SENSITIZATION OF THE NIGERIAN POPULATION ON KNOWLEDGE OF CERVICAL CANCER AND PAP SMEAR SCREENING

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Abstract

Sensitization of the Nigerian population on cervical cancer and Pap smear screening is the aim of this paper. Cervical cancer, one of the gynecological cancers and the second most common cancer affecting women in Nigeria is the only cancer that is easily preventable if abnormal changes in the lining of the cervix are detected early through routine Pap smear screening test. The paper draws attention to empirical data that shows Nigerian women's poor or virtually no knowledge about cervical cancer and Pap smear screening thereby negatively affecting decisions they make on health, life style and risk factors. Empirical and current information on cervical cancer and Pap smear screening is provided for the purpose of sensitization. Intensive sensitization of all, involvement of clinical psychologists in sensitization, provision of Pap smear screening facilities at all levels of health facilities and subsidizing of the cost of screening so that women can avail themselves of the services are some of the recommendations made.

Key words: sensitization, knowledge, cervical cancer, Pap smear screening.

Introduction

It has become imperative to sensitize or educate the Nigerian general population, males and females, young and old alike on the need for awareness of cervical cancer and Pap smear screening. This is so because of the increase in cases of cervical cancer in our society, the havoc it is causing which is physical, medical, psychological, financial and social on the lives of many women, families and the nation at large. The need to also sensitize the Nigerian population on the importance of regular pap smear screening and availability of the facility; in order to detect abnormal changes in the cervical lining early which is still the only way of successfully saving the lives of most women from premature death, untold hardship, misery and trauma these women and their families go through as a result

of the impact of cervical cancer.

The effect of cervical cancer is not exclusively felt by the victim (women) alone, but also affects her husband, children and entire family both nuclear and extended in the sense that a woman with cervical cancer who is the wife and mother of the home can no longer perform her roles effectively and has to rely on other family members to carry out the duties and roles she has been carrying out at home. This destabilizes the other members of the family and brings about stress, psychological, social and financial strains on the family. When these family members are also included in the sensitization they can always be better educated to provide encouragement or support to their wives, mothers, daughters and sisters on the need for regular Pap smear screening thereby reducing the incidence and mortality rate of cervical cancer.

The saying goes that "Knowledge is power" and "a stitch in time saves nine". This implies that, if women and men are both empowered with the knowledge of cervical cancer and pap smear screening, they will be better informed to make realistic decisions concerning lifestyle changes regarding risk factors and also avail themselves of the opportunity of screening in order to detect early changes in the cervix that can result in cancer thereby nipping it in the bud.

Organization of the paper

The content of this paper is organized as thus:
What is Cervical Cancer?, Causes of Cervical Cancer, How Cervical Cancer develops, Empirical studies on knowledge of Cervical Cancer and Pap smear screening in Nigeria, Global and Nigerian statistics of Cervical Cancer Signs and symptoms, Risk factors, Preventive health measures or behaviours (Pap smear screening and vaccination against HPV for prevention of Cervical Cancer), role of the Clinical Psychologist, conclusion and recommendation.

What is cervical cancer?

The cervix is literally known as the mouth of the uterus, however technically the cervix is the bottom part of the uterus, which connects the uterine body to the vagina or the birth canal. The part of the cervix that is closest to the uterine body is known as the endocervix and the part of the cervix that is next to the vagina is called the ectocervix (Nakalevu, 2009).

Cervical cancer is cancer that begins from the cervix and spreads to other organs of the body. Majority of cervical cancer changes begin at the junction where the endocervix and ectocervix meet (Nakalevu, 2009). Cervical Cancer develops when the cells of the cervix grow out of control. Unlike normal cells which divide and grow in an organized fashion, malignant cancer cells continue to divide until

they form a growth or tumor. In some cases, the cancer cells become invasive, spreading to tissues and organs outside of the cervix. Most cervical cancers develop slowly in the lining of the cervix as pre-cancerous/abnormal cell changes known as cervical dysplasia which can potentially develop into cancer if not treated early, but some of the abnormal cells may not be malignant and can disappear without treatment.

