



Original Article

## The Predictors for Non-Adherence to Colposcopy among Women in an Underserved Community in Rural Southern Western Nigeria

**\*Kayode Olusegun Ajenifuja<sup>1</sup>, Clement Akinfolarin Adepiti<sup>1</sup>, Temitope Omoladun Okunola<sup>2</sup>**

<sup>1</sup>Department of obstetrics, Gynaecology & Perinatology, Obafemi Awolowo University, Ile-Ife, Osun state, Nigeria. <sup>2</sup>Department of Obstetrics and Gynaecology, Ekiti State University, Ado- Ekiti, Ekiti State, Nigeria.

### Abstract

**Background:** Cervical cancer is the fourth most common cancer in women. It is a major public health problem in developing countries. Effective cervical cancer screening requires that women adhere to the screening program. The factors that influence adherence to colposcopy in rural areas of Nigeria are unknown. The objective of the study was to determine the factors that determine adherence and the sexual and reproductive factors that are associated with non-adherence of women to colposcopy.

**Methods:** This is a cross-sectional study of a project undertaken to determine the age- specific incidence of Human Papillomavirus (HPV) infection in Irun Akoko, a rural town in Ondo state of Nigeria. A total of 492 women with abnormal results from 1420 women that were screened were recalled for colposcopy examination.

**Results:** The non-adherence rate for colposcopy in this study was 25.8%. Women younger than 40years ( $p=0.0011$ ) and those with number of living children  $\leq 2$  ( $p=0.04$ ) are more likely to be non-adherent to colposcopy.

**Conclusion:** The non-adherence rate to colposcopy was high. Younger women and those with fewer children were more likely not to adhere to colposcopy.

**Keywords:** Adherence; Colposcopy; Cervical Cancer; Pap Smear.

**Corresponding Author:** \*Ajenifuja Kayode Olusegun

1Department of obstetrics, Gynaecology & Perinatology, Obafemi Awolowo University, Ile-Ife, Osun state, Nigeria.

**Email:** ajenifujako@yahoo.com

**How to cite this article:** Ajenifuja KO, Adepiti CA, Okunola TO. The Predictors for Non-Adherence to Colposcopy among Women in an Underserved Community in Rural Southern Western Nigeria. Niger Med J 2022;63;(1): 22-28

Quick Response Code:



This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non-Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given, and the new creations are licensed under the identical terms.

## Introduction

Cervical cancer is the fourth most common cancer in women and globally about 604,000 women are affected annually leading to over 342,000 deaths. [1] It is the leading gynaecological cancer in developing countries where it is a major public health problem.[2] The incidence of cervical cancer in developed countries has decreased dramatically due to the widespread introduction of population-based cervical cancer screening programs and adequate treatment of detected cases.[1,3] Developing countries bear disproportionately high incidence and mortality from cervical cancer. According to Prabhu et al 85% of the mortality from cervical cancer occur in developing countries.[4] Reasons advanced for the high incidence of cervical cancer in developing countries include lack of screening, lack of the knowledge that cervical cancer can be prevented by screening and wrong perception about the disease.[5]

Of all gynaecological malignancies, cervical cancer is the most amenable to prevention because it has well recognised premalignant stages which can be detected by screening.[6] Unfortunately, the stages (the pre-malignant phase) are asymptomatic and unless women are screened and adequately followed up, these stages are missed. It should be emphasized that screening alone does not lead to a reduction in the incidence of cervical cancer but screening with adequate and effective treatment of detected cases. Long term follow up is also required to monitor the effectiveness of treatment and to detect recurrence in those treated. Invasive cervical cancer is more likely to develop among women who were non-adherent to screening programs.[7] In a study involving more than 640 women with cervical cancer, Sung et al reported that over half of these women had no history of cervical screening with Pap smear. They also reported that the more advanced stage disease was diagnosed in those who were non-adherent to screening programs. In addition, those with the more advanced stage were likely to be members of ethnic minorities.[7]

