

Research Article

Knowledge, Attitude, and Practice of Healthcare Workers in Ekiti State, Nigeria on Prevention of Cervical Cancer

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Abstract

Purpose: The role of healthcare workers in cervical cancer prevention is pivotal because healthcare workers' recommendations have been reported to be a key motivational factor for cervical cancer screening among women in Nigeria. Assessing their knowledge, attitudes, and practices on cervical cancer prevention is necessary.

Patients and methods: This is a cross-sectional survey involving healthcare workers in Ekiti State, Nigeria. A questionnaire designed for the study was used to obtain data about the knowledge, attitudes, and practices of the healthcare workers. Logistic regression was used to assess the determinants of practice and a p - value of less than 0.05 was taken as statistically significant.

Results: Out of 188 participants that completed the study, 165(90.7%) had good knowledge about the prevention of cervical cancer while 24(13.2%) had good practice concerning the prevention of cervical cancer. positive attitude (Odds ratio 1.24, 95% CI 1.14 - 1.35, $p < 0.001$) increased the odds of good practice.

Conclusion: There was no association between the knowledge of cervical cancer prevention and the practice of the healthcare workers. Further research is required to explore the incongruence between knowledge and practice of cervical cancer prevention and its practice.

More Information

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Keywords: Prevention; Cervical cancer; Healthcare workers; Nigeria



Introduction

Cervical cancer, the fourth most common cancer among women worldwide is diagnosed in over 600,000 women and kills more than 300,000 yearly [1,2]. Over 90% of these deaths occur in low- and middle-income countries like Nigeria [1-3]. Annually, over 12000 new cervical cancer cases are diagnosed and almost 8000 deaths are reported in Nigeria [1,4]. No other disease has shown disproportionate incidence and fatality between low-income and high-income income societies like cervical cancer [1,3,5]. This is largely because cervical cancer is preventable and preventive measures are well-established in high-income countries [1,3,5].

Cervical cancer is mainly attributed to persistent infection of oncogenic Human Papillomavirus (HPV) [2,3]. The global prevalence of HPV among women with cervical cancer and those without cervical abnormalities is 99.8% and 11% respectively [2]. The prevalence of high-risk HPV (16,18)

among women with cervical cancer in Nigeria is 66.9% [4]. The pathogenesis of persistent HPV infection leading to cervical cancer has been well elucidated and preventive strategies have been targeted towards different points in the chain of events-primary, secondary, and tertiary [4,6,7].

Prevention and elimination of cervical cancer depends on awareness about the disease, knowledge of risk factors, health education, lifestyle modification, HPV vaccination, screening, and proper treatment [5,7,8]. Healthcare workers are pivotal to stemming the tide of this scourge as they are involved in all these strategies [6,8]. Healthcare workers' recommendations have been reported to be a key motivational factor for cervical cancer screening among women in Nigeria [6,9,10]. Cervical cancer prevention strategies like screening and HPV vaccination in Nigeria are mostly episodic and opportunistic, usually done when women come in contact with healthcare facilities for other services like antenatal care, immunization, antiretroviral treatment, family planning services, and others



[6,10,11]. Hitherto, missed opportunities for cervical cancer screening have been reported within Nigeria's healthcare sector [5,12]. According to Ayer, et al. [13], conditions necessary for knowledge about something include what one knows to be true, one to be sure of it and one should have a right to be sure. Healthcare workers satisfy these three conditions for knowledge about the prevention of cervical cancer. In addition, knowledge and attitudes are known to influence the practices of any given population [14,15]. We therefore aimed to assess the knowledge, attitudes, and practices of health workers in Ekiti State regarding the prevention of cervical cancer.

Material and methods

This was a cross-sectional self-administered questionnaire-based survey among health workers in Ekiti State between March and July 2023. Ekiti State is one of the States in Southwest Nigeria. The study population was all health workers aged 18 to 60 years in the Ekiti Central, Ado-Ekiti, and Ijero-Ekiti local governments of Ekiti State. Health workers who refused to give consent were excluded from the study. Ethical approval was obtained from the Ethics and Research Committee of Ekiti State University Teaching Hospital, Ado-Ekiti with protocol number EKSUTH/A67/2023/09/010.

The sample size was calculated using a single population proportion formula by Leslie Fisher based on the following assumptions [16]. The proportion of health workers with good knowledge about cervical cancer taken from a study by Odenusi, et al. in Ibadan [17], Nigeria with 95% CI, α level 5% ($Z = 1.96$), and a margin of error of 5%. A sample size of 222 was obtained after adding 10% for attrition.

