

Our Experience at a Community Based Cervical Cancer Screening Programme: Evidence from Ife-Ijesha Cancer Registry.

Abidemi Omonisi^{1,2}, Oluwole Odujoko², Bridget Omisore³, Olutoyin Omoniyi-Esan², Olapeju A. Esimai⁴.

1.Department of Anatomic Pathology, Ekiti State University, Ado-Ekiti ,Nigeria.

2.Department of Morbid Anatomy & Forensic Medicine, Obafemi Awolowo University, Ile-Ife, Nigeria.

3.Department of Family Medicine, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria

4.Department of Community Health, Obafemi Awolowo University, Ile-Ife, Nigeria

Abstract

Cervical cancer is the most common female gynaecological cancer with increasing morbidity and mortality in Africa despite the availability of Papanicolaou testing method which is affordable, accessible and simple method of screening. It is sad that at the moment, there is no national cervical cancer screening programme in Nigeria.

The activities of over 30 cancer registries in Nigeria should be strengthened to include cancer control programmes in their various catchment areas.

The aim of the study is to describe the trend of cervical cancer in Ife-Ijesha zone, Southwestern Nigeria as recorded in the Ife-Ijesha cancer registry between January 1991 to December 2010. The study also noted the usefulness of Papanicolaou test as a very important screening tool at the community level. This work also studied the operations of Well Women Clinic that was established as an avenue for community cervical cancer screening programme in same region.

6405 cancer cases were studied with 3498 (54.6%) were seen in females while 2907 (45.4%) were seen in males. Total number of cervical cancer recorded was 304 (4.7%) of all the cancers recorded at the cancer registry. Cervical cancer is the sixth most common cancer overall and the second most common cancer in the female in Ife-Ijesha Cancer Registry. There is a decreasing trend of cervical cancer in the region and the period coincided with the period of establishment of Well Women Clinic. Cancer registries have a strategic role in cervical cancer control programme and the effectiveness of Papanicolaou test as a screening tool especially in the developing countries cannot be over emphasized.

Keywords: Community, Cervical Screening, Ife-Ijesha, Cancer Registry.

Corresponding Author:

Name: Abidemi Emmanuel OMONISI

Address: Dept.of Anatomic Pathology, Faculty of Basic Clinical Sciences, Ekiti State University, Ado-Ekiti, Nigeria.

Email: abidemi.omonisi@gmail.com

1. INTRODUCTION

Cancer registries are established for the systematic collection, storage, analysis, interpretation and reporting of cancer data¹. Cancer Registry has been very useful in providing information on cancer incidence, trend and occurrence within a specified community². Registry has a role in assessing cancer control programme and intervention programme in a specified location such as cervical cancer and how effective are the control strategies³. GLOBOCAN over the years has been using data from the various cancer registries to calculate the incidence and monitor the trend of common cancers including cervical cancer⁴⁻⁵.

The incidence of cervical cancer and the mortality rate worldwide is still worrisome as it was found to be the fourth most common cause of cancer incidence and mortality in women globally according to GLOBOCAN 2018 statistics⁶. In Low and Middle Income Countries

(LMIC), the second most common cancer in females and the second most common cause of cancer related death is cervical cancer⁷⁻⁸. It was estimated that cervical cancer accounts for 266,000 deaths each year, of which 85% occurs in developing countries⁹. The burden of the disease has been projected to be 588,922 by 2025 in developing countries⁹.

The main universally acceptable cause of cervical cancer based on sound scientific knowledge is the persistent or chronic infection with one or more of the “high-risk” (oncogenic) types of human papillomavirus (HPV)¹⁰. HPV is the most common infection acquired during sexual relations, usually early in sexual life¹⁰.