In Nigeria, cervical cancer is the most common gynaecological cancer with an annual incidence of close to 15,000 cases. It is also estimated that about 10,000 women die of cervical cancer yearly in Nigeria.[8] According to the WHO, Nigeria has a population of over 40,430,000 women, aged 15 years and above who are at risk of developing cervical cancer. It is estimated that if the current trend continues, the incidence of cervical cancer in Nigeria will increase by over 60% by the year 2025.[8] Currently, Nigeria does not have a reliable population-based cancer registry; hence, these figures are from hospital statistics, which suggests the incidence of cervical cancer could actually be higher. Presently, there is no national policy guiding the control of cervical cancer in Nigeria and there is lack of population-based screening programs. What is commonly done presently is opportunistic screening in some tertiary hospitals and sporadic screening carried by non-governmental organizations mainly based in urban areas. There is little or no cervical cancer screening in the rural areas of the country where the vast majority of the populace reside.[9]

Despite the clinical usefulness of colposcopy, patients do not always adhere to clinical appointments to have this procedure carried out.[10] A non-adherence rate of 9% for new appointments, 6% for return for treatments and 16% for follow-up appointments was reported in a prospective study involving 1258 women referred to colposcopy clinics.[10] Non-adherence to colposcopy appointment has been identified as factor limiting the effectiveness of cervical cancer screening programs because without colposcopy the presence or absence of true precancer and microinvasive lesions cannot be confirmed. Adherence to screening, however, varies across countries. [10, 11]

All these studies on non-adherence to colposcopy appointments were conducted in developed countries and despite the high incidence and mortality caused by cervical cancer in Nigeria, no community-based study has been done locally to examine non-adherence to colposcopy or the factors responsible for non-adherence to colposcopy.

## Objectives of the Study

To determine the rate of non-adherence and the sexual and reproductive factors that are associated with non-adherence of women to colposcopy appointments in Irun Akoko, Ondo State, Nigeria.

## Materials and Method

This is a cross-sectional study using secondary data analysis from a previous study conducted in the community to determine the age-specific prevalence of Human Papillomavirus (HPV) infection in that community. Each house in the village was allocated a unique number called the Population Health Census (PHC) number assigned during

childhood immunization programs. All the PHC numbers were compiled from which a random number of 500 houses were selected for the original study. From the survey conducted by trained health workers a total of 1500 women were found to be eligible for the study from the selected houses. Of the 1500 women who were found eligible and were invited to take part in the study, 1420 (94.67%) women took part and were screened using HPV DNA test for high-risk HPV, liquid-based cytology and visual inspection with acetic acid. Following the screening, 492 women were found to have abnormal results from one, two or all the tests. All the 492 women who had abnormal screening results were invited for colposcopy, however not all women who were invited for the colposcopy test honoured the appointments despite repeated invitations. The women had earlier been informed that women with abnormal screening results from any of the methods will be invited for further test which was colposcopy. Invitations were by phone calls and home visits by research assistants and local guides from the village.

The available records of sexual and reproductive information were extracted from the case files of all invited women; the data was entered into a proforma designed for this study and analyzed using IBM, Armonk, NY, USA-SPSS version 20.

