

## Impact of Midwife-Led Educational Intervention on Uptake of Cervical Cancer Screening Among Teachers in Selected Secondary Schools in Ibadan

Adeola Fatima Adeyemi<sup>1</sup>, Olayinka A. Onasoga<sup>2</sup>, A.J. Ajayi<sup>3</sup>, Olufemi Y. Makinde<sup>1</sup>, Adetunmise O, Olajide<sup>1</sup>, Bayo L. Ajibade<sup>1</sup>, Oluwaseyi I Olabisi<sup>4</sup>

<sup>1</sup> Faculty of Nursing Science, Ladoke Akintola University of Technology, Ogbomoso, Oyo-State

<sup>2</sup> Department of Nursing, University of Ilorin, Ilorin. Kwara State

<sup>3</sup> Department of Physiology, Ladoke Akintola University of Technology, Ogbomoso, Oyo-State

<sup>4</sup> Faculty of Nursing Science, Bowen University, Iwo, Osun-State

doi: <https://doi.org/10.37745/ijcceo.15/vol4n11733>

Published August 19 2023

**Citation:** Adeyemi A.F., Onasoga O.A., Ajayi A.J., Makinde O.Y., Olajide A.O., Ajibade B.L., Olabisi O.I. (2023) Impact of Midwife-Led Educational Intervention on Uptake of Cervical Cancer Screening Among Teachers in Selected Secondary Schools in Ibadan, *International Journal of Cancer, Clinical Inventions and Experimental Oncology*, 4 (1), 17-33

**ABSTRACT:** *This study assessed the impact of midwife-led educational intervention on the uptake of cervical cancer screening among female teachers in selected secondary schools in Ibadan. Quasi-experimental research design was adopted to collect data from 109 female teachers in selected secondary schools in Ibadan through purposive sampling. Self-structured questionnaire was used to collect the data and both inferential and descriptive analysis were done. The average age of respondents 25-34 years with mean score of  $37.61 \pm 10.33$ . Majority 68(57.60%) had one lifetime sexual partner. Findings show that educational intervention has positive impact by increasing the knowledge of respondents on cervical cancer screening (pre-intervention mean score) ( $M = 2.42 \pm 1.66$ ) and post-intervention knowledge ( $M = 8.75 \pm 3.82$ ). Mid-wife led educational intervention improved female teachers' knowledge towards uptake of cervical cancer screening practices*

**KEYWORDS:** cervical cancer, screening, uptake, teacher

### INTRODUCTION

Cervical cancer is a significant global concern and a significant contributor to cancer-related death among women globally (Mengesha et al., 2020). Its health consequences touch not just women but their immediate communities although it is one of the most preventable diseases by screening and monitoring (Mengesha et al., 2020).

---

Publication of the European Centre for Research Training and Development-UK

In industrialized nations, cervical cancer screening has lowered cancer incidence and death due to the use of health education initiatives that improve screening and early identification of cervical cancer (Abu et al., 2020). In their study, Charity et al. (2019) found hurdles to the uptake of cervical cancer screening, including poor awareness about the illness and screening facilities, personal reasons, and poverty.

In the research conducted by Abiodun et al. (2014), the Nurse-led educational intervention increased knowledge of cervical cancer screening. Women with very excellent understanding of cervical cancer and screening increased by 68.5%, while lack of information was cited as the primary reason women did not undergo cervical cancer screening. In the research conducted by Abiodun et al. (2014), the Midwife-led educational intervention increased knowledge of cervical cancer screening accompanied by instructional resources boosted the utilization of CCSS. Incorporating one-on-one health education and instructional materials for use into current maternity health services can boost cervical cancer screening rates.

Ebu et al. (2019) reiterated that to promote women's health, attempts to raise knowledge and comprehension of cervical cancer and screening via implementation of an intervention would be a great first step. Education on health may assist women to raise their screening intentions. A comprehensive evaluation of research completed in industrialized countries endorses the implementation of health education intervention programs to boost screening for cervical cancer rates. Education is the standard for disseminating information and knowledge. Teachers are people with educational leadership skills and their main aim is distributing knowledge and information in the simplest and most efficient ways possible. Hence, a teacher can be said to be a 'resource site' and role model for their students and the general public (Kizi & Makhmudov, 2020). However, there is little or no evidence to ascertain that Nigerian female teachers have considerable knowledge and resources about cervical cancer and cervical cancer screening services and practices in order to fulfill their roles as a resource person and role model to disseminate the knowledge they have to their students, families and the general public.