Causes of Cervical Cancer

The primary underlying cause of cervical cancer is the Human Papilloma Virus (HPV), which is the most common sexually transmitted infection worldwide. HPV is said to affect an estimated 50% to 80% of sexually active women at least once in their life time (Koutsky, 1997; Crum, Abbott &Quade, 2003). More than 50 known types of HPV can affect the genital area, of these 50 types 6 accounts for almost 80 percent of cervical cancer cases (Crum, Abbott & Quade, 2003).A percentage of invasive cervical cancer is attributed to HPV strains16 or 18 (Ogundipe & Obinna, 2010).

Certain types of HPV can cause abnormal cell changes, called dysplasia/Pre-cancerous cells. Most mild/Pre-cancerous cases regress or do not progress or return to normal on their own, particularly in women under age 35. When the abnormalities persist over time and become severe, the cells develop into cancer cells. Progression from HPV infection to cancer can take up to 30 years; severe dysplasia can progress to cervical cancer over several years (Alliance for Cervical Cancer Prevention, 2003).

Women generally contact HPV in their teens, 20s, or 30s, and cervical cancer can develop 20 years or more after HPV infection. There is currently no cure for HPV, though its consequences can be treated. While all women with cervical cancer have had HPV, less than 5 percent of women with HPV ultimately develop cervical cancer even without screening and treatment.

How Cervical Cancer Develops

The development of cervical cancer starts with the infection of HPV which is extremely common among women of reproductive age. Most cases remain stable or become undetectable. A small percentage of cases lead to abnormal cell changes (within months or years of infection), which is the stage of Mild Cervical Dysplasia. This stage is characterized by abnormal cell changes which are usually temporary and disappear over time. Some cases, however, progress to severe dysplasia. The stage of severe dysplasia is a precursor to cervical cancer; severe dysplasia is far less common than mild dysplasia. Severe dysplasia can progress from mild dysplasia or, in some cases, directly from HPV infection. The last stage is that of Invasive cervical cancer which develops over many years and is most

common among women in their 50s & 60s. Cervical disease may regress on its own or progress to cancer, depending on a number of factors (Alliance for Cervical Cancer Prevention, 2003).

Empirical studies on knowledge of Cervical Cancer and Pap Smear Screening in Nigeria

Empirical studies have reported poor, little or no knowledge of Nigerian women and the general public on cervical cancer and pap smear screening. A comparative study of knowledge of cervical cancer and screening practice among female staff of University of Lagos and Yaba College of Technology, Yaba, reveals that in University of Lagos, 23.7% of the participants had no knowledge and 55% had poor knowledge of cervical cancer and screening practices; while in Yaba College of Technology 33.1% had no knowledge and 53.1% had poor knowledge of cervical cancer and screening practices. Nonetheless, respondents from University of Lagos were more knowledgeable with 21.3% having fair to good knowledge, compared to 13.5% from respondents of Yaba College of Technology (Apampa, 2009). The study of Nakalevu (2009), also revealed that 67% of women studied in Fiji had poor knowledge of cervical cancer and Pap smear screening. Similarly, Chia, Udzua and Ugese (2012), in their assessment of the knowledge of cervical cancer and Pap smear screening in Makurdi metropolis found limited knowledge among participants.

Other studies in Nigeria have also recorded low levels of Pap smear knowledge (Feyi-waboso, Kamaru & Aluka, 2005; Audu, El-Nafaty, Khalil & Otubu, 1999; Oyiyi & Dike, 2008; Ayinde, Omigbodun & Ilesanmi, 2004; Ogunbode, 2005). In the study by Ogunbode (2005) in Ibadan, 19.7% were aware of Pap smear test. In Maiduguri, less than 10% were aware of cytological screening and in Orlu only 6% were aware of Pap smear screening (Audu, El-Nafaty, Khalil & Otubu, 1999; Oyiyi & Dike, 2008). Studies in Nigeria that focused on Health Care Providers, recorded higher levels of Pap smear awareness. For example, in Nnewi awareness was 87%, in Sagamu 78.3%, in Ilorin 69.8% and in Benin 64% (Aboyeyi, Iyayi & Jimoh, 2004; Gharoro & Ikeanyi, 2006; Udigwe, 2006; Adefuye, 2006). A study conducted in Botswana revealed limited knowledge among women of low socioeconomic status (McFarland, 2003).