Despite the availability of a scientifically proven, very cost effective, sensitive, specific, easily accessible method of screening for cervical cancer through Pap smear¹¹⁻¹² many patients in the developing countries paradoxically, continue to present with the advanced stage of the disease, accounting for high morbidity and mortality statistics¹³⁻¹⁴ when compared with the developed countries where the advanced stage of the disease are rarely seen and the morbidity and mortality statistics are very low¹⁵. It is sad to note that, most of the developing countries of the world have neither population based nor specific national cervical cancer screening programmes despite having the greatest burden of cervical cancer in the world¹⁶. This has been responsible for the lack of national effort to effectively tackle the disease in the developing countries of the world.

This study was carried out to document our experience at a community based cervical cancer control programme known as Well Woman Clinic in Ife-Ijesha zone of Osun State, Nigeria.

2. Materials and Methods

Study location: This study was carried out at the Well Woman Clinic located within the premises of Comprehensive Health Centre, Eleyele an urban settlement in Ile-Ife where primary healthcare services are provided at the community level and Ife-Ijesha cancer registry is located within the premises of Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Osun State, Nigeria.

Study Area: The well women clinic and registry are located and essentially covered the Ife-Ijesha senatorial zones that comprises of ten Local Government Areas of Osun State¹⁷ and as shown in Figure 1.

Screening Method: All the women that attended the Well Women Clinic were screened using the Papanicolaou test. Those with dysplasias were referred for further evaluation for cervical cancer.



Figure 1: MAP OF IFE-IJESHA (OSUN EAST) ZONE OF OSUN STATE

The well woman clinic holds every Tuesday and this is well attended by women within Ife-ijesha population. The Ife-Ijesha is a Yoruba speaking geo-political zone in the Southwestern region of Nigeria. The economic activities of the people revolve around farming, agro-allied production, trading, artisanship, school administration, teaching and cottage industries. In addition, there are large academic community consisting of highly educated lecturers and non-academic staff in the Universities, Polytechnic and Colleges of Education. There are civil servants in the services of local, state and federal governments with numerous other corporate and private businesses. There are also, a Teaching Hospital and Missionary Hospitals, in the zone. The Ooni of Ife and the Owa Obokun of Ijeshaland are notable paramount rulers in the zone. The zone is home to the famous and beautiful Erin Ijesha (Olumirin) waterfalls: a lavish acrobatic display of nature and a proud tourist attraction centre ¹⁸.

Study population: Three hundred and four (304) of cervical cancer cases documented in the Ife-Ijesha Cancer Registry were analysed for this study.

Study type: The study was a retrospective one.

Inclusion and exclusion criteria: All other cancers except cervical cancers were excluded from this study. Furthermore, all cases of cervical cancers with incomplete documentation were also excluded. The data was analyzed using simple descriptive statistical methods

Ethical clearance: Ethical approval for the study was obtained from the hospital's Research and Ethical Committee of Obafemi Awolowo University Teaching Hospital, Ile-Ife, Osun State, Nigeria. The protocol number is ECR/2011/04/06.

Statistical analysis: SPSS version 15.0 (SPSS, Inc.,Chicago, Illinois,USA) was deployed for the statistical analysis.

Results

During the period under review, 6895 cancer cases were captured in the Ife-Ijesha cancer registry but 6405 cases were analyzed based on the set criteria for the study. The total number of females with cancer during this study period was 3498 constituting 54.6% of the overall cancer cases as shown in Figure 2.