In spite of the qualities of teachers as a communicator, administrator, role model, and an advocate, teachers with poor knowledge about cervical cancer and its screening would have little or no information to disseminate to their students then to the general populace, hence the importance or benefit of cervical screening in early detection of cervical cancer is prevented. Thus, it is important for the researcher to educate the teachers on cervical cancer and its screening and conduct a study to investigate the impact of midwife-led educational intervention on uptake of cervical screening among secondary school teachers in Ibadan.

Objectives are to:

1. Assess level of awareness on cervical cancer screening of female secondary school teachers in Ibadan
2. Determine the Knowledge about causes of Cervical Cancer and preventive measures against Cervical Cancer Screening amongst the respondents

---

Publication of the European Centre for Research Training and Development-UK

3. Evaluate pre-and post-intervention knowledge about cervical cancer and cervical cancer screening of female teachers in selected secondary schools in Ibadan.
4. Evaluate the pre-and post-intervention uptake of cervical cancer screening services among female teachers in selected secondary schools in Ibadan.

## **METHOD**

### **Research Design**

This study adopted a quasi-experimental design with a single group to investigate the effect of a midwife-led educational intervention on cervical cancer screening participation among female teachers in selected schools. Ibadan The quasi-experimental design was centered on the experimental nature of the study's interventional groups

### **Study Setting, Population. Sample size and Sampling technique**

The research was carried out in Ibadan, Oyo State, at three secondary schools chosen at random from the Lagelu, Egbeda, and Ibadan North Local Governments. The three school are Idi-Ito High School in Lagelu Local Government, Monatan High School in Egbeda, and Methodist Grammar School, Bodija in Ibadan North Local Government. There are 150 female teachers in the schools and a sample size of 109 female teachers was purposively selected after the calculation using Taro Yamane method. The inclusion criteria are onsenting female teachers in selected secondary schools who have been exposed to sexual activities and were within the age of 25 and above.

### **Instrument for data collection**

The data collection tool was a self-administered questionnaire with structured questions divided into 6 sections: section A for demographic information, section B for items on knowledge of cervix cancer, section C for knowledge of cervical cancer, practice, and its screening, section D for uptake of cervical cancer screening, section E for reasons for non-uptake of cervical screening, and section F for reasons for non-participation in cervical screening. The reliability of the instrument was conducted using test-re-test.

### **Ethical approval**

Ethical clearance for the study was obtained from the Ladoke Akintola University Ethical Committee, Ogbomoso. An approval letter was obtained from the Ministry and delivered to the principals of the three designated secondary schools

## **Method of data collection**

### Pre-intervention visits sessions

All participants that meet the inclusion criteria was met in their respective schools. Consent was obtained and just one training session was organized in a hall/laboratory after the assembly and during the break time on school grounds. A rapport was created for familiarization. The topic and purpose of the study was explained within the scheduled time (20 minutes) to the participants. The language used was English language since it is a professional/academic setting. Information provided in the course of the study were treated with confidentiality and they (participants) were informed that they can withdraw from the study at any point without fear of any negative consequences. Participants were given a questionnaire containing sections on socio-demographic information, knowledge of cervical cancer, uptake of cervical cancer screening, and reasons for not participating in cervical cancer screening in order to assess their level of knowledge regarding cervical cancer and cervical cancer screening practices.

### B. Intervention session

During this phase, a structured lecture (Health education) was organized and delivered to the participants (teachers) in their various schools on the concept of cervical cancer, causes and risk factors, stages of cervical cancer symptoms, various methods of cervical cancer screening and prevention of cervical cancer and its early detection through cervical cancer screening using teaching aids such as diagrams and chart. This lecture was scheduled and delivered after the assembly and during the long break in their various schools so as to avoid interference with the academic activities of the schools and lasted for twenty minutes. The lecture inspired the participants to ask questions and all questions raised were answered appropriately. Few days after, a post-intervention questionnaire was administered.

### C. Post Intervention/Evaluation visit session

Few days after the intervention phase, post-intervention assessment (questionnaire) was given to the participants so as to evaluate the level of uptake on the knowledge passed to the participants. The participants were subjected to the same instruments administered before the intervention session. The teachers were then encouraged to contact the cervical cancer screening centres within the Local Government Areas.

## **Method of data analysis**

All questionnaire responses were added into the database. All data were reviewed for correctness before entry, and following entry, all mistakes were deleted and the data was analyzed using Statistical Package for Social Sciences (SPSS) software (20.0 version). Mean and standard

deviation were used to portray quantitative variation, whereas frequency tables were used to present qualitative variance. The paired t-test at a 5% level of significance was used to evaluate the hypotheses, and a p-value less than or equal to 0.05 was considered significant.