## Results

A total of 492 women were invited for colposcopy out of which 365 (74.1%) women adhered to the colposcopic appointment while 127 women (25.9%) did not. The mean age of all the women invited for colposcopy was 46.7 years, range 18-85. The mean ages of the non-adherent and the adherent women were 42.5 years and 48.5 years respectively (Table 1). Two hundred and fifty-one of the women invited for colposcopy (51%) were post-menopausal, two hundred and thirty-seven (77.5%) were ever married and 69 (22.5%) were never married. The mean age at menarche for participants was 15.3 years and majority of them had their first menstrual period by the age of 15 years. The mean age of first sexual intercourse was 19.37 years, this implies that majority of the invited women (61.0%) had their first sexual intercourse in their teenage years. Women from both groups were similar in other sexual and reproductive factors such as age of first sexual intercourse, age of first pregnancy and number of sexual partners. There is also no relationship between marital status and attendance at colposcopy. Though majority of the women who complied with the colposcopy visit were in the ever-married group (78.6%), there was no statistically significant difference in attendance between the ever-married and never-married women ( $p=0.44$ ). (Table 2). Of the 354 ever married women in this study, one hundred and eighty (76%) were from polygamous marital relationships and only 57 (24%) ever married women were from monogamous relationship. The mean number of wives per husband was 2. Three hundred and sixty-four women among the participants (74.0%) had more than two living children, 89 (18.1%) had 2 or less and only 39 (7.9%) of the participants had no living children. One hundred and sixteen (33.7%) of the study participants were grand-multiparous women that is, having delivered five or more children. Having more than four children is a known risk factor for cervical cancer. There was no statistically significant difference between the response of the ever-married women and never married women to colposcopy appointment ( $p=0.45$ ). (Table 2).

Non-adherence to colposcopy appointment was higher in younger women and those who were less <40 years old were more likely not to adhere to colposcopy appointment compared with women who were  $\geq 40$  years ( $p=0.001$ ). (Table 3). The numbers of living children also influenced adherence colposcopy visit, in this study, 453 (92%) of the women had living children out of which 89 of these women (20%) had 2 or less children while 364 (80%) had more than 2 children. Women who had 2 or less children are less likely to adhere to colposcopic appointment  $p=0.04$ . (Table 4).

Table 1: Age distribution of women and adherence to colposcopy

Variable	Frequency	Percentage	Mean age
Non-adherence	365	74.2	48.5
Adherence	127	25.8	42.5
Total	492	100	

P=0.02

Table 2: Marital status and adherence to colposcopy

Ever married	Adherence to colposcopy		Total
	Yes	No	
Yes	280	74	354
No	102	36	138
<b>Total</b>	<b>382</b>	<b>110</b>	<b>492</b>

(Chi Sq= 0.630, p= 0.55)

Table 3: Age category and adherence to colposcopy

Adherence to colposcopy	Age category		Total
	< 40 years	≥40 years	
Yes	134	231	365
No	62	65	127
<b>Total</b>	<b>196</b>	<b>296</b>	<b>492</b>

(Chi Sq = 7.437, p=0.011)

Table 4: No of living children and adherence to colposcopy

Adherent to colposcopy	Number of living children		Total
	≤	> 2	
Yes	60	281	341
No	29	83	112
<b>Total</b>	89	364	453

Chi Sq. = 3.677, P= 0.040

### Discussion

The mean age of all women who took part in this study was 46.5 years. The non-Adherent women were considerable younger with a mean age of 42.5years, compared with women who adhered to the colposcopy visit whose mean age was 48.6years. The implication of the high mean age of the study participants was that majority of the women in the study have gone past the reported peak age of the incidence of cervical Intraepithelial Neoplasia, which is the precursor lesion for cervical cancer and already within the peak age of cervical cancer which is between 40 to 69 years. [12,13]

Risk factors for cervical cancer are closely related to sexual intercourse. [14] Aspects of sexual behaviour that are associated with increased risk of cervical cancer such as early sexual intercourse was common among the non-adherent and the adherent participants.[15] A significant proportion of the study participants (61.0%) had their first sexual intercourse in their teenage years, 19.7 years. Majority (54.2%) of the invited women were from polygamous marital relationships. In a cross-sectional study by Shahramian et al. polygamy was reported to enhance the transmission of Human Papillomavirus Virus infection (HPV), the etiological agent for cervical cancer.[16] Also a significant percentage of invited women (26%) had more than one sexual partner. Among the recognized sexual behaviour associated with increased risk of cervical cancer are multiple sexual partners. In a study conducted in Nigeria by Durowade et al. having multiple sexual partners was the most significant risk factors for cervical cancer among the sexual behaviours investigated in an urban community in Nigeria.[17]

Colposcopy is an indispensable tool in the management of abnormal cervical screening test results. Its usefulness is in the localization of the abnormal areas of the cervix from which a directed biopsy is usually taken. It is also useful for the required long term follow up of detected cases even after treatment. In the absence of colposcopy, it becomes difficult to verify the results of abnormal cytological screening or in assessing the effectiveness of treatment. For effective screening program aimed at reducing the incidence and mortality of cervical cancer, it is important that colposcopy appointments should be adhered to.