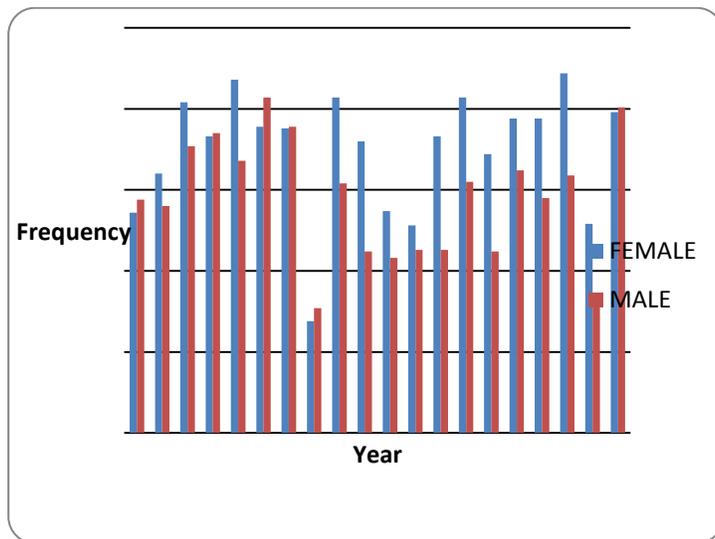


Figure 2: A bar chart showing the total cases recorded each year by gender, 1991-2010.

The age group distribution in the females showed the peak occurrence in the age group 45-54 years and the lowest number in the age group 95-104 years as shown in Figure 3.

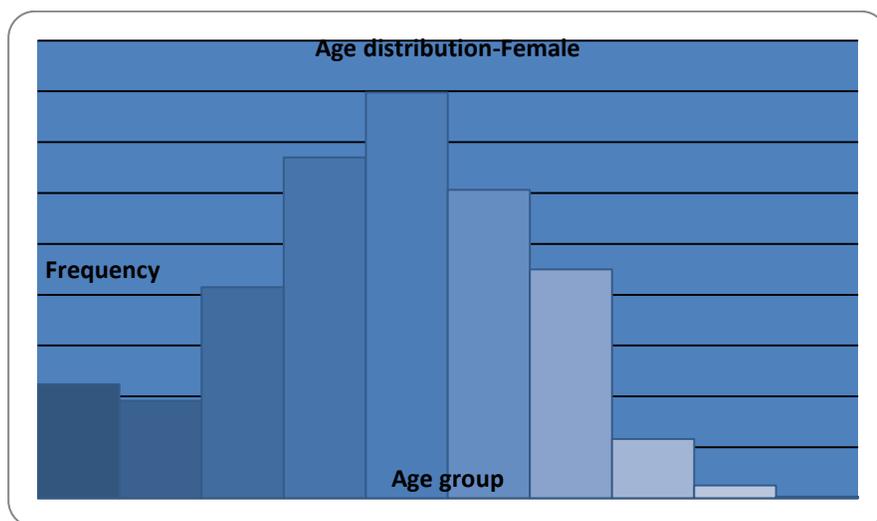


Figure 3: The occurrence and age group distribution of female cancers, 1991-2010.

The top ten cancers by sites are as shown in Figure 4. Overall in all persons, cancer of the breast topped the list of the top ten most frequent cancers while cervical cancer ranked as the sixth most common cancer during the study period as shown in Figure 4.

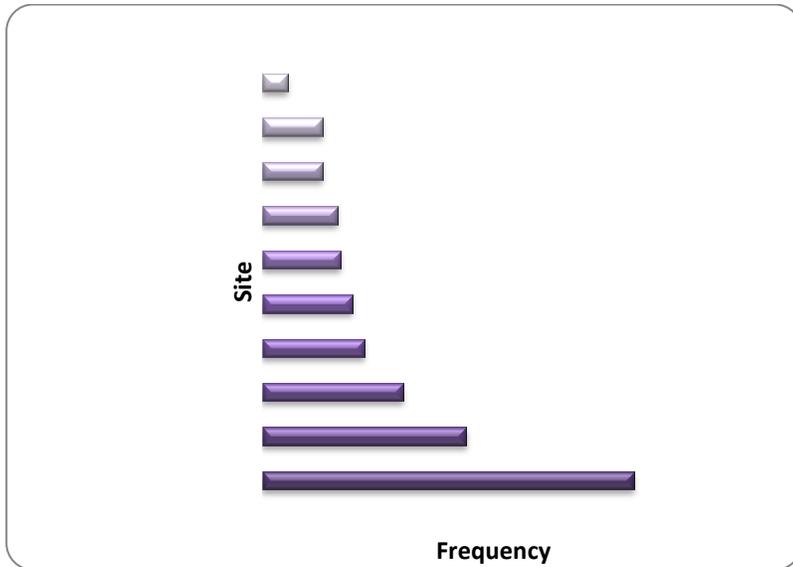


Figure 4: A Graph Showing Top Ten cancers in IICR: 1991-2010,ALL PERSONS

Breast cancer was the most common cancer in the females and this was followed by cancer of the cervix as the top second cancer as shown in Figure 5.

