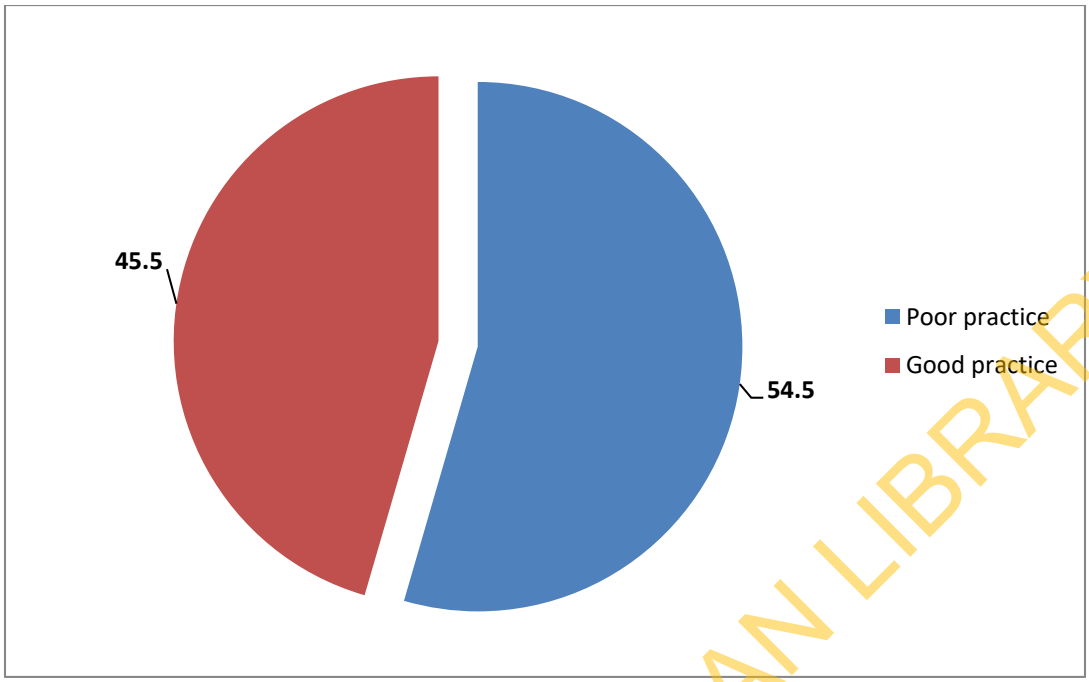

Figure 4.3: Practices towards Cervical Cancer Prevention

*Mean practice 6.9±2.5

*Scale: 15 point

*Good practice: 0-7

*Poor practice >7-15

4.5 Test of Hypotheses

4.5.1 Hypothesis 1

There is no significant association between socio-demographic characteristics and the teachers' level of knowledge of cervical cancer prevention among female public school teachers in Ibadan North Local Government Area, Oyo State.

Table 4.5 presents the result of the cross tabulations between respondents' knowledge and socio-demographic characteristics.

Fischer Exact analysis revealed that there was no significant association between knowledge of cervical cancer and socio-demographic characteristics of respondents to cervical cancer with a p-value < 0.05. Thus, we accept the null hypothesis that there is no significant association in respondents' knowledge and socio-demographic characteristics.

Table 4.5a: Association between Respondents' Level of Knowledge and Socio-Demographic Characteristics

Socio-demographic characteristics	Poor knowledge *f*	(%)	Fair knowledge *f*	(%)	Good knowledge *f*	(%)	X^2	Df	P-value
Age									
20-30	12	(3.2)	21	(5.6)	14	(3.7)	17.606	8	0.016**
31-40	34	(9.1)	43	(11.5)	33	(8.8)			
41-50	21	(5.6)	76	(20.3)	45	(12.0)			
51-60	8	(2.1)	43	(11.5)	23	(6.1)			
61-70	0	(0)	1	(0.3)	0	(0)			
Class taught									
Junior secondary	37	(9.9)	83	(22.2)	59	(15.8)	1.170	2	0.552
Senior secondary	38	(10.2)	101	(27.0)	56	(15.0)			
Marital status									
Single	15	(4.0)	19	(5.1)	15	(4.0)	5.917	6	0.419
Married	56	(15.0)	151	(40.4)	90	(24.1)			
Widowed	2	(0.5)	10	(2.7)	8	(2.1)			
Separated	2	(0.5)	4	(1.1)	2	(0.5)			
Type of marriage									
Monogamy	47	(14.5)	135	(41.5)	63	(19.4)	11.710	2	0.003*
Polygamy	13	(4.0)	30	(9.2)	37	(11.4)			
Religion									
Christianity	48	(12.8)	119	(31.8)	66	(17.6)	5.543	6	0.426
Islam	26	(7.0)	64	(17.1)	48	(12.8)			
Traditional	1	(0.3)	0	(0.0)	1	(0.3)			
Others	0	(0)	1	(0.3)	0	(0)			

***Significant**

****Fisher's exact test**

Table 4.5b: Association between respondents' level of knowledge and socio-demographic characteristics