## RESULTS

### Sociodemographic variables

Table 1 shows the socio-demographic characteristics of the respondents. The average age of the respondents was  $37.61 \pm 10.33$  years. A majority of 51 respondents (43.20%) were within the age group 25 to 34 years, followed by 35 to 44 years at 27 (22.90%). Majority (80.50%) of the respondents are Christians and 68.70% were married. It was observed that 33 (28.00%) of the respondents had not given birth to any child, 26 (22.00%) had 2 children while 25 (21.20%) had both 3 children and more than 4 children respectively. Sixty-eight respondents (57.60%) had only 1 lifetime sexual partners, followed by 16 respondents (13.60%) that had 2 lifetime sexual partners. The mean age of the respondents at the first sexual intercourse was analyzed to be  $24.15 \pm 4.24$  years.

### Awareness about cervical cancers among the participants

Table 2 summarizes the number of respondents that has heard about cervical cancer at post-intervention phase against the pre-intervention phase and shows their sources of information about it. It was observed that 98 (83.10%) respondents that heard about it at the pre-intervention phase while 112 (94.90%) respondents had heard about cervical cancer at the post-intervention phase. This shows that the intervention was relatively successful due to the increased number post-intervention. Social media was the most prevalent source of information about cervical cancer at the pre-intervention and post-intervention phases with 47 (48.0%) and 50 (44.6%) respondents respectively followed by both radio and television at 33 (33.7%) respondents at pre-intervention phase and the hospital and lecture rooms at 45 (40.20%) and 43 (38.40%) respondents at post-intervention phase. This shows that social media remains a good source of passing information and enlightenment pertaining to cervical cancer.

### Knowledge about causes of Cervical Cancer and preventive measures against Cervical Cancer Screening amongst the respondents

Table 3 shows the respondents responses on the curability and preventability of cervical cancer at the pre-intervention and post-intervention phases. The result showed that 104 (88.10%) respondents reported that cervical cancer is curable at the post-intervention phase against 64 (54.20%) respondents prior to intervention. Prior to intervention, 95 (80.50%) reported that cervical cancer is preventable while at the post-intervention phase 111 (94.10%) respondents agreed that cervical cancer is preventable. The table also shows the knowledge about preventive

---

Publication of the European Centre for Research Training and Development-UK

measures against cervical cancer. Information in the table shows that prior to intervention, 51 out of 95 respondents agreed that cervical cancer is preventable via avoidance of multiple sexual partners while 43 reported early diagnosis and treatment as a preventable measure. Similarly, 111 respondents at the post intervention phase agreed that cervical cancer is preventable. Ninety respondents reported that the avoidance of multiple sexual partners is a preventive measure while 60 respondents agreed that avoidance of sex at an early age was a good preventive measure.

Furthermore, the table shows the knowledge of respondents', at the pre-intervention and post-intervention phase, on the causes of cervical cancer. Of the 98 respondents that had heard about cervical cancer prior to intervention, 42 reported having multiple sexual partners as the cause of cervical cancer, 23 reported infections while 22 reported early age sexual intercourse as causes of cervical cancer. This is suggestive of a relatively good knowledge about cervical cancer by the respondents. Similarly, of all 112 respondents that have heard about it at the post-intervention phase, 72 reported having multiple sexual partners, 51 reported early age sexual intercourse while 40 reported human papillomavirus infection as a cause of cervical cancer.

### **Pre- and post-intervention knowledge on cervical cancer screening of female secondary school teachers**

Table 4 shows the knowledge of respondents on the available screening methods. It was revealed at the pre-intervention phase that 36 (30.5%) reported that there is a screening centre in their residential areas and 82 (69.5%) respondents reported that they did not know about the presence of a screening centre in their residential areas. At the post-intervention phase, 86 (72.5%) of the respondents reported that hospitals and health centres are places where cervical cancer screening should be done while 43 (36.70%) respondents agreed that the screening should be done annually. Based on the available screening methods, at the pre-intervention phase, 64 (54.2%) respondents do not know about the available screening methods while at the post-intervention phase, 60 (50.8%) respondents reported Pap smear as an available screening method.