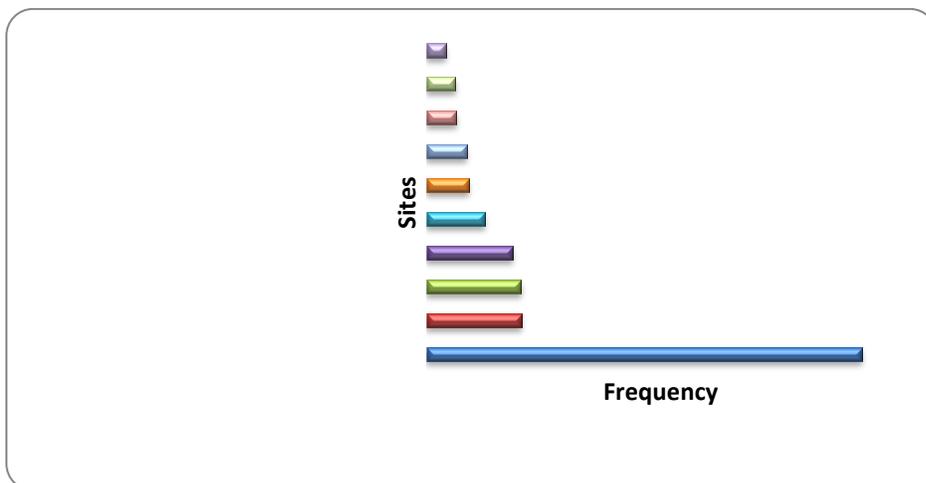


Figure 5: The Bar Graph showing Top Ten cancers site in Female 1991-2010.

Cervical cancer was the second most common cancer among the females. A total of 304 new cases were diagnosed during the study period and the annual number of cases of cervical cancer was 15 on the average. Steady rise in number of cervical cancer was noticed since the early 90s with 5 major

spikes recorded during the period under study as shown in Figure 6. However, there was a marked decline in the trends of cervical cancer since 2008 up till the end of the study period as also shown in Figure 6.

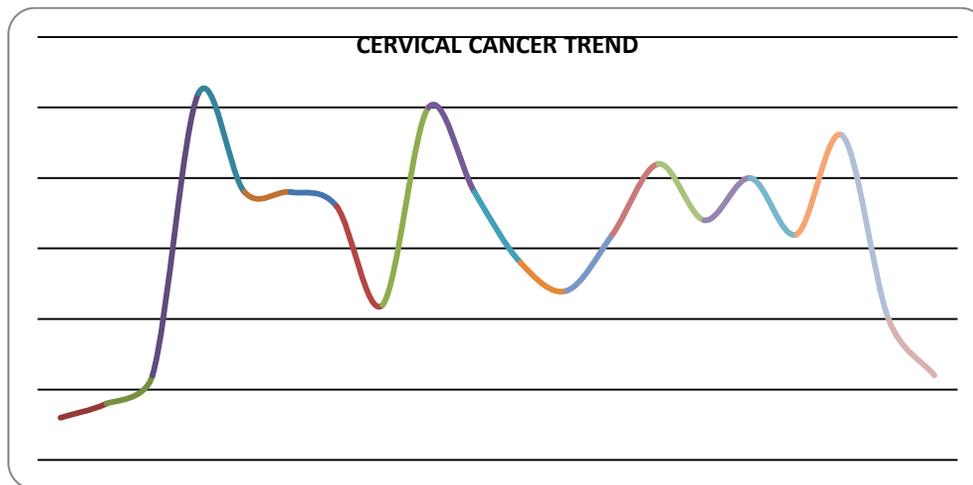


Figure 6: Showing Trend of Cervical Cancer IICR,1991-2010.