The proportional allocation of participants was done in a ratio of 1:4 (Ijero: Ado) according to the population strength of healthcare workers in the two local governments. Systematic random sampling was used to recruit the participants. The first health worker out of every three was invited to participate in the study.

The questionnaire comprised 4 parts, each part assessing sociodemographic characteristics, knowledge, attitude, and practices for prevention of cervical cancer. Sociodemographic characteristics obtained included age, sex, cadre, marital status, and years of practice. The knowledge of cervical cancer prevention was assessed using a 26-point scale. Statements in this section included knowledge about risk factors for cervical cancer, HPV infection, mode of transmission, HPV vaccine, cervical cancer screening, and treatment of precancer and cervical cancer. Each correct answer was given a score of 1 while a wrong answer was given a score of 0. The maximum point expected was 26 while the minimum was 0. Original Bloom's cut-off was used to categorize knowledge levels to good knowledge (90% - 100%) corresponding to a score of

20-26, moderate knowledge 60% - 79% corresponding to a score of 15 - 19 and poor knowledge 0-60% corresponding to a score of 0-14 [3,18].

Attitude was assessed by putting five statements regarding screening, HPV vaccine, and prevention of sexually transmitted infections on a 3-point scale. The 3-point scale has yes, I don't know, or no responses. The maximum score expected for all statements was 15 while the minimum was 0. If the person scored 8 and above, it is taken as a positive attitude while a score below 8 is taken as a negative attitude.

Practice was assessed by responses towards screening for cervical cancer and HPV vaccination. A 5-point scale was used. A score of either 1 or 0 was given to each statement. The maximum score was 5 while the minimum score was 0. Bloom cut-off was applied to categorize them into good practice (4 - 5), fair practice (3), and poor practice (0 - 3) [3,18]. The study outcomes were knowledge, attitude, and practice of prevention of cervical cancer.

Data was analyzed with SPSS version 26 by IBM Incorporated. The sociodemographic characteristics and KAP were summarized with mean, standard deviation, frequency, and percentages. Chi-square was used to compare the knowledge, attitude, and practice of male and female healthcare workers. The odds ratio was used to assess the association between sociodemographic characteristics, knowledge, attitude, and practice, a p - value of less than 0.05 was taken as statistically significant.

Results

Of the 222 questionnaires distributed to health workers, 182 (82%) were returned completed. The mean age of participants was 40.7 ± 10.5 years. The participants were mostly females. (76.8%) Nurses made up 42.8% of participants while doctors and Community health extension workers made up the remaining participants equally (Table 1).

Among all participants, 165(90.7%) had good knowledge about the prevention of cervical cancer while 123(67.6%) demonstrated positive attitudes towards the prevention of cervical cancer. Only 24(13.2%) had good practice concerning the prevention of cervical cancer (Table 2).

knowledge was comparable between male and female participants but there was a statistically significant difference in attitude ($\chi^2 = 21.67$, $p < 0.001$) and practice ($\chi^2 = 15.48$, $p < 0.001$). (Table 3) Being a female, practicing in Ijero local government (Odds ratio 1.24, 95% CI 1.23 - 1.41, $p = 0.004$), and positive attitude (Odds ratio 1.24, 95% CI 1.14 - 1.35, $p < 0.001$) increased the odds of good practice. length of practice was also statistically significant as seen in Table 4.



Table 1: Sociodemographic characteristics of participants.

Characteristics	Frequency	Percentage (%)
Age		
≤ 29 years	30	16.5
30-49 years	117	64.3
≥ 50 years	35	19.2
Sex		
Male	42	23.1
Female	140	76.8
Marital status		
Single	42	23.1
Married	133	73.1
Widowed	7	3.8
Cadre		
Medical doctor	52	28.6
Midwife/Nurse	78	42.8
CHEW	52	28.6
Location of practice		
Ado-Ekiti	147	80.8
Ijero-Ekiti	35	19.2
Years of practice		
< 10	54	29.7
11-20	85	46.7
21-30	38	20.9
> 30 years	5	2.7

Table 2: Knowledge, attitude and practice of prevention of cervical cancer among healthcare workers in Ekiti State.

Outcomes	Number	Percentage (%)
Knowledge about the prevention of cervical cancer		
Good	165	90.7
Moderate	15	8.2
Poor	2	1.1
Attitude towards prevention of cervical cancer		
Positive	123	67.6
Negative	59	32.4
Practicing prevention of cervical cancer		
Good	24	13.2
Fair	47	25.8
Poor	111	61

Table 3: Comparison of knowledge, attitude, and practice between male and female health workers.