Major findings in a study in Nigeria on female health workers showed that their Pap smear utilization was very low and there was a wide gap between their personal knowledge and uptake of Pap test. This was unexpected as this population of women was required to be better informed about the high risk factors of developing cervical cancer. The behaviour of these female health workers appears to be predicted by complex socio-cultural beliefs where women hardly reveal their personal medical details especially in a polygamous setting,

superstition and inappropriate belief were the commonest excuse for not having a Pap smear test (Gharoro & Ikeanyi, 2006). Similar findings as above have been observed also in Uganda where only 19% of their female health workers have ever had a cervical cancer screening and reasons for this included not feeling at risk, lack of symptoms, carelessness, fear of vaginal examinations, lack of interest and test being unpleasant. It is unlikely that these medical workers would feel motivated to screen others or advise them accordingly (Mutyaba, Mmiro & Weiderpass, 2006).

An assessment of women's knowledge of cervical screening was considered important as up to 92% of those dying from this form of cancer have never been tested (Neilson & Jones, 1998). It has been noted that some women lack the knowledge about Pap smear tests and its indications. Many women do not have a clear understanding of the meaning of an abnormal smear or the concept of pre-cancerous changes and many believe that the purpose of the Pap smear test is to detect cancer (Fylan, 1998). It is observed that 10% of women in Queensland and 13% in Victoria with cervical cancer had a previous abnormality which was not treated. Women need full information about treatment if they are to be fully protected. Other problems identified are lack of follow-up system for women who have been treated to ensure that they are re-screened, lack of monitoring to ensure that treatment is effective and a lack of management services for some women who live in remote areas (Kirby, Webster, Symonds, Pezzutti, Arena, Evans, Walker, & Chadwick, 1992).

A study conducted in Botswana revealed limited knowledge among women of low socioeconomic status and the reasons for the limited knowledge included cultural norms of secrecy, providers not informing the public and policy-makers limited attention to cervical cancer (McFarland, 2003). Lack of knowledge regarding preventive health services, especially, women's preventive health might implore the need to expand these services in the emergency department where most women access and clinicians in these settings need to use their patient time opportunities to provide preventive health services to women (Merchant, Gee, Bock, Becker & Clark, 2007).

Global Statistics of Cervical Cancer

Cervical cancer as rated by the World Health Organization (WHO, 2009b) is one of the most common cancers among women worldwide, while it has been rated the second most common cancers among women worldwide by International Agency for Research on Cancer (IARC, 2008) and Global Burden of Cervical Cancer (GLOBOCAN, 2008) with an estimated 529, 409 new cases and 274,883 deaths in 2008. Approximately 1.4 million women worldwide are living with cervical cancer (Ferlay, Bray, Pisani, Parkin, GLOBOCAN, 2002). This estimate reflects

the accumulation of new cases each year and the fact that few women in developing countries receive treatment**.** If Cervical Cancer is not detected and treated in a timely way, it is nearly always fatal. In developing countries, mortality rates are reported at 11.2 per 100,000 women on average, almost three times the rate of developed countries (Ferlay,*et al.,* GLOBOCAN, 2002).

The regions hardest hit by cervical cancer are among the world's poorest. Central and South America, the Caribbean, sub-Saharan Africa, parts of Oceania, and parts of Asia have the highest incidence rates—over 30 per 100,000 women. These rates compare with no more than 10 per 100,000 women in North America and Europe (Ferlay,*et al.,* GLOBOCAN, 2002). In Nigeria, Uganda as in other developing countries, cervical cancer is the most common cancer in women with an estimated incidence of 30 per 100, 000 women (Gharoro & Ikeanyi, 2006; Mutyaba, Mmiro & Weiderpass, 2006).

Cervical cancer mortality exemplifies health inequity, as its rates are higher in Low and Middle Income countries (LMICs) (WHO, 2009b), and in low socio-economic groups within countries (Kurkure & Yeole, 2006). Around 80% of global cervical cancer cases are in LMICs (Waggoner, 2003). Cervical cancer is the second largest killer of women in low and middle income countries (Adewole, 2013). Nearly 40 percent of cervical cancer deaths in developing countries occur in South Central Asia, a heavily populated region that includes India, Pakistan, and Bangladesh. About 85 percent of the estimated 493,000 new cases and over 273,000 deaths from cervical cancer occur in developing countries including Nigeria (Okwara, 2011).