Squamous cell carcinoma, Non-keratinizing accounted for the commonest histological type of cervical cancer as shown in Table 1.

Morphological diagnosis	ICD –O Code	Number	Percentage
Squamous cell carcinoma, NOS	8070/3	87	28.6%
Squamous cell carcinoma, Keratinizing	8071/3	69	22.7%
Squamous cell carcinoma, Non-keratinizing	8072/3	101	33.2%
Adenocarcinoma, NOS	8140/3	23	7.6%
Verrucous carcinoma	8051/3	6	2.0%
Leiomyosarcoma	8890/3	4	1.3%
Adenosquamous carcinoma	8560/3	3	1.0%
Clear cell adenocarcinoma	8310/3	3	1.0%
Endometrioid adenocarcinoma	8380/3	3	1.0%
Papillary carcinoma	8052/3	1	0.3%

Mucinous adenocarcinoma	8480/3	1	0.3%
Malignant lymphoma	9590/3	1	0.3%
Endometrioid stromal sarcoma	8931/3	1	0.3%
Undifferentiated Carcinoma	8020/3	1	0.3%
Total		304	100%

Table 1: Site and Morphological Types of Cervical Cancer (1991-2010)

DISCUSSION

The health and development of the next generation is basically anchored on women's health during the reproductive years. Unfortunately, the health of women is disparagingly affected by social, cultural, and economic factors¹⁹. Women are faced with a lot of health challenges, including gynaecological challenges, which of course are peculiar to women. The leading gynaecological problem for women, especially in developing countries is cervical cancer¹⁶. Generally speaking, the knowledge of most women on cervical cancer and its screening is very limited and the attitude is not so positive too. From previous studies, there is apparent lack of knowledge about cervical cancer and low-uptake of cervical screening using Pap smear²⁰⁻²¹. There are many barriers that could possibly contribute to the low rates of screening for cancer among women such as unawareness of the disease or screening test, feeling of embarrassment during the test, cultural and linguistic barrier, and the ease of getting the test done²². There has been agitation for community-based screening of women so as to promote access for cervical cancer screening at the community level. However, the peculiarities of the screening test, with regards to the need for privacy and confidentiality makes community-based screening (for instance house to house, or market-place screening) very difficult and impracticable, especially in developing countries where socio-cultural factors are major determinants of health-seeking behaviour²³. Approaches that can help to eliminate the barriers to community-based cervical cancer screening will include intensified community health campaigns, community-based health education, and specific sensitization among the women population. In the context of developing countries, the well woman clinics remains an integral part and/or precursor of "community-based screening" for cervical cancer and should thus be encouraged. The well woman clinic serves as health promoting tools or units through which women can be empowered to gain control over and to improve their own health. Preventive health services such as health education and cervical screening can be carried out at such clinics²⁴⁻²⁵. Some of the services often provided in well-woman clinic include advice on gynecological problems, family planning, breast and cervical cancer screening, menopause, fertility treatment and sexual problems. Women represent a disproportionate share of the poor and have limited access to health service, especially in settings with limited resources such as developing countries²⁶.

Cervical cancer is the second most common cancer in the females in this study. There is a marked decline in the number of cases and the trends of cervical cancer over the study period. The decrease in the number of cervical cancer noticed in this study could probably be due to the establishment of a well coordinated cervical cancer screening programme known as Well Woman Clinic in the study area since 2003.

It is worthy to note that the Well Woman Clinic and Ife-Ijesha Cancer Registry over the period under study, engaged in diverse strategic interventions such as health education and sensitization programmes on cervical cancer targeted among women groups such as market women, socio-cultural women groups and association, nurses, female staff of tertiary health care facilities within the study area, and the religious societies.