### **Pre-and post-intervention uptake of cervical cancer screening services**

Table 5 summarizes the uptake of cervical cancer screening by the respondents and their knowledge on methods used for cervical cancer screening. It was revealed that only 23 (19.50%) of the respondents had been screened for cervical cancer prior to intervention while 32 (27.10%) had been screened at post intervention. At both pre-intervention and post-intervention phases, 15 (65.20%) out of 23 and 17 (53.10%) out of 32 respondents respectively used pap smears for testing for cervical cancer, followed by Visual inspection with acetic acid (VIA) at 4 (17.40%) and 11 (37.40%) respondents respectively. Three (2.50%) of all the respondents had been vaccinated against cervical cancer at both pre-intervention and post-intervention phases.

## **DISCUSSIONS OF FINDINGS**



---

Publication of the European Centre for Research Training and Development-UK

The mean age of the respondents in this study was  $37.61 \pm 10.33$  years with higher percentage of 51 (43.20%) within the age range of 25-58 years. In contrast to the trend observed among market women in a survey conducted in Niger state, Northern Nigeria, the highest age group of respondents was between the ages of 35 and 54, with a mean age of  $38.54 \pm 11.06$  years. More than half of the teachers (68.70%) in selected secondary schools in Ibadan were married. This reflects the importance placed on the marriage institution particularly in this environment. This finding is much lower than the study carried out in Lagos South Western Nigeria where 72% of the respondents were married. Also, majority of the participants, 95 (80.50%), were Christians. The greatest percentage 33(28%) has no children while 26(22%) had two children, and this may be attributed to Obstetric make-up of the woman, adoption of family planning or economic situation in the country.

In this study, it was observed that a high number of respondents (83.10%) had heard about cervical cancer at the pre-intervention phase. This high level of awareness about cervical cancer can be attributed to effective and frequent public awareness campaigns in the study area. This high percentage is in tandem with studies carried out in a study population of health workers (Ugwu et al., 2013), females attending antenatal clinics (Okunowo et al., 2018) and nurses (Ifemelumma et al., 2019) in Nigeria at 89.30%, 78.50% and 100% respectively. There was an increase in the number of teachers (94.90%) with the awareness of cervical cancer at the post-intervention phase. This increase could be attributed to the effectiveness of the teaching materials used at the intervention phase.

Social media was observed to be the most prevalent source of information for cervical cancer at the pre-intervention (48.00%) and post-intervention phases (44.60%) followed by radio and television (33.70%) at the pre-intervention phase and the hospital (40.20%) and lecture rooms (38.40%) at the post-intervention phase. This shows that social media remains a good source of passing information and enlightenment pertaining to cervical cancer. However, it is disagreement with in studies by Mbamara et al. (2011) and Naseema & Sreenivas (2014) where physicians and health workers took a majority at (84.00% and 30.70% respectively).

Amongst the respondents, an overwhelming majority (99.20%) do not have a family history of cervical cancer and do not know anyone living with cervical cancer. Similar results were found in a study by Ilika et al. (2016). This suggests that there might be a relatively low prevalence of cervical cancer in the study area or the respondents do not have adequate information about cervical cancer in their family history. The findings of these study show that some teachers (35.71%) in the study schools were able to identify Human Papilloma Virus as a major predisposing factor for cervical cancer prior to intervention. Other predisposing factors like multiple sexual partners and early age sexual intercourse were also mentioned. This is suggestive of a relatively good knowledge about cervical cancer by the respondents and can be attributed to effective public health campaigns on cervical cancer. These findings are in agreement with studies by Ilika et al., (2016). In contrast, a lower percentage, 3.00% and 18.60%, was reported in Ghana (Ampofo et al., 2020) and North West Ethiopia (Mengesha et al., 2020) respectively. This

---

Publication of the European Centre for Research Training and Development-UK

difference could be due to contrasts in access to healthcare facilities, health education programs among the countries and the educational level of the study participants. Post intervention, the number of teachers able to identify HPV as the major cause of cervical cancer increased. This positive change could be attributed to the effectiveness of the teaching materials used at the intervention phase and the positive attitude of the participants. However, a report from Turkey (Sogukpinar et al., 2013) suggested that having multiple sexual partners was less likely to be peculiar to cervical cancer and this was attributed to the fact that people with multiple partners already suspect themselves of multiple STIs.