Half of all women who die of cervical cancer globally live in just 5 countries-India, China, Brazil, Bangladesh and Nigeria, even as Africa has been identified as the most dangerous place to be a woman with cervical cancer. A full report of the cervical cancer crises card which was launched on May, 12th 2013 as part of activities marking the year's International Mother's Day ranked over 50 countries across the world based on the number of deaths from cervical cancer. Available statistics from the cervical cancer crisis card show that, the total annual death count from the five top-ranked countries stands at 137,817 compared to an estimated 275,000 annual total deaths from 500,000 new cases reported worldwide (Ogundipe, 2013).

Statistics of Cervical Cancer in Nigeria

In Nigeria, cervical cancer ranks the second most frequent cancer among women between 15 and 44 years of age. About 23.7% of women in the general population are estimated to harbour cervical HPV infection at a given time (IARC, GLOBOCAN 2008). IARC, GLOBOCAN (2008) has reported the incidence rate

of Cervical Cancer in Nigeria as 19.3%, Western Africa 19.9% and the World 15.8%. Statistics available shows that the incidence of cervical cancer in Nigeria is highest in Zaria, Northern Nigeria with 24.8 % for Cervix, 20.5% for Breasts and 7.9% for N*on - Hodgkins lymphoma (*NHL), as in the rest of Africa, while it ranks a close second to breast cancer, 30.7% for Breast, 24.6% for Cervix uteri, 4.6% for Liver, 3.5% for Colorectum and 3.3% for NHL in the rest parts of Nigeria (Parkin, Ferlay, Hamdi-Cherif, Sitas, Thomas, Wabinga & Whelan, 2003; GLOBOCAN, 2008; Awodele, 2011).

The mortality rate reported as at 2012 is 8000 Nigerian females killed yearly by cervical cancer. It constitutes one of the most common cancers that affect women's reproductive organs and it is on unrestrained rampage. Available statistics in Nigeria show that cervical cancer accounts for 15% of female cancers as compared to the developed countries of 3.6% (Olaleye, 2012). Current statistics of cervical cancer shows that 26 women die daily in Nigeria from cervical cancer and 14,000 women are diagnosed yearly with cervical cancer (Adewole, 2013).

A total of 9,659 deaths are recorded in Nigeria (ranked 5th) every year. Nigeria has a cervical cancer mortality rate of 22.9 deaths per 100,000. Worst still, the crisis card show that the top 10 countries with the highest cervical cancer mortality rate can be found in Africa. For instance, Sub Saharan Africa has 22% of all cervical cancer cases worldwide (Ogundipe, 2013).

All Nigerian sexually active women are at risk of cervical cancer but the risk is reduced with male circumcision. The cancer is commonest among women in Northern Nigeria, 3-4 new cases are diagnosed every week in Ahmadu Bello University Teaching Hospital, Zaria. At least 80% of cases in Nigeria are at advanced stage where very little can be done. The women with this ailment die in a painful, miserable and undignified manner. Every 10 minutes, 2 women die from cervical cancer worldwide, affecting more of younger productive women between 20 years and mid 30's (Zayyan, 2010).

Signs and Symptoms of Cervical Cancer

Cervical cancer in its early stages often exhibits no symptoms which is why it is frequently not detected until it becomes severe (PATH, 2000). That is why it is important for women to have regular Pap smear tests. Symptoms often do not start until the cancer is further along and has spread to nearby areas. The following signs and symptoms should be reported when noticed:

(i) Abnormal vaginal bleeding, such as bleeding after sex, bleeding after menopause, Bleeding and spotting between periods, or having periods that are longer or heavier than usual. Bleeding after douching or after a pelvic exam may also occur.

(ii) An unusual discharge from the vagina (not normal period), that is watery, bloody that may be heavy and have a foul odor.
(iii) Pain during sex.

Of course, these symptoms do not mean cervical cancer. They can also be caused by other disorders. However, there is no harm in checking with the doctor to find out. It is best not to wait for symptoms to appear. Get regular Pap tests and pelvic exams.

Risk Factors of Cervical Cancer

The lifetime risk of HPV infection can reach 80 percent, but only about 5 percent of infected women develop cervical cancer. Cervical disease may regress on its own or progress to cancer, depending on a number of factors.