The promotion of easy accessibility to cervical cancer screening using Pap smear at a well subsidized cost compared to the higher official cost at the other hospitals in the region, and the elimination of the various sociocultural barriers especially, the elimination of male health workers in counseling and cervical smear collection, were the main strategic interventions that were key to reversing the increasing trend of cervical cancer in Ife-Ijesha population.

The decreasing trend observed in Ife-Ijesha during the period of study contrasts with some of the various reports from sub-Saharan African countries which have shown an increasing trend of cervical cancer in the region²⁷⁻²⁸. Steady increasing trend of cervical cancer in the region has been associated with unsuccessfully organized quality cytology based cervical cancer screening programmes, poverty, lack of resources and infrastructures and disenfranchisement of women¹⁶.

The Well Woman Clinic since establishment in 2003, basically screens for cervical cancer and refer suspected cases for prompt treatment at the Gynaecological Oncology Unit located at the Obafemi Awolowo University Teaching Hospitals Complex Ile-Ife, Nigeria which is the main wing of the Teaching Hospital Complex. This Clinic has a setting of Primary Health Care coordinated by the Department of Community Health at Comprehensive Health Centre, Eleyele collaborating with the Department of Morbid Anatomy at Obafemi Awolowo University Teaching Hospitals Complex Ile-Ife, Nigeria.

In this clinic, Papanicolaou test was the only cervical cancer screening method used and this is a very reliable screening method for individual and community based cervical cancer screening. For several decades, Papanicolaou test has been used as a scientifically proven method for cervical cancer screening both in the developed and developing countries²⁹. The Papanicolaou test was invented by the Greek Physician, George N. Papanicolaou in 1943 and since then till date, the test has been reported in various works to significantly reduce the increasing trend, incidence and mortality of cervical cancer. It has been used over several decades as a cervical cancer screening tool in developed countries for their comprehensive population based and national cervical cancer screening programmes³⁰⁻³². The efficiency of the Papanicolaou test in detecting precancerous cervical lesions cannot be over-emphasized³³⁻³⁴.

Different cervical cancer screening methods have evolved over the years such as visual screening methods which include Visual Inspection with Acetic Acid (VIA). This method is easily susceptible to inter-observer variation and not useful method for screening postmenopausal women because their transformation zones are often displayed within the endocervical canal and not easily visible to the observer³⁵. This probably is the reason for the high rate of misdiagnosis associated with VIA and has thus diminished the acceptability rate in this part of the world. Coincidentally, the postmenopausal women accounted for the highest percentage of women that present at health facilities with advanced cervical cancer in the developing countries³⁵. Therefore, the usefulness of VIA as a screening method in the developing countries is highly debatable. In sub-Saharan Africa, HPV DNA which is a molecular method of testing is presently beyond the reach of many countries where lack of stable power supply is still a major issue, majority of the women in these countries cannot afford the cost of testing and may be expensive to maintain³⁶.

In a bid to stem the tide of cervical cancer in resource poor societies of the world, there is certainly a need to maximize the usefulness of this basic cervical cancer screening test, which is Papanicolaou test as this method is cheap, easily accessible, did not require rocket science, affordable and could be carried out at the community level.

In this study, we have shared our experience at a community based cervical cancer screening programme in Africa. We are recommending Papanicolaou test as an effective screening tool in resource limited settings like Africa.

Finally, there are over 30 cancer registries in the country spread across the six geo-political zones in Nigeria consisting the Nigerian National System of Cancer Registries (NSCR)³⁷. The activities of these registries should be strengthened by the Federal Ministry of Health and other regulatory health agencies to include community based cervical cancer screening intervention programmes within their various catchments. This could subsequently be escalated to the national level to form a national cervical cancer screening programme that is currently lacking in the country.

APPRECIATION

We are grateful to all staff of Ife-Ijesha Cancer Registry for their commitment to cancer registration in Ife-Ijesha population.

CONFLICTS OF INTEREST

There are no conflicts of interest.