It was observed that a large number of the respondents agree that cervical cancer is curable. Chemotherapy was the most selected treatment option prior to intervention (50.00%) and after the intervention (69.23%), followed by surgery and radioactive treatment. This finding was in accordance with a study done among women in Central Ethiopia at 47.30% (Gebisa et al., 2022). However, this finding was in contrast to a report from Tanzania among women who attended a reproductive and child health clinic where radiotherapy was majorly selected (70.80%) as a treatment option (Mabelele et al., 2018). The findings in this study demonstrated a high level of awareness about cervical cancer screening services by the respondents at the pre-intervention phase. They identified Pap smears and Visual with acetic acid (VIA) or Lugol's iodine as screening tests and majority (91.70%) were able to identify the importance and relevance of cervical cancer screening. This high level of awareness about cervical cancer screening services could also be attributed to effective and frequent public awareness campaigns in the study area and also the level of education of the respondents. The observed reports from this study is in tandem with other reports by Nwachukwu et al. (2021) in Nigeria. However, a very low percentage of awareness (7.90%, 27.00% and 16.00%) was reported in Lagos, Nigeria by Olubodun et al. (2019), in Senegal by Massey et al. (2017) and Obol et al. (2021) in Kenya.

Despite the high level of awareness amongst the respondents, a relatively low percentage of the respondents had ever gone for a screening test. A lower percentage was reported in a study done in Ibadan, Nigeria (John-Akinola et al., 2021) where only 4.3% of participants had done a cervical cancer screening test. However, a larger uptake (75.56%) was reported in England (Labeit et al., 2013). This could be attributed to the better health education strategies and better health facilities as demonstrated in Kenya by Mukama et al. (2017) in their study. Even though a large number of respondents demonstrated willingness to screen, reasons cited for the poor uptake of screening tests by the respondents were; knowledge about screening centres, expensive screening fees, fear of stigmatization and non-request by their doctors. These statements were corroborated by studies done by Eze et al. (2018) in a teaching hospital in South-South Nigeria, in a community in Ibadan, Nigeria by Olanlesi-Aliu et al. (2019), in a population of nurses and midwives by YörükI et al. (2019), and in a population of rural health workers in Uganda by Obol et al. (2021). Post intervention, a slight increase in the uptake of cervical cancer screening services by the respondents was observed. This is, however, unsurprising as quite a good number of respondents' demonstrated good knowledge and positive attitude.



## CONCLUSION

This study revealed that female teachers had good knowledge about cervical cancer and cervical cancer screening services pre intervention and post intervention. However, they had a poor uptake rate of cervical cancer screening services. Knowledge about screening centres, expensive screening fees, fear of stigmatization and non-request by their doctors were cited as reasons for the poor practice of cervical cancer screening.

It is recommended that Health education program on cervical health among women of reproductive age should be incorporated in all hospitals including private owned health centres and schools' activities

## REFERENCES

- Abiodun, O., Oluwatosin, O.-A., John, S., & Francis, O. (2014). Impact of health education intervention on knowledge and perception of cervical cancer and cervical screening uptake among adult women in rural communities in Nigeria. *BMC Public Health*, *14*, 814. <http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L605488108%5Cnhttp://dx.doi.org/10.1186/1471-2458-14-814%5Cnhttp://wt3cf4et2l.search.serialssolutions.com?sid=EMBASE&issn=14712458&id=doi:10.1186%2F1471-2458-14-814&atitle=Impact+of>
- Abu, S. H., Woldehanna, B. T., Nida, E. T., Tilahun, A. W., Gebremariam, M. Y., & Sisay, M. M. (2020). The role of health education on cervical cancer screening uptake at selected health centers in Addis Ababa *ONE*, *15*(10 October), 1–10. <https://doi.org/10.1371/journal.pone.0239580>
- Ampofo, A. G., Adumatta, A. D., Owusu, E., & Awuviry-Newton, K. (2020). A cross-sectional study of barriers to cervical cancer screening uptake in Ghana: An application of the health belief model. *PLoS ONE*, *15*(4), 1–16. <https://doi.org/10.1371/journal.pone.0231459>
- Ebu, N. I., Amisah-Essel, S., Asiedu, C., Akaba, S., & Pereko, K. A. (2019a). Impact of health education intervention on knowledge and perception of cervical cancer and screening for women in Ghana. *BMC Public Health*, *19*(1), 1–11. <https://doi.org/10.1186/s12889-019-7867-x>
- Eze, G. U., Obiebi, I. P., & Umuago, I. J. (2018). Perspectives of cervical cancer and screening practices among staff of a teaching hospital in South-South Nigeria. *Journal of Cancer Research and Practice*. <https://doi.org/10.1016/j.jcrpr.2018.01.001>
- Gebisa, T., Bala, E. T., & Deriba, B. S. (2022). Knowledge, Attitude, and Practice Toward Cervical Cancer Screening Among Women Attending Health Facilities in Central Ethiopia. *Cancer Control*, *29*, 1–10. <https://doi.org/10.1177/10732748221076680>
- Ifemelumma, C. C., Anikwe, C. C., Okorochukwu, B. C., Onu, F. A., Obuna, J. A., Ejikeme, B. N., & Ezeonu, O. P. (2019). Cervical Cancer Screening: Assessment of Perception and Utilization of Services among Health Workers in Low Resource Setting. *International Journal of Reproductive Medicine*. <https://doi.org/10.1155/2019/6505482>
- Ilika, V. C., Nnebue, C. C., Ikechebelu, N. N., Anyanwu, C. P., Ilika, A. L., & Ikechebelu, J. I. (2016). Sexual Behavioral Pattern, Cervical Cancer Awareness and Screening Practices