The most common risk factor for cervical cancer is exposure to certain strains of the Human Papilloma virus (HPV). HPV is a sexually transmitted infection (STI), which may or may not be accompanied by symptoms. Because HPV is often asymptomatic, it can go for long periods without being detected (Muñoz & Bosch, 1997). Other risk factors for cervical cancer include:

(i) Not having regular screening: Abnormal changes in the cells of the cervical wall as a result of HPV infection can be detected by a routine screening known as the Pap smear. Sexually active women are encouraged to have this screening done every year so as to detect any changes or any pre-cancerous changes in the cervix early. These changes when detected early can be treated and morbidity from cervical cancer avoided. Therefore, when this screening is not done regularly there is a high risk of developing cervical cancer without knowing.

(ii) Initiation of sexual relations at a young age: Women who start sexual relations at very early age have a risk of contacting the HPV thereby resulting to cervical cancer.

(iii) Having multiple sexual partners, or having sex with someone who has had multiple sexual partners: This factor exposes the woman to high risk of contacting HPV and other sexually transmitted infections thereby making the woman vulnerable to cervical cancer.

(iv) Weakened immune system: HIV (Human Immunodeficiency Virus) is the virus that causes AIDS -- it is not the same as HPV. It can also be a risk factor for cancer of the cervix. Having HIV seems to make a woman's immune system less able to fight both HPV and early cancers. Another group of women at risk of cervical cancer are women getting drugs to suppress their immune response. This would include those being treated for an autoimmune disease or those who have had an organ transplant.

(v) A family history of cervical cancer: Coming from a family that has a

mother, sister, aunt, grand mother with cervical cancer increases the risk 2 to 3 times of developing cervical cancer than from a family without any history. This could be because these women are less able to fight off HPV than other women.

(vi) Age group: Women aged 30-60 are most at risk and the risk also increases with age.

(vii) Smoking: Women who smoke are about twice as likely to get cervical cancer as those who do not smoke. Smoking puts many chemicals that cause cancer into the lungs; these harmful substances are carried in the bloodstream throughout the body to other organs, too. Tobacco by-products have been found in the cervical mucus of women who smoke.

(viii) Socio-economic status: Because poor women have less access to screening and treatment services, their incidence and mortality rates are much higher. Vallikad (2006); Kurkue and Yeole (2006), in their studies among Indian women reported that the prevalence and burden of cervical cancer is much higher among women of Low socio-economic status (LSES), as well as among rural women.

(ix) Chlamydia infection: This is a common kind of bacteria that can infect women's sex organs. It is spread during sex. A woman may not know that she is infected at all unless she is tested for chlamydia when she gets her pelvic examined. Some studies suggest that women who have a past or current infection are at greater risk for cancer of the cervix. Long-term infection can cause other serious problems, too.

(x) Diet: What you eat can play a part as well. Diets low in fruits and vegetables are linked to an increased risk of cervical cancer. Also, women who are overweight are at a higher risk of one type of cervical cancer.

(xi) Birth control pills/ Hormonal contraceptives: Long-term use of birth control pills increases the risk of cervical cancer. Research suggests that the risk of cervical cancer goes up the longer a woman takes "the pill," but the risk goes back down again after she stops.

(xii) Having many pregnancies: Women who have had 3 or more full-term pregnancies have an increased risk of cervical cancer. No one really knows why this is so. Young age at the time of first full-term pregnancy: Women who were younger than 17 years when they had their first full-term pregnancy are almost 2 times more likely to get cervical cancer later in life than women who waited to get pregnant until they were 25 years or older.

(xiii) Diethylstilbestrol (DES): Diethylstilbestrol (DES) is a hormone drug that was used between 1940 and 1971 for some women who were in danger of miscarriages. The daughters of women who took this drug while they were pregnant with them have a slightly higher risk of cancer of the vagina and cervix.

Preventive health measures
These are measures or behaviors that women should engage in to prevent them from having Cervical Cancer, thereby reducing Morbidity and Mortality rates.

1) **Pap smear Screening Test**
The Pap smear is the screening test conducted on women where the cells of the lining of the cervix are scraped and smeared onto a slide and taken to the laboratory for cytology examination. The purpose of this screening test is to detect the early pre-cancerous lesions or abnormal cell changes caused by HPV on the lining of the cervix, and treat them accordingly before they can develop into invasive cervical cancer.