The non-adherence rate for colposcopy in this population-based study was 25.8%. Similar result was obtained by Chigbu et al. in a hospital-based study conducted in Nigeria.[20] The non-adherence rate from this study is higher than the figures reported from developed countries such as Canada and England where the non-adherence rate varies between 12 to 17%. [10, 21] Reasons for the higher non-adherence rate could generally be due to the higher prevalence of cervical cancer in developing countries such as Nigeria where there is no organized screening program, high level of poverty, ignorance and lack of knowledge about cervical cancer. However, since this screening program was free, poverty could not be an important factor here but rather ignorance and lack of knowledge about cervical cancer. In a field experiment on the price of prevention, Okeke et al. showed that the price of a preventive health intervention had no effect on the uptake of services, as there was no statistically significant difference in the uptake between those who were offered the services free of charge and those who were asked to pay a token.[22] Developed countries such as England and Wales have effective call and recall system which has been shown to improve adherence to cervical screening programs.[23, 24]

Cervical cancer is preventable; however, effective cervical cancer prevention program relies on long term follow up of women with abnormal screening tests.[2] Non-adherence to colposcopy appointment makes cervical cancer prevention inefficient; it becomes difficult to verify the abnormal cytological reports and thereby weakens cervical cancer prevention efforts. This has important implications for cervical cancer prevention in developing countries such as Nigeria.

The most important factors contributing to low uptake of cervical cancer screening services in Nigeria and other developing countries are ignorance and poor knowledge about the cervical cancer.[26] Although, screening services are not widespread and are mainly concentrated in urban areas, yet the utilization of such services are poor even where available.[26, 27] In a study by Ajayi et al. less than 5% of the subjects interviewed had heard of Pap smear and only about 1.2% of the respondents had done Pap smear.[27] Lack of knowledge was also identified by Sharp et al. as an important factor responsible for non-adherence for colposcopy.[28] Even in cases where there is awareness, the uptake of services is poor due to poor health seeking behaviour.[27, 29]

Women that non-adhered and those that were adherent were similar in other sexual and reproductive factors such as age at first sexual intercourse, age at first pregnancy, and number of sexual partners. There was no statistically significant difference in colposcopy visit between ever-married and never-married women. However, ever married women were more likely than never-married women to adhere to colposcopy appointment though this did not reach statistical significance  $p=0.45$ . This was also the finding in a similar study in Southeastern Nigeria.[20] According to Sharp et al. married women and women cohabiting with men may have other health reasons for attending a colposcopy clinic.[28] Women who were not married might be reluctant to attend colposcopy clinic because they might perceive that they are at lower risk of developing cervical cancer because they might not be having regular sexual intercourse.[23]

Studies on the effect of age on compliance with cervical screening program especially colposcopy have yielded conflicting reports. In an audit of colposcopy attendance in South Africa by Kneget et al. there was no statistical difference between the ages of women who adhered to colposcopy and those who did not.[30] Fish et al in their own study found that adherence to colposcopy visit was higher among older women.[31] In this study, however, women who were older than 40 years adhered to colposcopy appointment compared with women younger than 40 years. ( $p=0.0011$ ). This is in keeping with the finding of Fish et al. this may be because older age is associated with perceived increased risk of developing cervical cancer thus making adherence to colposcopy appointment higher among older women. Apart from this, older women are less likely to feel embarrassed at having to do a pelvic examination compared with younger women. This finding, however, calls for concern, if younger women were reluctant to adhere to cervical screening programs, preventing cervical cancer in our environment through screening and follow-up program would continue to be a mirage. This is because cervical premalignant lesions which are the precursor lesions of cervical cancer peak in women in the early 30s.[12] The implication of this is that screening programs which are aimed at detecting cervical precancerous lesions would have missed women with pre-invasive diseases and only detects women with established cancer if only older women continue to comply with cervical cancer screening.