Socio-demographic Characteristics	Poor knowledge		Fair knowledge		Good knowledge		X^2	Df	P-value
Ethnicity									
Yoruba	65	(17.4)	163	(43.6)	105	(28.1)	6.042	6	0.398
Igbo	7	(1.9)	11	(2.9)	4	(1.1)			
Hausa	3	(0.8)	6	(1.6)	2	(0.5)			
Others	0	(0)	4	(1.1)	4	(1.1)			
Highest educational qualification									
NCE	8	(2.1)	16	(4.3)	18	(4.8)	13.451	10	0.143
HND	12	(3.2)	25	(6.7)	17	(4.5)			
Bachelor degree	40	(10.7)	114	(30.5)	57	(15.2)			
Master degree	14	(3.7)	29	(7.8)	20	(5.3)			
PhD	0	(0)	0	(0)	3	(0.8)			
Others	1	(0.3)	0	(0)	0	(0)			
Husband's educational qualification									
NCE	1	(0.3)	1	(0.3)	1	(0.3)	13.019	10	0.709
HND	15	(4.6)	34	(10.5)	15	(4.6)			
Bachelor degree	23	(7.1)	74	(22.8)	50	(15.4)			
Master degree	15	(4.6)	39	(12.0)	23	(7.1)			
PhD	2	(0.6)	15	(4.6)	10	(3.1)			
Others	4	(1.2)	2	(0.6)	1	(0.3)			
Discipline									
Arts	18	(4.8)	57	(15.2)	27	(7.2)	18.128	6	0.005*
Commercial	41	(11.0)	52	(13.9)	45	(12.0)			
Science	14	(3.7)	65	(17.4)	35	(9.4)			
Others	2	(0.5)	10	(2.7)	8	(2.1)			

***Significant**

Table 4.5c: Association between respondents' level of knowledge and socio-demographic characteristics

Socio-demographic characteristics	Poor knowledge		Fair knowledge		Good knowledge		X^2	Df	P-value
Average monthly income									
	F	**(%)**	**F**	**(%)**	**F**	**(%)**			
<50000	53	(14.2)	74	(19.8)	47	(12.6)	25.935	8	0.000*
51000-100000	20	(5.3)	104	(27.8)	64	(17.1)			
101000-150000	2	(0.5)	5	(1.3)	3	(0.8)			
151000-200000	0	(0)	0	(0)	1	(0.3)			
201000-250000	0	(0)	1	(0.3)	0	(0)			

4.5.2 Hypotheses 2

There is no significant association between level of knowledge of cervical cancer and teachers' perception of cervical cancer prevention among female public school teachers in Ibadan North Local Government Area, Oyo State.

Table 4.6 presents the result of the cross tabulations between respondents' knowledge and perception of cervical cancer among teachers of public school

Chi-Square analysis revealed that there was no significant association between knowledge of cervical cancer and perception of respondents with a p-value < 0.05. Thus, we accept the null hypothesis that there is no significant association in respondents' knowledge and perception.

Table 4.6: Association between respondents' level of knowledge and perception

Variables	Knowledge score category						X^2	Df	P-value
Perception category	**Poor**		**Fair**		**Good**				
	F	**(%)**	**F**	**(%)**	**F**	**(%)**			
Negative perception	13	3.5	29	7.8	9	2.4	4.872	2	0.084
Positive perception	62	16.6	155	41.4	106	28.3			
Total	75	20.1	184	49.2	115	30.7			

4.5.3 Hypotheses 3

There is no significant association between perception of cervical cancer and preventive practices of cervical cancer among female public school teachers in Ibadan North Local Government Area, Oyo State.

Table 4.7 presents the result of the cross tabulations between respondents' perception of cervical cancer and preventive practices among teachers of public school

Chi-Square analysis revealed that there is no significant association between perception of respondents and practice with a p-value < 0.05. Thus, we accept the null hypothesis that there is no significant association in respondents' perception and practice.

Table 4.7: Association between respondents' level of knowledge and perception

Variables	Perception category				X^2	Df	P-value
Practice category	**Negative (%)**		**Positive (%)**				
Poor practice	27	7.2	177	47.3	0.061	1	0.880
Good practice	24	6.4	146	39.0			
Total	51	13.6	323	86.3			

CHAPTER FIVE

Discussion, Conclusion and Recommendation

5.0 Discussion

The study investigated the knowledge, perception and practices towards cervical cancer prevention among female public secondary school teachers in Ibadan North Local Government Area of Oyo State. This chapter explains the results provided in chapter four. The key findings of this study include fair knowledge of cervical cancer, positive perception of cervical cancer prevention but poor preventive practices towards cervical cancer.

5.1 Participants' Socio-demographic Characteristics

In this study, a large proportion of the respondents (79.4%) were married (75.4% - Monogamy and 24.6% - Polygamy) which is similar to a study conducted among teachers in Nnewi North LGA of Lagos State by (Ubajaka et al, 2015) where 71.1% of the respondents were married. This proportion is unsurprising because the teachers' population generally comprises adults within the marriageable age group.

Majority of the respondents (89.0%) of the respondents were from the Yoruba ethnic group, which is most likely due to the fact that the study was conducted in Oyo State, South-Western Nigeria which predominantly consists of the Yoruba ethnic group. Christianity is the religion practiced by the majority (62.3%) of respondents while 36.9% practice Islam which is similar to another study conducted among teachers in Abakaliki, located in the South East of Nigeria where majority of the respondents also practiced Christianity (Ajah et al., 2015). Ibadan is a multi-religious city with a fast-growing Christian population.

A large proportion of the respondents 112 (34.5%) had given birth to at least 3 children. This high parity among the respondents justified the importance of carrying out the study among this very group of people who will benefit the most from its findings as multiparty has been shown in many other studies to be an important risk factor for cervical cancer, and also because these women can act as the most effective custodians and vehicles for dissemination of cervical cancer-related information not only to the community but also to their own female children (Toye et al, 2014).