REFERENCES

1. Wagner G. Cancer Registration: Principles and Methods. In: Jensen O.M, Parkin D.M, MacLennan R, Muir C.S, and Skeet R.G,eds. History of cancer registration .International Agency for Research on Cancer .IARC Scientific Publications Lyon.1994:No.95;3-6.
2. Katanoda K, Ajiki W, Matsuda T, Nishimo Y, Shibata A, Fujita M et al. Trend analysis of Cervical Incidence in Japan Using Data from Selected Population- Based Cancer Registries. Cancer Science. [https:// doi.org/10.1111/j.1349-7006.2011.02145.x](https://doi.org/10.1111/j.1349-7006.2011.02145.x)
3. Armstrong KA. The role of the cancer registry in cancer control. Cancer, Causes & Control.1992;3:569-579.
4. Waterhouse JAH, Muir CS, Correa P. Cancer Incidence in Five Continents. International Agency for Research on Cancer Lyon. IARC Scientific Publications .1976:Vol.III No.15.
5. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008:GLOBOCAN 2008.Int, J Cancer,2010;2179(12):2893-2917.
6. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global Cancer Statistics 2018: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin 2018; 68:394-424.
7. Al Sabbah H. Knowledge and Beliefs Related to Cervical Cancer , Pap Smear Screening and HPV Vaccination among Women in Umm Al Qawain UAE. Int J Excell Healthc Manag. 2015;5(1):1–11.
8. Hoque ME. Cervical cancer awareness and preventive behaviour among female university students in South Africa. Asian Pacific J Cancer Prev. 2010;11(1):127–30.
9. Olanlesi-Aliu A, Martin P, Daniels F. Towards the development of a community-based model

- for promoting cervical cancer prevention among Yoruba women in Ibadan Nigeria: application of PEN-3 model. *South African J Gynaecol Oncol.* 2019;11(2):20–4.
10. WHO. *Comprehensive Cervical Cancer Control.* Geneva. 2014;366–78.
 11. Oluseyi Amu E. Awareness, Knowledge and Attitude to Cervical Cancer and Its Screening among Females in Somolu Local Government Area, Lagos, Nigeria. *J Community Med Heal care.* 2019;4(1):1–6.
 12. Padmaja GJV. Well Woman Clinic-Screening Program for Cervical Carcinomas. *J Evol Med Dental Sci.* 2014;3(08):1910–4.
 13. Anorlu RI, Orahwue CO, Oyeneyin L, Abudu OO. Late Presentation of patients with cervical cancer to a tertiary hospital in Lagos: What is responsible? *European Journal of Gynaecological Oncology.* 2004;25(6):729-32
 14. Dunyo P, Effah K, Udofia EA. Factors associated with late presentation of cervical cancer cases at a district hospital: a retrospective study. *BMC Public Health.* 2018; 18: 1243
 15. Ali F, Kuelker R, Wassie B. Understanding cervical cancer in the context of developing countries. *Ann Trop Med Public Health.* 2020;5:3-15
 16. Denny L, Quinn M, Sankaranarayanan R. Screening for cervical cancer in developing countries. *Vaccine.* 2006;24S3:S3/71-S2/77.
 17. Centre for Black Culture and International Understanding.
<http://www.centreforblackculture.org>. Accessed 22nd of November 2019.
 18. Map of Ijeshaland. www.ogedengbe.com. Accessed 22nd of December 2019.
 19. World Health Organization. *Women and Health: Today's Evidence, Tomorrow's Agenda.* 2009.
 20. Waller J, McCaffery K, Forrest S, Szarewski A, Cadman JW. Awareness of human papillomavirus among women attending a well woman clinic. www.stijournal.com [Internet]. 2003;79(4):320–2. Available from: www.stijournal.com
 21. Heena H, Durrani S, Alfayyad I, Riaz M, Tabasim R, Parvez G, et al. Knowledge, Attitudes, and Practices towards Cervical Cancer and Screening amongst Female Healthcare Professionals: A Cross-Sectional Study. *J Oncol.* 2019;2019.
 22. Jassim G, Obeid A, Al Nasheet HA. Knowledge, attitudes, and practices regarding cervical cancer and screening among women visiting primary health care Centres in Bahrain. *BMC Public Health.* 2018;18(1):1–6.
 23. Singh MK, Einstadter D, Lawrence R. A structured women's preventive health clinic for residents : a quality improvement project designed to meet training needs and improve cervical cancer screening rates. *Qual Saf Heal Care* [Internet]. 2010;(August). Available from: <http://qualitysafety.bmj.com>
 24. Dudeja P, Singh A, Jindal AK. Health promotion initiatives: An experience of a Well Women's