### Conclusion

A high non-adherence rate for colposcopy was found in this study compared to what obtains in developed countries. Being younger and having fewer living children were associated with non-adherence. Most of the sexual and reproductive risk factors for cervical cancer showed no significant relationship to non-adherence in the study group. To reduce the burden of cervical cancer in Nigeria especially in the rural underserved communities, there is an urgent need to create awareness of the disease and its risk factors among younger women.

### References

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2021;71:209–49. doi:10.3322/caac.21660.
2. Castellsagué X. Natural history and epidemiology of HPV infection and cervical cancer. *Gynecologic Oncology.* 2008; 110: S4–S7.
3. Anttila A, Pukkala E, Soderman B, Kallio M, Nieminen P, A and Hakama M. Effect of organised screening on cervical cancer incidence and mortality in Finland, 1963-1995: recent increase in cervical cancer incidence. *International journal of cancer.* 1999; 83: 59-65.
4. Prabhu M, Eckert LO Development of World Health Organization (WHO) recommendations for appropriate clinical trial endpoints for next-generation Human Papillomavirus (HPV) vaccines. *Papillomavirus Res.* 2016; 2:185–9. doi: 10.1016/j.pvr.2016.10.002.
5. Getahun F, Mazengia F, Abuhay M, Birhanu Z. Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia. *Biomed Central cancer.* 2013; 13:1471-74.
6. Valdespino VM, Valdespino VE. Cervical cancer screening: state of the art. *Current opinion in obstetrics & gynecology.* 2006; 18:35–40.
7. Sung HY, Kearney KA, Miller M, Kinney W, Sawaya GF and Hiatt RA. Papanicolaou smear history and diagnosis of invasive cervical carcinoma among members of a large prepaid health plan. *Cancer.* 2000; 88:2283-89.
8. WHO/ICO. Human Papillomavirus and Related Cancers in Nigeria. Summary Report 2010. Information Centre on HPV and Cervical Cancer (HPV Information Centre). Available (Online from [www.who.int/hpvcentre](http://www.who.int/hpvcentre)). (Accessed 21 July, 2019).
9. Ajenifuja KO, Gage JC, Adepiti AC, Wentzensen N, Eklund C, Reilly M et al. A population-based study of visual inspection with acetic acid (VIA) for cervical screening in rural Nigeria. *International journal of gynecological cancer.* 2013; 23:507-12.
10. Balasubramani L, Orbell S, Hagger M, Brown V, Tidy, J. Do women with high-grade cervical intraepithelial neoplasia prefer a see and treat option in colposcopy? *British journal of obstetrics and gynaecology.* 2007; 114:39–45.
11. Kietpeerakool C, Manopunya M, Phuprasertsak P, Jaijit T, Srisomboon J. An audit of colposcopy appointment processes in women with abnormal cervical cytology. *Cytopathology* 2011; 22:184–188.
12. Herbert A, Smith,JA. Cervical intraepithelial neoplasia grade III (CIN III) and invasive cervical carcinoma: the yawning gap revisited and the treatment of risk. *Cytopathology.* 1999; 10:161-170.
13. Ijaya MA, Aboyeji PA, Buhari MO. Cancer of the cervix in Ilorin, Nigeria. *West African Journal of Medicine.* 2004; 23:319-22.