Findings in this study reveal that majority of the respondents have a university first degree. A similar proportion of their husbands also have a university first degree. This is not unexpected since most educated women will most likely get married to someone who is similarly, if not more, educated. About half of the respondents earn an average monthly income within the range of ₦51,000 – ₦100,000. The income they make could influence their acceptability and uptake of HPV vaccination or cervical cancer screening.

5.2 Knowledge of Cervical Cancer and Cervical Cancer Prevention

Knowledge is crucial to the prevention and control strategies of cervical cancer. Overall, findings from this study revealed that majority (49.2%) of the female public secondary school teachers in Ibadan North Local Government Area had fair knowledge of cervical cancer and its preventive practices, 30.7% have good knowledge while 20.1% had poor knowledge. The respondents in this study, however, had a high level (85.8%) of awareness of cervical cancer which is similar to the level of awareness of 85.9% in a study conducted in Enugu state (Ugwu, Obi, Ezechukwu, Okafor and Ugwu, 2013). Another study among female secondary school teachers in Nnewi reported a high level (74.6%) of awareness of cervical cancer (Ubajaka et al, 2014) which is less than the 85.8% shown in this study. The level of awareness of 4.2% among women who participated in a study conducted in Makoko and Abete, urban slums in Lagos (Balogun, Odukoya, Oyediran and Ujomi, 2012) contrasted sharply with the level of awareness in this study and the other studies above. Educational and socio-economic disparities may be responsible for the marked difference in the levels of awareness. It is not unexpected for women with higher educational qualifications and higher earnings to have better access to health information than women in resource-poor settings like the slums.

Majority (24.0%) of the respondents in the study had heard of cervical cancer through social media which may be a reflection of the emerging importance of social media as a tool for the dissemination of health-related information. The next most common source of information (23.4%) among respondents was medical personnel and hospitals. This suggests that the hospitals and medical personnel still remain important sources of information about cervical cancer and its prevention.

Mass media still represent an important source of cervical cancer-related information as 66 (20.6%) of the respondents heard about cervical cancer on the television while 50 (15.6%) heard about cervical cancer from the television. The importance of newspapers as a source of health information may be diminishing as just 8 (2.5%) of the respondents had heard about cervical cancer from this source. This could also imply that information about cervical cancer and its prevention may not be adequately reported in newspapers. Interestingly, just 16 (5%) of the respondents got their information from internet search engines. This may suggest that few of the respondents deliberately search for cervical cancer-related information actively. The popularity of social media, television, radio and medical personnel as sources of cervical cancer information may be due to the fact that respondents have the information fed to them without hassle. Whereas, they majorly have to seek and search for the information by themselves on a search engine or even by reading the newspaper.

Majority 247 (66.0%) of the correspondents knew that cervical cancer is a major gynaecological cancer. Half of the respondents 187 (50%) were able to correctly identify HPV as the cause of cervical cancer which is higher than the 43.8% recorded by respondents in the 2014 study carried out in Mushin (Toye et al). In spite of the fact that 50% of the respondents in this study were able to correctly identify HPV as the cause of cervical cancer, a lesser proportion 103 (37.5%) knew that HPV is a sexually transmitted virus. It is not encouraging that the respondents did not know the means of contracting HPV; this has implications on the practice of safe sex, a primary preventive strategy.

Findings of this study demonstrate that the respondents had a relatively high level of awareness about risk factors for cervical cancer that are attributed to sex than those factors that were non-sexual. A higher proportion of respondents correctly identified sexually transmitted infections (54.0%), sexual intercourse at the age of 16 or less (47.6%), females having multiple sexual partners (68.4%) and husbands who have multiple sexual partners (59.4%) than the proportion that identified smoking (22.5%) as a risk factor. This can be explained by the fact that smoking is most commonly associated with lung cancer and not with other types of cancers in anti-smoking awareness campaigns in the community (Urasa and Darj, 2011).

In this study, more than 65% of the respondents correctly identified that females who have multiple sexual partners were at risk of cervical cancer which is higher than the 61% of

respondents who were able to identify the risk factor of multiple sexual partners in a study conducted in the United States (Akinlotan, Bolin, Helduser, Ojinnaka, Lichorad, McClellan, 2017). This higher awareness of risk factors attributable to sex may be due to increasing publicity about the dangers of unsafe sex.

About one-sixth (15%) of the respondents identified witchcraft as a risk factor for cervical cancer. It is not surprising that a small proportion of the respondents identified witchcraft as a risk factor, this is indicative of the role that superstitious beliefs still play in the lives of even modern Nigerians such as the respondents who are in fact educated people that live and work in an urban area. Knowing this figure is important because of the implication it has on where people may seek help if sick and also their attitude to prevention. A higher proportion of people who identify witchcraft as a risk factor may imply a higher proportion of people who seek health solutions from witchdoctors as against seeking them in hospitals.

Respondents had good knowledge of the symptoms of cervical cancer in this study. The most widely identified symptom was foul-smelling vaginal discharge, identified by 65.5% of the respondents. More than 50% of the respondents were able to identify other symptoms such as menstrual bleeding heavier than normal, painful sexual intercourse, and bleeding after sexual intercourse. This is in contrast to a study conducted in Tanzania where post-coital bleeding, painful coitus and post-menopausal bleeding were identified by less than half of the respondents (Urasa et al, 2011).