- Clinic. *Med J Armed Forces India*. 2014;70(1):64–7.
25. WHO UNICEF. A vision for primary health care in the 21st century. 2018.
 26. Tinker A, Finn K, Epp J. Improving Women ' s Health. 2000.
 27. Jedy-Agba E, Joko WT, Liu B, Buziba NG, Borok M, Korir A et al. Trends in Cervical Cancer Incidence in sub- Saharan Africa. *Br J Cancer*.2020 Apr 27. doi: 10.1038/s41416-020-0831-9
 28. Mboumba Bouassa RS, Prazuck T,Lethu T, Jenabian MA, Meye JF, Belec L. Cervical cancer in sub- Saharan Africa: a preventable non communicable disease. *Expert Rev Anti Infect Ther*. 2017; 15(6):613- 627 doi: 10.1080/14787210.2017.1322902.
 29. Maine D, Hurlburt S, Greeson D. Cervical cancer prevention in the 21st Century: Cost is the Only Issue. *American Journal of Public Health*. 2011;101:1549-1555. doi.org/10.2105/AJPH.2011.300204.
 30. Devesa SS, Young JL, Jr, Brinton LA, Fraumeni JF., Jr Recent trends in cervix uteri cancer. *Cancer*. 1989; 64:2184–90.
 31. Pretorius R, Semrad N, Watring W, Fotheringham N. Presentation of cervical cancer. *Gynecol Oncol*. 1991; 42:48–53.
 32. Lee HK, Kim SN, Khang SK, Kang CS, Yoon HK. Quality control program and its results of Korean Society for Cytopathologists. *Korean J Cytopathol*. 2008;19:65–71.
 33. Sherman ME, Schiffman M, Herrero R, Kelly D, Bratti C, Mango LJ et al. Performance of a semiautomated Papanicolaou smear screening system: results of a population-based study conducted in Guanacaste, Costa Rica. *Cancer*. 1998; 84: 273–280.
 34. Barut MU, Kale A, Kuyumcuoglu U, Bozkurt M, Agacayak E, Ozekinci S et al. Analysis of Sensitivity, Specificity, and Positive and Negative Predictive Values of Smear and Colposcopy in Diagnosis of Premalignant and Malignant Cervical Lesions. *Med Sci Monit*. 2015; 21:3860-3867.
 35. Sowemimo OO, Ojo OO, Fasubaa OB. Cervical cancer screening and practice in low resources countries: Nigeria as a case study. *Trop J Obstet Gynaecol* 2017; 34:170-6.
 36. Fadahunsi OO, Omoniyi-Esan GO, Banjo AAF, Esimai OA, Osiagwu D, Clement F et al. Prevalence of High Risk Oncogenic Human Papillomavirus Types in Cervical Smears of Women Attending Well Woman Clinic in Ile-Ife, Nigeria, *Gynecol Obstet* 3: 185 doi:10.4172/2161-0932.1000185.
 37. Jedy-Agba EE, Oga EA, Odutola M, Abdullah YM, Popoola A, Achara P et al. Developing National Cancer Registration in Developing Countries- Case Study of the Nigerian National System of Cancer Registries. *Frontiers in Public Health* .2015; 3:186.