---

Publication of the European Centre for Research Training and Development-UK

- among Female Undergraduate Students of Public Universities in Anambra State, Nigeria. *American Journal of Cancer Prevention*, Vol. 4, 2016, Pages 26-32, 4(2), 26–32. <https://doi.org/10.12691/ajcp-4-2-2>
- John-Akinola, Y. O., Oluwasanu, M. M., & Oladepo, O. (2021). Urban Poor Community Settings' Knowledge and Screening Practices for Cervical Cancer in Ibadan, Nigeria. *JCO Global Oncology*, 7, 1024–1031. <https://doi.org/10.1200/go.20.00619>
- Kizi, D. B. O., & Makhmudov Kudratbek Shavkat ugli. (2020). Roles of teachers in education of the 21st century. *Science and Education*, 1(3), 554–557. <https://www.google.com/search?q=changing+role+of+teachers+in+21st+century+pdf&sx=srf=AOaemvJXVQwMknBLsHZalVHe3mwH2KsYrA:1641480850011&ei=kgLXYfQXzZPFzw-xzIT4Cw&start=10&sa=N&ved=2ahUKEwj0qOHXsJ31AhXNSfEDHTEmAb8Q8tMDe gQIARA3&biw=1366&bih=635&dpr=1>
- Labeit, A., Peinemann, F., & Kadir, A. (2013). Cervical cancer screening service utilisation in UK. *Scientific Reports*. <https://doi.org/10.1038/srep02362>
- Mabelele, M. M., Mater, J., Ng'ida, F. D., & Mahande, M. J. (2018). Knowledge towards cervical cancer prevention and screening practices among women who attended reproductive and child health clinic at Magu district hospital, Lake Zone Tanzania: A cross-sectional study. *BMC Cancer*
- Mbamara, S. U., Ikpeze, O. C., Okonkwo, J. E. N., Onyiaorah, I. V., & Ukah, C. O. (2011). Knowledge, Attitude and Practice of Cervical Cancer Screening Among Women Attending Gynecology Clinics in a Tertiary Level Medical Care Center in Southeastern Nigeria. *Journal of Reproductive Medicine for the Obstetrician and Gynecologist*.
- Mengesha, A., Messele, A., & Beletew, B. (2020). Knowledge and attitude towards cervical cancer among reproductive age group women in Gondar town, North West Ethiopia. *BMC Public Health*, 20(1), 1–10. <https://doi.org/10.1186/s12889-020-8229-4>
- Mukama, T., Ndejjo, R., Musabyimana, A., Halage, A. A., & Musoke, D. (2017). Women's knowledge and attitudes towards cervical cancer prevention: A cross sectional study in Eastern Uganda. *BMC Women's Health*. <https://doi.org/10.1186/s12905-017-0365-3>
- Naseema, B. A., & Sreenivas, S. K. (2014). AWARENESS OF CERVICAL CANCER AND PAP SMEAR AND IT'S UTILIZATION AMONG HEALTH CARE WORKERS IN MEDICAL COLLEGE, KOZHIKODE. *Journal of Evidence Based Medicine and Healthcare*. <https://doi.org/10.18410/jebmh/10>
- Nwachukwu, C., Ea, N., Jc, N., Ao, E., Iwuoh, G., & Jo, O. (2021). *Perception and Utilization of Cervical Cancer Screening Services among Female Students in Public Tertiary Institutions in Owerri Metropolis , Imo State*. 11(2), 18–26.
- Okunowo, A. A., Daramola, E. S., Soibi-Harry, A. P., Ezenwankwo, F. C., Kuku, J. O., Okunade, K. S., & Anorlu, R. I. (2018). Women's knowledge of cervical cancer and uptake of Pap smear testing and the factors influencing it in a Nigerian tertiary hospital. *Journal of Cancer Research and Practice*. <https://doi.org/10.1016/j.jcrpr.2018.02.001>
- Olanlesi-Aliu, A., Martin, P., & Daniels, F. (2019). Towards the development of a community-based model for promoting cervical cancer prevention among Yoruba women in Ibadan