Pap smear appeared to be the most widely known method of cervical cancer prevention, followed by HPV test while Visual Inspection with Lugols Iodine (VILI) was the least known while most of the women wrongly think that cervical cancer screening should be done every year.

Findings in this study show that there is a significant association between age and the respondents' level of knowledge of cervical cancer prevention in such a way that knowledge of cervical cancer was higher among middle-aged people than among young. There was a decline in the level of knowledge in the elderly.

5.3 Perception of Cervical Cancer and Cervical Cancer Prevention

Overall, the perception of respondents in this study towards cervical cancer and its prevention was mostly positive. Majority of the respondents perceived cervical cancer as a serious gynaecological cancer. This is similar to a study carried out in Botswana where most of the respondents agreed that cervical cancer was a serious disease (Hoque, Ibekwe and Ntuli-Ngcobo, 2009). Exposure to cervical cancer awareness campaigns on mass media and social media may be responsible for this positive perception towards cervical cancer prevention. In spite of that, more than 70% of the respondents identified that majority of women and teenage girls did not have adequate information about cervical screening and HPV vaccination. This implies that more awareness campaigns and knowledge programmes need to be designed nationally. This study revealed that the respondents did not consider young age and wealth as protection against the susceptibility to cervical cancer. Meaning that young women can develop cervical cancer just as much as older women and rich people as well as people in the lower economic class can develop cervical cancer. This is in contrast to a study conducted in Taraba where many of the women believed that they were too young to develop the disease and that women of advanced age were the only ones susceptible to cervical cancer (Rimande-Joel and Ekenedo, 2018).

Religion is a significant part of the daily life in this part of the world and many people easily ascribe diseases to spiritual causes despite empirical evidence. However, it is quite encouraging to see that a major proportion (82.1%) of the respondents did not agree that going for cervical cancer screening is a lack of faith in God. This suggests that respondents may be willing to take charge of their own health by choosing to deliberately engage in preventive measures against cervical cancer and seek medical solutions when ill rather than leave their health to fate. It is also quite possible that the respondents are being exposed to religious teachings that encourage them to embrace medical solutions. This finding is contrary to a study carried out in Elmina, Southern Ghana, where a majority of the study participants believed that going for cervical cancer screening is an indication of their lack of faith in God (Ebu, Mupepi, Siakwa and Sampselle, 2015).

A large proportion of the respondents did not agree that Pap smear test is expensive and embarrassing to undertake. These perceptions, if subscribed to, could serve as barriers to availing themselves of the opportunity to have cervical cancer screening. This is in contrast to a study

conducted in England where most participants identified the fear of pain, feelings of embarrassment and difficulty in scheduling appointments as barriers to cervical cancer screening (Waller, Bartoszek, Marlow and Wardle, 2009).

In this study, many respondents consider HPV vaccination necessary for teenage girls. More than 75.0% of the respondents agree that appropriate sex education will help teenage girls avoid risk factors for HPV infection. It is found in this study, however, that there is no significant association between the respondents' knowledge of cervical cancer and their perception of cervical cancer and its prevention. It is quite possible that their perception is an upshot of a positive perception towards health and health-related issues in general. It may be a result of the influence of mass campaigns targeted at other illnesses like breast cancer or human immunodeficiency syndrome (HIV).

5.4 Practices towards Cervical Cancer Prevention

Overall, this study has shown that the respondents had poor practices towards cervical cancer prevention. A large percentage of the respondents acknowledged that they practice certain measures of primary prevention like always taking measures to avoid sexually transmitted infections and to not keep multiple sexual partners. Knowledge and cultural beliefs could have influenced the sexual behavior of the respondents (Medeiros and Ramada, 2010).A low proportion (9.9%) of the respondents in this study had ever received HPV vaccination but as many as 52.4% were willing to have their daughters immunized against HPV which is quite low in comparison with the 95% acceptance rate recorded in a Kenyan study conducted by Becker-Dreps, Otieno, Brewer, Agot and Smith (2010). A reason for this disparity in the two studies is because the respondents in the Kenyan study were asked if they would be willing to have their daughters vaccinated if the vaccine was offered free of charge.

This study demonstrated a cervical cancer screening rate of 21.1% which was lower than the 67.3% screening rate in the study conducted among female secondary school teachers in Lagos (Toye et al, 2014) but higher than the 10% reported among respondents in a study conducted in Sokoto (Oche, Kaoje, Gana and Ango, 2013). This suggests that the positive perception of cervical cancer prevention does not necessarily translate to optimal utilization of screening services.

Half of the respondents did not plan to have a Pap smear test in the future but more than 70% of them are willing to recommend the test to other women. These findings are consistent with findings from a study conducted in South Africa where a large proportion of the respondents were willing to recommend

Findings in this study showed that just 28.1% of the respondents had had their teenage female children vaccinated of HPV which is in contrast to a study conducted among women in an urban slum in Idi-Araba, Lagos, where none of the respondents who had children of 9 years or older had immunized them (Olubodun, Odukoya and Balogun, 2019). Consideration of the cost of vaccination may have influenced immunization.

5.5 Implications of the Findings for Health Promotion and Education

Teachers are important members of every society. They are respected opinion leaders and serve as role models to the large population of students that they teach and have contact with through the course of their careers. If teachers have adequate knowledge and a positive perception of the elements of cervical cancer prevention they become potential agents that facilitate the willing uptake of HPV vaccination and other prevention by students and their parents/guardians. Some studies have even shown that school-based delivery of HPV vaccines is cost-effective and successful uptake depends on teachers' knowledge and acceptability of the vaccine (Moses et al, 2015).