Pap smear is one of the best tests a woman can take (Cracchiolo & Leitao, 2006). Among the reproductive tract malignancies, cervical cancer is the only one that is almost totally preventable by detection through regular cytological screening and treatment of its pre-cancerous lesions. Every woman should be screened at every opportunity of contact with a health professional, at first ante-natal clinic visit, family planning clinics, STI clinics and gynecological clinics.

For women who are sexually active, annual screening from age 18 to 35 years is advised; thereafter every 3 to 5 years provided the test results remain negative. For the cytological test or Pap smear test to be reliable and effective at a minimum, it requires trained providers, a reliable cytology laboratory, continuous access to high quality equipment and supplies, proven record keeping system and effective referral mechanisms for diagnosis and treatment (Gharoro & Ikeanyi, 2006).

2) Vaccination
The Cancer council (2011) has reported that a vaccine is now available to protect against two types of the HPV (types 16 & 18) that causes about 70% of Cervical Cancers. Two types of this vaccine are produced by two different drug companies, one of the vaccine protects against HPV types 16 and 18, and HPV 6 and 11 which cause up to 90% of genital warts.

This vaccine protects against getting infected with the HPV and is given in a series of three injection over a six month period. The optimum schedule for receiving the doses is 0,2 and 4 month stages. The vaccine works better when given to female who have not been exposed to HPV yet, that is females who have not started sexual activities yet as from 9 to 12 years.

The role of the Clinical Psychologist in Sensitization
One of the basic/major roles of the professional Clinical psychologist is that of prevention of disease and alleviating psychological distress. The Clinical

psychologist therefore comes in very valuable, in the area of sensitization and psycho-education of the Nigerian population to be knowledgeable about Cervical Cancer, its causes, how it develops, risk factors, signs and symptoms and preventive measures; so that they can make realistic decisions that will drastically reduce morbidity, mortality, psychological distress, misery and untold hardship.

Guidelines for Developing a Sensitization Programme for Cervical Cancer and Pap Smear Screening

In developing a sensitization programme the following guidelines should be followed:

1) Identify the target population and bring them together.
2) An Introduction which should include definition of concepts Cervical Cancer and Pap Smear screening, current statistics of Cervical Cancer globally and in Nigeria.
3) A summary of empirical studies in Nigeria on knowledge of Cervical Cancer and Screening.
4) How Cervical Cancer develops, signs and symptoms, risk factors and preventive health measures against Cervical Cancer (Pap smear Screening and vaccination against HPV for prevention of Cervical Cancer).
5) List of available health facilities that conduct Pap smear screening in the locality be made accessible for the population so that they know where to go and access the service.
6) Post sensitization assessment to assess the impact of the sensitization on the population.

Conclusion

Sensitization on cervical cancer and pap smear screening is very important for the general population of both males and females, in that when armed with this information/ knowledge realistic decisions and care is taken to prevent high mortality from cervical cancer. It is obvious that knowledge of cervical cancer and screening is lacking or limited in our society therefore the population has not been able to make realistic decisions concerning life style, risks factors and preventive health behaviors. Clinical psychologists are also very relevant in psycho-education, assessment and handling the distress of cervical cancer patients.

Recommendations

The following recommendations are stated thus:

1) Intensive sensitization of the general population on cervical cancer and Pap smear screening be carried out so that people can be informed.
2) Pap smear screening should be made available in every Primary health care center, general hospital and tertiary hospitals so as to be accessible to every woman.

3) The cost of Pap smear screening should be subsidized or made free to encourage women to come out to be screened and therefore reduce the financial burden of carrying out the test.
4) Treatment for women with abnormal Pap smear results should be subsidized or made free by the government.
5) Clinical psychologists should be involved in the psycho-education, assessment and provision of psychotherapeutic services to cervical cancer patients.

References

Aboyeyi, P.A; Iyayi, M.A & Jimoh, A.A. (2004). Knowledge, Attitudes and Practice of Cervical Smear as a screening procedure for cervical cancer in Ilorin, Nigeria. *Tropical Journal of Obstetrics and Gyneacology* 21: 114-117.

Adefuye, P.O. (2006). Knowledge and practice of cervical cancer screening among female professional health workers in a sub-urban district of Nigeria.*Nigeria Medical Practitioner;* 50(1): 19-22.