---

Publication of the European Centre for Research Training and Development-UK

- Nigeria: application of PEN-3 model. *Southern African Journal of Gynaecological Oncology*. <https://doi.org/10.1080/20742835.2019.1679528>
- Olubodun, T., Odukoya, O. O., & Balogun, M. R. (2019). Knowledge, attitude and practice of cervical cancer prevention, among women residing in an Urban slum in Lagos, South West, Nigeria. *Pan African Medical Journal*. <https://doi.org/10.11604/pamj.2019.32.130.14432>
- Sogukpinar, N., Saydam, B. K., Can, H. O., Hadimli, A., Bozkurt, O. D., Yücel, U., Kocak, Y. C., Akmese, Z. B., Demir, D., Ceber, E., & Ozentürk, G. (2013). Assessment of cervical cancer risk in women between 15 and 49 years of age: Case of Izmir. *Asian Pacific Journal of Cancer Prevention*. <https://doi.org/10.7314/APJCP.2013.14.3.2119>
- Ugwu, E. O., Obi, S. N., Ezechukwu, P. C., Okafor, I. I., & Ugwu, A. O. (2013). Acceptability of human papilloma virus vaccine and cervical cancer screening among female health-care workers in Enugu, Southeast Nigeria. *Nigerian Journal of Clinical Practice*. <https://doi.org/10.4103/1119-3077.110141>
- YörükI, S., Açıkgoz, A., Türkmen, H., & Ergör, G. (2019). Risk factors and relationship between screening periodicity and risk of cervical cancer among nurses and midwives. A cross-sectional study. *Sao Paulo Medical Journal*. <https://doi.org/10.1590/1516-3180.2018.0244230119>

**Appendix****Table 1: Socio-Demographic Characteristics of the Respondents**

<b>Socio Demographic</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Age Group</b>		
25 – 34	51	43.20
35 – 44	27	22.90
45 – 54	21	17.80
55 years & above	9	7.60
Non Response	10	8.50
Total	118	100
<b>Mean ± SD</b>	<b>37.61 ± 10.33</b>	
<b>Range</b>	<b>25 – 58 years</b>	
<b>Religion</b>		
Islam	23	19.5
Christianity	95	80.5
Total	118	100
<b>Marital Status</b>		
Single	36	30.5
Married	81	68.7
Widow	1	0.8
<b>Total</b>	<b>118</b>	<b>100</b>
<b>Family Characteristics</b>		
<b>Frequency</b>		
<b>Percentage (%)</b>		
<b>Number of Children</b>		
0	33	28.00
1	9	7.60
2	26	22.00
3	25	21.20
4 and above	25	21.20
Total	118	100
<b>Number of lifetime sexual partners</b>		

1	68	57.60
2	16	13.60
3	7	5.90
4 and above	13	11.00
No Responses	14	11.90
Total	118	100
<b>Average age at first Intercourse</b>		
<b>Mean ± SD</b>	24.15 ± 4.24 years	

**Table 2: Respondents' level of awareness and source of Information about Cervical Cancer**

	Pre		Post	
	Yes (%)	No (%)	Yes (%)	No (%)
Have you heard about cancer of cervix?	98 (83.10)	20 (16.90)	112 (94.90)	6 (5.10)
<b>Source of Information</b>				
Social Media	47 (48.00)		50 (44.60)	
Radio	33 (33.70)		28 (25.00)	
Television	33 (33.70)		35 (31.30)	
Newspaper	11 (11.20)		15 (13.40)	
Hospital	30 (30.60)		45 (40.20)	
Lecture Room	8 (8.20)		43 (38.40)	
Friends and Family	21 (21.40)		16 (14.30)	
Pamphlets	7 (7.10)		5 (4.50)	
Others	2 (2.00)		6 (5.40)	

**Table 3: Knowledge about causes of Cervical Cancer and preventive measures against Cervical Cancer Screening amongst the respondents**