The strategic position that teachers occupy has not been well taken advantage of as findings from this study show that female public secondary school teachers in Ibadan North LGA do not know enough about cervical cancer, its symptoms and signs, risk factors and preventive practices. Their practice of cervical cancer prevention has been found to be poor as well.

These findings show a necessity for trainings in order to improve their knowledge of cervical cancer and their practice of cervical cancer prevention. Intersectoral collaboration between the Ministry of Education and the Ministry of Health to help conduct periodic trainings for secondary school teachers will help a great deal in improving teachers' knowledge of cervical

cancer. These trainings will make it feasible for teachers to become capable of disseminating information about HPV vaccines and cervical cancer.

This study showed that social media is a tool with increasing importance in the spread of health information. State governments and Non-Governmental Organizations can take advantage of tools like WhatsApp and Instagram to pass information towards cervical cancer to teachers as the target group. Another growing tool is text messaging which has proven successful as evidenced by UReport. Text messaging services designed in a similar way to UReport can be used to target teachers in Ibadan with information towards cervical cancer. Lastly, policies need to be made to promote school-based HPV vaccine uptake which would encourage adolescent girls to get vaccinated.

5.6 Conclusion

This study demonstrated that there is a fair level of knowledge of cervical cancer, its cause and prevention among female public secondary school teachers in Ibadan North Local Area of Ibadan in Oyo State. Their level of perception is high while their practices of cervical cancer prevention especially vaccination and screening are low. The fact that the level of knowledge is fair suggests that there may be inadequacies in the quality and quantity of what the teachers know about cervical cancer and its prevention. These inadequacies would make it impossible for the transfer of knowledge to effective practice, not just for them as individuals but for the female students that they teach, the young girls and women in the society who look up to them and their own female children. The gap between their positive perception of cervical cancer prevention and the practice of cervical cancer prevention implies that women may highly perceive the disease to be serious and consider themselves highly susceptible to it but yet shun the behaviours that will ensure that they do not develop the only preventable gynaecological cancer which continues to cause a high morbidity and mortality among women in Nigeria.

5.7 Recommendations

Based on the findings of this study, the following recommendations are made:

1. Campaigns to increase awareness about cervical cancer should be conducted for all teaches in the local government of study and by extension to all state LGAs
2. Peer education on cervical cancer should be institutionalised in the state LGAs schools.
3. Information about cervical cancer needs to be made available to the school teachers through social media, an emerging tool for reaching a wide audience.
4. Majority of the respondents in this study indicated that they will be willing to partake in a national cervical cancer screening programme which currently is not instituted in Nigeria, therefore Oyo state should ensure they are integrated with the national screening programme.
5. Cervical cancer screening centres in the LGA should make extension services to reach the female teachers in the LGA>
6. School-based delivery of HPV vaccines should be made available to the female teachers through special collaborative programme between the ministries of education and health .

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APPENDIX I

INFORMED CONSENT

TOPIC: Knowledge, Perception and Practices towards Cervical Cancer Prevention among Female Public Secondary School Teachers in Ibadan North Local Government Area, Oyo State.

My name is Adetuyi Adetokunbo. I am a postgraduate student of the University of Ibadan presently conducting a cross-sectional descriptive study titled: **Knowledge, Perception and Practices towards Cervical Cancer Prevention among Female Public Secondary School Teachers in Ibadan North Local Government Area, Oyo State.** You do not have to write your name and identification, so the result is anonymous, confidential and for this study only. You have the right to withdraw at any time if you choose to. I will be grateful if you could take a few minutes to fill out this questionnaire and take part in the study.

Thank you.

Consent: Now that the study has been well explained to me and i fully understand the content of the process, I will be willing to take part in the study

Signature _____

Date: _____

APPENDIX II

QUESTIONNAIRE

SECTION A: Socio-demographic characteristics

Kindly respond appropriately to the following by marking or writing as appropriate in the space provided.

1. Age as at last birthday (in years) ……
2. Class that you teach ……
3. Marital Status (1) Single (2) Married (3) Widowed (4) Separated (5) Divorced (6) Cohabiting
4. Type of marriage (if married) (1) Monogamy (2) Polygamy
5. Religion (1) Christianity (2) Islam (3) Traditional (4) Others ……
6. Ethnicity (1) Yoruba (2) Igbo (3) Hausa (4) Others ...…….
7. Educational Qualification (1) NCE (2) HND (3) Bachelor degree (3) Master Degree (4) PhD (5) Other…….
8. Husband's highest educational qualification (if married) (1) NCE (2) HND (3) Bachelor degree (4) Master Degree (5) PhD (6) Other…….
9. Discipline (1) Arts (2) Commercial (3) Science (4) Others ...…….
10. Husband's occupation (if married) ……
11. No of children ……
12. No of miscarriages……...

13. Average Monthly Income …….

SECTION B: Knowledge on Cervical Cancer and Cervical Cancer Prevention

Instruction: Kindly answer these questions by ticking the appropriate option from the table below.