Adewole, I.In *Ogundipe, S. (2013).*Cervical Cancer Crises: Nigeria, 4 others in the eye of the storm. *Vanguard Mobile Edition; May, 14th www.vanguardngr.com/2013/05/* cervical cancer crises.

Alliance for Cervical Cancer Prevention (2003) "Natural History of Cervical Cancer: Even Infrequent Screening of Older Women Saves Lives," *Cervical Cancer Prevention Fact Sheet*(Seattle: ACCP, 2003).

Awodele, O., Adeyomoye, A.A., Awodele, D.F., Fayankinnu, V.B. & Dolapo, D.C. (2011).Cancer distribution pattern in southwestern Nigeria.*Tanzania Journal of. Health Research,* 13(2), 106-108.

Apampa, R.A. (2009). Comparative study of Knowledge of cervical cancer and screening practice among female staff of university of Lagos, Akoko and Yaba College of Technology, Yaba Lagos. *Unpublished Masters of public Health Dissertation.*

Audu, B.M., El-Nafaty, A.U., Khalil, M. &Otubu, J.A. (1999).Knowledge and Attitudes to cervical cancer screening among women in Maiduguri, Nigeria.*Journal of Obstetric and Gyneacology,*19(3): 295-7

Ayinde, O. A.,Omigbidun, A.O. &Ilesanmi, A.O. (2004).Awareness of cervical cancer, papanicolaous smear and its utilization among female undergraduates in Ibadan.*African Journal of Reproductive Health; 8(3): 68-80.*

Cancer Council Victoria (2011) Information: A vaccine to prevent Cervical Cancer. Info@papscreen.org.au

Chia, P.N., Udzua, F.K. & Ugese, J.I. (2012). *Assessment of Knowledge of Cervical Cancer and Pap Smear Screening in Makurdi Metropolis.* Yet to be published

Cracchiolo, B. &Leitao, M. Jr. (2006).*Update on cervical cancer*. Health Link.

Crum, C.P, Abbott, D.W. & Quade, B.J. (2003) "Cervical Cancer Screening" and Denise A. Galloway,

"Papillomavirus Vaccines in Clinical Trials," *Lancet Infectious Diseases* 3, no. 8; 469-75.

Ferlay, J., Bray, F., Pisani, P., Parkin, D.M. & GLOBOCAN. (2002). *Incidence rates are adjusted to account for differences in age structure across countries*. IARC Cancer Base No. 5, Version 20. Lyon: IARC Press, 2004. http://www-dep.iarc.fr/

Feyi-Waboso, P.A., Kamaru, C., &Aluka, C. (2005). Awareness and Risk Factors for Cervical Cancer among women in Aba, South – eastern Nigeria.Tropical. *Journal of Obstetrics and gynecology;*22(1): 25-26.

Fylan, F. (1998). Screening for cervical cancer: a review of women's attitudes, knowledge and behavior. *British Journal of General Practice;* 48:1509-1514

Gharoro, E.P. &Ikeanyi, E.N. (2006). An appraisal of the level of awareness and utilization of the pap smear as a cervical cancer screening test among female health workers in a tertiary health institution. *International Journal of Gynecology Cancer;* 16:1063-1068

Global Burden of Cervical Cancer (GLOBOCAN). (2002). *Incidence rates are adjusted to account for differences in age structure across countries*. IARC Cancer Base No. 5, Version 20. Lyon: IARC Press, 2004. http://www-dep.iarc.fr/

Global Burden of Cervical Cancer (GLOBOCAN). (2008). Cited in WHO/ICO (2009) Information Centre on Human Papilloma Virus (HPV) and Cervical Cancer. *Human Papillomavirus and Related Cancers in India.Summary Report.*Available at http://www.who.int/hpvcentre/en/, last accessed November 18, 2009.

International Agency for Research in Cancer (IARC), (2008).Cited in WHO/ICO (2009) Information Centre on Human Papilloma Virus (HPV) and Cervical Cancer.*Human Papillomavirus and Related Cancers in India.Summary Report.*Available at http://www.who.int/hpvcentre/en/, last accessed November 18, 2009.

Kirby, E., Webster, R., Symonds, A., Pezzutti, B., Arena, F., Evans, B., Walker, J. & Chadwick, V. (1992). *Pap Smear Testing – Matter of Public Interest.*Parliament of New South Wales.