14. Louie KS, De Sanjose S, Diaz M et al. Early age at first sexual intercourse and early pregnancy are risk factors for cervical cancer in developing countries. *British Journal of Cancer*. 2009; 100:1191–97.
15. Plummer M, Peto, J, Franceschi S. et al. Time since first sexual intercourse and the risk of cervical cancer. *International Journal of Cancer*. 2012; 130:2638–44)
16. Shahramian I, Heidari Z, Mahmoudzadeh-Sagheb HR, Moradi A. et al. Prevalence of HPV Infection and High-Risk HPV Genotypes (16,18), among Monogamous and Polygamous Women, In Zabol, Iran. *Iranian journal of public health*. 2011; 40: 113–121.
17. Durowade KA, Osagbemi G.K, Salaudeen A.G, Musa OI. et al. Prevalence and risk factors of cervical cancer among women in an urban community of Kwara State, North Central Nigeria. *Journal of preventive medicine and hygiene*. 2012; 53:213–19.
18. Muñoz N, Franceschi S, Moreno V, Herrero R. et al. Role of parity and human Papillomavirus in cervical cancer: the IARC multicentric case-control study. *Lancet*; 202; 359: 1093–101.
19. Thulaseedharan J.V., Malila N, Hakama M. Socio demographic and reproductive risk factors for cervical cancer –a large prospective cohort study from rural India. *Asian Pacific J Cancer Prev*. 2012; 13: 2991–95.
20. Chigbu CO. and Aniebue, UO. Experiences of women undergoing colposcopy in southeastern Nigeria. *International Journal of Gynecology and Obstetrics*. 2012; 113:100–102.
21. Ogilvie GS, Shaw EA, Lusk SP, Zazulak J, Kaczorowski JA. Access to colposcopy services for high-risk Canadian women: Can we do better? *Canadian Journal of Public Health*. 2004; 95:346–351.
22. Okeke EN, Adepiti AC, Ajenifuja KO. What is the Price of Prevention? New evidence from a field experiment. *Journal of Health Economics*. 2012; 32: 207-18.
23. Ridsdale LL. Cervical screening in general practice: call and recall. *J R Coll Gen Pract*. 1987; 37:257-9.
24. Buehler, SK and Parsons, WL. Effectiveness of a call/recall system in improving compliance with cervical cancer screening: a randomized controlled trial. *Canadian Medical Association Journal* 1997; 157:521-6.
25. Khanna N and Phillips MD. Adherence to care plan in women with abnormal Papanicolaou smears: a review of barriers and interventions. *Journal of American Board Family Practice*. 2001; 14:123-30.
26. Ajayi IO and Adewole IF. Determinants of utilization of cervical cancer screening facility in a low socio-economic setting in Nigeria. *Journal of Obstetrics and Gynaecology* 1998; 18:154-58.
27. Eze JN, Emeka-Irem EN, Edegbe, FO (2012). A Six-Year Study of the Clinical Presentation of Cervical Cancer and the Management Challenges Encountered at a State Teaching Hospital in Southeast Nigeria. *Clinical Medicine Insights*. 2013; 7:151–58.
28. Awodele O, Adeyomoye, AA, Awodele, DF et al. A study on cervical cancer screening amongst nurses in Lagos University Teaching Hospital, Lagos, Nigeria. *Journal of cancer education*. 2011; 26:497-504.
29. Sharp L, Cotton S, Thornton A, Gray Net al. Who defaults from colposcopy? A multi-centre, population-based, prospective cohort study of predictors of non-attendance for follow-up among women with low-grade abnormal cervical cytology. *European Journal of Obstetrics & Gynecology and Reproductive Biology* 2012; 165:318–325.
30. Knekt Y. Audit of Cervical Cancer Screening and Colposcopy Attendance in Rural South Africa. *African Journal of Reproductive Health* December. 2014; 18:70.
31. Fish LJ, Moorman PG, Wordlaw-Stintson L, Vidal A, et al. Factors Associated with Adherence to Follow-up Colposcopy. *American Journal of Health Education*. 2013; 44: 293–298.