S/N	Knowledge questions	Yes	No
14	Have you ever heard of cervical cancer? (if No, go to the next section)		
15	How did you hear of cervical cancer? (Tick the ones that apply) (1) Radio (2) Television (3) Social Media (4) Internet Search Engine (5) Friends (6) Family (7) Hospital/medical personnel (8) Newspapers (9) Other sources (please specify) ……		
16	Cervical cancer is a major cancer seen in women		
17	Human papillomavirus (HPV) causes cervical cancer		
18	Cervical cancer can be transferred from parents to children		
19	HPV is sexually transmitted		
20	The following can put a woman at risk of having cervical cancer (1) Female having more than one sexual partner (2) Female circumcision (3) Smoking (4) Husband having multiple sexual partners (5) Good hygiene (6) Early age of marriage at less than 18 years (7) Family history of cervical cancer (8) Witchcraft (9) Pregnancy at an early age (10) Sexual intercourse at the age of 16 or less (11) Sexually transmitted disease		
21	Someone with cervical cancer may experience the following symptoms: (1) Weight gain (2) Foul-smelling vaginal discharge		

	(3) Abnormal vaginal discharge (4) Regular menstruation (5) Menstrual bleeding heavier than normal (6) Painful sexual intercourse (7) Bleeding after sexual intercourse		
22	Cervical cancer is preventable by (1) HPV vaccination (2) Avoiding multiple sexual partners (3) Cigarette smoking (4) Cervical screening (5) Avoiding early sexual intercourse		
23	HPV vaccination cures cervical cancer		
24	HPV can be given to females who have already had sex		
25	HPV vaccine can lessen the chance of having genital warts		
26	Cervical screening is used to detect cervical cancer early		
27	Is early detection good of cervical cancer good for treatment outcome?		
28	Early cervical changes are easily curable		
29	The following can be used to detect cervical cancer before symptoms appear: (1) Pap smear (2) Visual inspection with acetic acid (3) Visual inspection with Lugholes iodine (4) HPV test (5) Colposcopy (6) Cervical biopsy		
30	Who should be screened for cervical cancer? (1) Women (greater than or equal to) ≥ 30 years of age (2) Women less than or equal to 21 years of age		
31	What should be the screening interval (1) Every year (2) Two years		

	(3) Three years (4) Screen only when symptoms arise		

SECTION C: Perception of Cervical Cancer and Cervical Cancer Prevention

Kindly tick either agree, disagree or undecided to the statements below

S/N	Perception statement	Agree	Disagree	Undecided
32	I am young and cannot develop cervical cancer			
33	The doctor did not tell me about cervical cancer, so it is not a serious disease			
34	Majority of women do not have information on cervical screening			
35	It is embarrassing to go for Pap smear test			
36	Only promiscuous women go for cervical screening			
37	The procedure for cervical cancer screening is painful			
38	Going for screening is a lack of faith in God			
39	Cervical screening is for the rich			
40	Pap smear test is expensive			
41	I will be stigmatized if I test positive			
42	If I test positive for cervical cancer at an early stage, I can receive effective treatment			
43	I will lose my virginity during the screening			
44	Cervical cancer is a disease of illiterates			
45	HPV vaccination is unnecessary for teenage girls			
46	Appropriate sex education will help teenage girls avoid risk factors for HPV infection			
47	Majority of girls do not have information on HPV vaccination			
48	HPV vaccine can expose me to other infections			
49	My students are too young to get HPV vaccination			