Koutsky, L. A. (1997) "Epidemiology of Genital Human Papillomavirus Infection," *American Journal of Medicine* 102, no. 5A: 3-8.

Kurkure, A.P. &Yeole, B.B. (2006) "Social inequalities in cancer with special reference to South Asian countries", *Asian Pacific Journal of Cancer Prevention*, **7**(1) 36-40.

McFarland, D.M. (2003). Cervical cancer and pap smear screening in Botswana:

knowledge and perceptions. *International Nursing Review*; 50:167-175

Merchant, R.C., Gee, E.M., Bock, B.C., Becker, B.M. & Clark, A. (2007). Correlates of women'scancer screening and contraceptive knowledge among female emergency departmentpatients. *BMC Women's Health*; 7.

Mutyaba, T., Mmiro, F.A. & Weiderpass, E. (2006). Knowledge, attitudes and practices oncervical cancer screening among the medical workers of Mulago Hospital, Uganda. *BMC Medical Education;* 6(13).

Muñoz, N. & Bosch, X. (1997). Cervical cancer and human papillomavirus: Epidemiological evidence and perspectives for prevention." *SaludPublicaMex*39.

Nakalevu, S.M. (2009). The Knowledge, Attitude, Practice &Behaviour of women towards Cervical Cancer and Pap smear Screening. A cross Sectional study in the Rewa Subdivision.*Unpublished Dissertation* Submitted to the Fiji School of Medicine for the award of master's in public Health.

Neilson, A. & Jones, R.K. (1998) Women's lay knowledge of cervical cancer/cervical screening: accounting for non-attendance at cervical screening clinics. *Journal of Advanced Nursing;* 28(3):571-575.

Ogunbode, O.O. (2005). Awareness of Cervical Cancer and Screening in a Nigerian Female Market Population. *Annals of African Medicine;* 4(4): 160-163.

*Ogundipe, S. (2013).*Cervical Cancer Crises: Nigeria, 4 others in the eye of the storm. *Vanguard Mobile Edition; May, 14th www.vanguardngr.com/2013/05/* cervical cancer crises.

Ogundipe, S. & Obinna, C. (2010). Cervical cancer: Every Sexually active woman is at risk. September 11th 2010.www.vanguardngr.com

Okwara, V. (2011). Cervical cancer is preventable, says Pathologist. *Sunday Mirror.*February; 20: 39.

Olaleye, F. in Oyebade, W. (2012). *The Guardian*.January 12, 2012 Thursday.

Ojiyi, E.O., & Dike, E.I. (2008).Knowledge and practice of cervical cancer screening at the Imo State University Teaching Hospital, Orlu.*PHMJ* 2(2):145-51.

Parkin, D.M., Ferlay, J., Hamdi-Cherif, M., Sitas, F., Thomas, J.O., Wabinga, H., Whelan,

S.L. (2003). Cancer in Africa Epidemiology and Prevention, IARC (WHO) *Scientific Publications no.* 153, IARC Press, Lyon, France.

Program for Appropriate Technology in Health (PATH). (2000). Planning appropriate Cervical Cancer Prevention Programs. (2ndEd.). http://www.path.org/publications/files/cxca-planning-appro-prog-guide.pdf.

Udigwe, G.O. (2006). Knowledge, attitude and practice of Cervical Cancer Screening (Pap Smear) among female Nurses in Nnewi, South Eastern Nigerian.*Journal of Clinical Practice,* 9(1) 40-43.

Vallikad E, (2003) "Cervical Cancer: The Indian Perspective", International Journal of Gynecology

Obstetrics, 95(1) (November 2006): S215-S233. Waggoner SE, *Cervical Cancer," Lancet,* 361, 2217-25.

WHO/ICO (2009) Information Centre on Human Papilloma Virus (HPV) and Cervical Cancer.*Human Papillomavirus and Related Cancers in India.Summary Report.*Available at http://www.who.int/hpvcentre/en/, last accessed November 18, 2009.

Waggoner, S.E. (2003). Cervical Cancer. *Lancet,* 361, 2217-2225.

Zayyan, M. *(2010).*Cervical Cancer in Northern Nigeria; a preventable Tragedy.*Journalist Advocacy in Tobacco and Health.*Available at http://jathnigeria.blogspot.com. Accessed on August 23rd , 2013.