Statement	Pre		Post	
	Yes (%)	No (%)	Yes (%)	No (%)
Do you have history of cervical cancer in your family?	1 (0.80)	117 (99.20)	-	-
Do you know anyone with cervical cancer?	5 (4.20)	113 (95.80)		
<b>Causes of cervical cancer</b>				
Sex at early age	28 (23.70)		66 (55.90)	
Multiple sexual partners	49 (41.50)		74 (62.70)	
Human Papillomavirus infection	25 (21.20)		77 (65.30)	
Gonorrhea, Syphilis, HIV/AIDS and other Sexual Transmitted Infections	26 (22.00)		85 (72.00)	
Oral contraceptive use	12 (10.20)		92 (78.00)	
Smoking	4 (3.40)		107 (90.70)	
Multiparity	2 (1.70)		116 (98.30)	
Evil spirit	4 (3.40)		3 (2.50)	
Don't know	32 (27.10)		18 (15.30)	
<b>Is the cancer of the cervix curable?</b>				
	64 (54.20)		104 (88.10)	14 (11.90)
<b>Treatment option for cervical cancer (Multiple Response)</b>				
Surgery	24 (37.50)			
Chemotherapy	32 (50.00)			



Radioactive ray treatment	14 (21.90)			
Herbal preparations	7 (10.90)			
Don't Know	14 (21.90)			
<b>Is cancer of the cervix preventable?</b>	95 (80.50)		111 (94.10)	
<b>What are the preventable measures (Multiple Response)</b>				
Avoid sex at early age	39 (41.10)	56 (58.90)	60 (54.10)	51 (45.90)
Avoid multiple sexual partners	51 (53.70)	44 (46.30)	90 (81.10)	21 (18.90)
Use condom	17 (17.90)	78 (82.10)	41 (36.90)	70 (63.10)
Early diagnosis and treatment	43 (45.30)	52 (54.70)	51 (45.90)	60 (54.10)
Use of Human Papillomavirus vaccine	11 (11.60)	84 (88.40)	43 (38.70)	68 (61.30)
Routine cytology/ Screening test /Pap Smear	26 (27.40)	69 (72.60)	43 (38.70)	68 (61.30)

**Table 4: Pre- and post-intervention knowledge on cervical cancer screening of female secondary school teachers**

Statements	Pre		Post (n = 118)	
	Yes (%)	No (%)	Yes (%)	No (%)
Is there cervical screening centre in your area	36 (30.50)	82 (69.50)	36 (30.50)	82 (69.50)
<b>At what age can screening /Pap smear be started</b>				
12 - 15 years	9 (7.60)		22 (18.30)	
20 - 30 years	41 (34.70)		51 (43.10)	
40 - 50 years	14 (11.90)		13 (11.00)	
Not Sure	54 (45.80)		32 (27.50)	
<b>Screening Methods Available</b>				
Pap Smear	35 (29.70)		60 (50.80)	
Human Papillomavirus DNA testing	11 (9.30)		55 (46.60)	
Visual inspection with acetic acid (VIA)	23 (19.50)		44 (37.30)	
Visual inspection with Lugol's iodine (VILI)	5 (4.20)		13 (11.00)	
I don't know	64 (54.20)		16 (13.60)	
<b>What are the places of screening you know?</b>				
Hospital/ health facility	58 (49.20)		86 (72.50)	
Laboratory	40 (33.90)		25 (21.10)	
Home Test	5 (4.20)		1 (0.90)	
Don't Know	15 (12.70)		6 (5.50)	
<b>How often should a woman be screened for cancer of the cervix?</b>				
Once in lifetime	35 (29.70)		1 (0.90)	
Monthly	4 (3.40)		9 (7.30)	

Yearly	25 (21.20)	43 (36.70)
Every 2 years	9 (7.60)	13 (11.00)
Every 3 years	16 (13.60)	43 (36.70)
Don't know	29 (24.60)	9 (7.30)

**Table 5: Pre-and post-intervention uptake of cervical cancer screening services**

	Pre		Post	
	Yes (%)	No (%)	Yes (%)	No (%)
Have you been screened for cancer of the cervix	23 (19.50)	95 (80.50)	32(27.10)	86 (72.9)
<b>Methods Used</b>				
Pap Smear	15 (65.20)	8 (34.80)	17 (53.10)	15 (46.90)
Visual inspection with acetic acid (VIA)	4 (17.40)	19 (82.60)	11 (34.40)	21 (65.60)
Visual inspection with Lugol's iodine. (VILI)	3 (13.00)	20 (87.00)	3 (9.40)	29 (90.60)
Human Papillomavirus DNA test.	3 (13.00)	20 (87.00)	4 (12.50)	28 (87.50)
	Pre		Post	
	Once	Twice	Once	Twice
How many times have you been screened?	19 (82.60)	4 (17.40)	27 (84.40)	5 (15.60)
	Yes	No	Yes	No
	Have you ever been vaccinated for Human Papillomavirus	3 (2.50)	115 (97.50)	3 (2.50)