SECTION D: Practices towards Cervical Cancer and Cervical Cancer Prevention

Kindly tick either Yes or No to the statements below

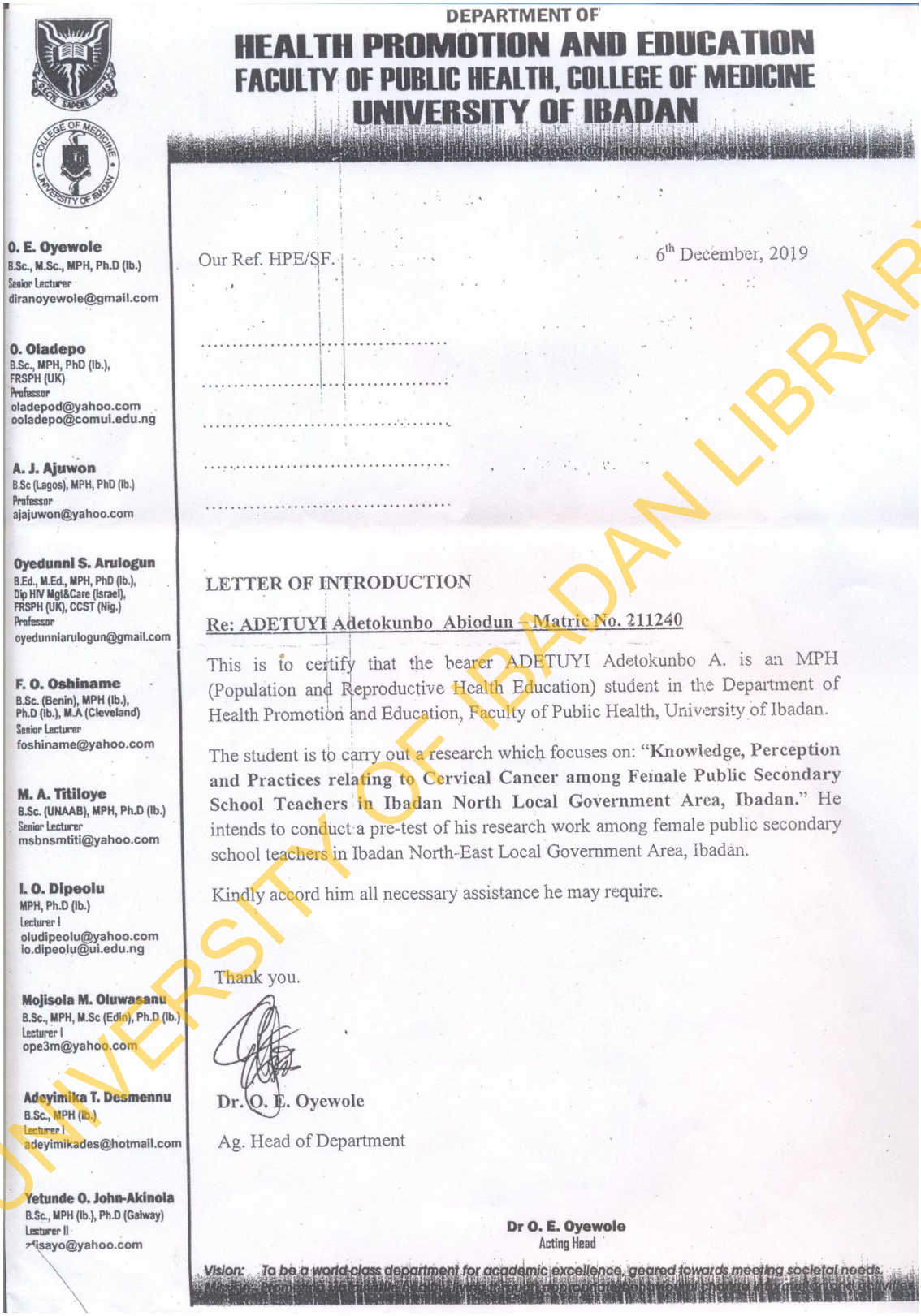
S/N	Practice statements	Yes	No
50	I have had HPV vaccination before		
51 52	I have had Pap smear test before If NO, do you plan to have Pap smear test in the nearest future		
53	Are you willing to recommend Pap smear to other women		
54	I'm willing to participate in a National Cervical Screening Programme		
55	Do you have a female child? If NO, proceed to number 58)		
56	I have had HPV vaccine given to my female teenage child		
57	I will allow HPV vaccination of my female teenage child		

Kindly tick always, occasionally or never to the statements below

S/N	Practice statements	Always	Occasionally	Never
58	I screen for cervical cancer regularly			
59	I examine my vagina for possible abnormality			
60	I wash my vagina with soap regularly			
61	I eat fruit and vegetable to prevent cervical cancer			
62	I do not keep multiple sexual partners			
63	I take measures to avoid contracting sexually transmitted infections (STI)			
64	I avoid oral contraceptives due to its side effects			
65	I go for treatment when I see any sign of STI			

APPENDIX III

Letter of introduction



DEPARTMENT OF
HEALTH PROMOTION AND EDUCATION
FACULTY OF PUBLIC HEALTH, COLLEGE OF MEDICINE
UNIVERSITY OF IBADAN

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Our Ref. HPE/SF. 6th December, 2019

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LETTER OF INTRODUCTION

Re: ADETUYI Adetokunbo Abiodun – Matric No. 211240

This is to certify that the bearer ADETUYI Adetokunbo A. is an MPH (Population and Reproductive Health Education) student in the Department of Health Promotion and Education, Faculty of Public Health, University of Ibadan.

The student is to carry out a research which focuses on: "**Knowledge, Perception and Practices relating to Cervical Cancer among Female Public Secondary School Teachers in Ibadan North Local Government Area, Ibadan.**" He intends to conduct a pre-test of his research work among female public secondary school teachers in Ibadan North-East Local Government Area, Ibadan.

Kindly accord him all necessary assistance he may require.

Thank you.

Dr. O. E. Oyewole
Ag. Head of Department

Dr O. E. Oyewole
Acting Head

Vision: To be a world-class department for academic excellence, geared towards meeting societal needs.

APPENDIX IV

List of schools received from the Oyo State Ministry of Education

S/N	NAME OF SCHOOL	STU ENROL.			TEACHING			NON-TEACHING			NO IN POST			REQUIRE	
		M	F	T	M	F	T	M	F	T	M	F	T	M	F
1	ABADINA COLLEGE U.I (I) IBADAN SNR	409	380	789	15	18	33	3	4	7	-	-	-		
2	ABADINA COLLEGE U.I (II) IBADAN JNR	560	535	1095	8	22	30	1	1	2	-	-	-		
3	ABADINA GRAMMAR SCHOOL, IBADAN	711	685	1396	-	-		1	6	7	-				
4	ANG. COMM. GRAM. SCHL (I) TOTAL GARDEN SNR	369	359	728	12	20	32	4	7	11	-	-	-		
5	ANG. COMM. GRAM. SCHL (II) TOTAL GARDEN JNR	516	380	896	5	11	16	3	1	4	-	-	-		
6	BASORUN/OJOO HIGH SCHOOL	401	306	707	13	41	54	1	5	6	-	-	-		
7	BISHOP ONABANJO HIGH SCHOOL, BODIJA	449	446	895	16	30	46	3	7	10	-	-	-		
8	CHESIRE HIGH SCHOOL	345	284	629	9	32	41	6	6	12	-	-	-		
9	COMM. GRAM SCHOOL, MOKOLA	332	323	655	14	18	32	5	4	9	-	-	-		
10	COMM. HIGH SCHOOL, AGBOWO/BODIJA	222	220	442	13	32	45	2	4	6	-	-	-		
11	COMMUNITY GRAMMAR SCHOOL, IJOKODO	264	262	526	7	22	29	2	5	7	-	-	-		
12	COMMUNITY HIGH SCHOOL, SAMONDA	241	198	439	5	20	25	2	3	5	-	-	-		
13	COMMUNITY SECONDARY SCHOOL, IKOLABA	-	-		-	-									
14	COMMUNITY SECONDARY SCHOOL, SANGO	209	188	397	11	22	33	2	3	5	-	-	-		
15	EBENEZER GRAM. SCHOOL, NALENDE	244	218	462	6	8	14	1	2	3	-	-	-		
16	HUMANI ALAGA HIGH SCHOOL, SANGO	298	299	597	14	14	28	4	4	8	-	-	-		
17	I.M.G GRAM. SCHOOL, YEMETU ALADORIN IB.	462	374	836	11	23	34	5	5	10	-	-	-		
18	I.M.G GRAMMAR SCHOOL, YEMETU IGOSUN	344	341	685	9	25	34	6	6	12	-	-	-		
19	IJOKODO HIGH SCHOOL	421	383	804	9	32	41	6	3	9	-	-	-		
20	IKOLABA GRAMMAR SCHOOL	774	733	1507	13	40	53	5	6	11	-	-	-		
21	IKOLABA HIGH SCHOOL, IKOLABA	546	525	1071	13	33	46	6	9	15					
22	IMMANUEL COLLEGE HIGH SCH. (I), ORITA U.I	343	357	700	11	22	33	9	4	13					
23	IMMANUEL COLLEGE HIGH SCH. (II), ORITA U.I	481	400	881	3	16	19	1	3	4					
24	IMMANUEL GRAMMAR SCHOOL, ORITA U.I	527	489	1016	6	26	32	4	2	6					
25	ISLAMIC DAY SECONDARY SCHOOL, BASORUN	327	234	561	11	31	42	4	7	11					
26	ISLAMIC HIGH SCHOOL, BASORUN	533	492	1025	16	51	67	6	5	11	-	-	-		
27	METHODIST GRAM. SCHOOL (I), BODIJA SNR	542	533	1075	8	23	31	2	3	5	-	-	-		
28	METHODIST GRAM. SCHOOL (II), BODIJA JNR	384	419	803	17	17	34	3	3	6	-	-	-		
29	METHODIST SEC. SCHOOL, NEW BODIJA	351	457	808	6	27	33	2	5	7					
30	MOUNT OLIVET GRAMMAR SCHOOL	448	419	867	12	28	40	2	8	10					
31	NAWAR-UL-DEEN HIGH SCHOOL, NALENDE	738	747	1485	12	11	23								
32	OBA AKINBIYI H/S I, MOKOLA CULTURAL CENTRE	572	432	1004	18	24	42	8	4	12					
33	OBA AKINBIYI H/S II, MOKOLA - OREMEJI	443	359	802	16	22	38	3	4	7	-	-	-		
34	OBA AKINYELE MEM. HIGH SCHOOL	398	423	821	13	35	48	6	5	11	-	-	-		
35	POLYTECHNIC H/S, POLYTECHNIC CAMPUS	409	369	778	6	33	39	4	5	9	-	-	-		
36	ST. BRIGIDS SEC. SCHOOL, MOKOLA	417	460	877	8	11	19	1	7	8	-	-	-		
37	ST. GABRIEL SEC. COMM. G/S (I), SABO SNR	602	314	916	7	7	14	-	3	3	-	-	-		
38	ST. GABRIEL SEC. COMM. G/S (II), SABO JNR	325	280	605	13	9	22	1	3	4	-	-	-		
39	ST. LOUIS GRAMMAR SCHOOL (I), MOKOLA	-	988	988	7	23	30	3	6	9	-	-	-		
40	ST. LOUIS GRAMMAR SCHOOL (II), MOKOLA	-	1276	1276	6	17	23	1	2	3	-	-	-		
41	ST. PATRICK GRAM. SCHOOL ORITA BASORUN	811	-	811	16	42	58	10	6	16	-	-	-		
42	UNITED SECONDARY SCHOOL, IJOKODO	376	471	847	13	20	33	3	5	8	-	-	-		
	GRAND TOTAL	17144	17358	34502	428	958	1386	145	186	331					

NAME OF OFFICER:_____

DATE & SIGNATURE_____

APPENDIX V

Oyo State Ethical Approval Letter

TELEGRAMS..... TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. .....

All communications should be addressed to the Honorable Commissioner quoting

Our Ref. No. AD 13/479/1578A

18th December, 2019

The Principal Investigator,
Department of Health Promotion and Education,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan, Nigeria.

Attention: Adetuyi Adetokunbo

ETHICS APPROVAL FOR THE IMPLEMENTATION
OF YOUR RESEARCH PROPOSAL IN OYO STATE

This is to acknowledge that your Research Proposal titled: "Knowledge, Perception and Practices Relating to Cervical Cancer Prevention among Female Secondary School Teachers in Ibadan North Local Government Area, Oyo State." has been reviewed by the Oyo State Ethics Review Committee.

2. The committee has noted your compliance. In the light of this, I am pleased to convey to you the full approval by the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, in line with this, the Committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of findings as this will help in policy making in the health sector.

4. Wishing you all the best.

Dr. Abbas Gbolahan
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethics Review Committee