Outcome	Male n (%)	Female n (%)	χ^2	p - value
Knowledge				
Good	1(0.7)	1(2.4)	1.85	0.39
Moderate	5(7.1)	10(11.9)		
Poor	36(92.1)	129(85.7)		
Attitude				
Positive	26(61.9)	33(23.6)	21.67	< 0.001*
Negative	16(38.1)	107(76.4)		
Practice				
Good	36(85.7)	75(53.6)	15.48	< 0.001*
Fair	6(14.3)	21(29.3)		
Poor	0(0)	24(17.1)		

*Statistically significant.

Table 4: Determinants of practicing prevention of cervical cancer among healthcare workers in Ekiti State.

Factor	Good Practice	Poor Practice	ODDS Ratio	95% Confidence Interval	p - value
Age					
≤ 29 years	0(0)	30(100)	Ref	Ref	
30-49 years	18(15.4)	99(84.6)	4.64	0.33-7.12	0.99
≥ 50 years	6(17.1)	29(82.9)	5.70	0.02-2.64	0.93
Sex					
Male	0(0)	42(100)	Ref	Ref	Ref
Female	24(17.1)	116(82.9)	1.25	1.23-1.31	0.004*
Marital status					
Single	0(0)	42(100)	Ref	Ref	Ref
Married	20(15)	113(85)	0.17	0.09-5.21	0.08
Widowed	4(57.1)	3(42.9)	0.19	0.03-6.41	0.54
Cadre					
Medical doctor	6(11.5)	46(88.5)	Ref	Ref	Ref
Midwife/Nurse	10(12.8)	68(87.2)	0.27	0.06-1.18	0.08
CHEW	8(15.4)	44(84.6)	0.32	0.06-1.58	0.16
Location of practice					
Ado-Ekiti	16(10.9)	131(89.1)	Ref	Ref	Ref
Ijero-Ekiti	8(22.9)	27(77.1)	5.06	1.65-15.67	0.004*
Years of practice					
< 10	8(14.8)	46(85.2)	Ref	Ref	Ref
11-20	10(11.8)	75(88.2)	0.20	0.1-0.27	0.001*
21-30	6(15.8)	32(84.2)	0.20	0.3-0.90	0.004*
> 30	0(0)	5(100)	0.23	0.17-0.32	0.99
Knowledge					
Good	24	141(85.5)	1.17	0.44-1.25	0.23
Moderate	0	15(100)	0.65	0.15-15.22	0.12
Poor	0	2(100)	Ref	Ref	Ref
Attitude					
Positive	24(19.5)	99(80.5)	1.24	1.14-1.35	< 0.001*
Negative	0(0)	59(100)	Ref	Ref	Ref

*Statistically significant.

Discussion

Despite the high level of knowledge and positive attitude toward cervical cancer prevention, healthcare workers' practice of cervical cancer is very low in our study population. A positive attitude slightly increased the possibility of practicing cervical cancer prevention. There was a clear incongruence between knowledge of cervical cancer prevention and its practice, which cannot be explained wholly by the attitude of these healthcare workers.

The strength of this study was the inclusion of male health workers in the study. The involvement of male healthcare workers opened us to the involvement of men in cervical cancer prevention for their daughters and wives. The limitation is the small sample size as only two local government areas were included within Ekiti State. The generalization of this study is also hampered by the small sample size but this is representative of Ekiti State in Nigeria because these healthcare workers are randomly transferred from one hospital to another within the State.

The knowledge of cervical cancer prevention in our study



population was high, comparable to findings from other parts of the country [6,19-22]. Their level of knowledge about cervical cancer screening was higher than studies from other populations like market women and female undergraduates [23,24]. This is not unexpected as the health workers are clinical staff with formal education and training. This study population has the right to know and be sure about cervical cancer prevention [13]. By default, healthcare workers are meant to be involved in health education and awareness for the general populace. Unfortunately, this study population knows but they did not practice it. Similar results were also reported by previous researchers in Nigeria [6,20]. Many researchers have identified a disconnect between the knowledge and practice of health workers [25,26]. This knowledge-practice gap has been attributed to structural, cognitive, and social barriers [25,26]. These three domains are known to be intertwined, and knowledge may not translate to practice if any is missing [25].

Structural barriers could be accessibility to screening facilities or the availability of HPV vaccines [27,28]. In developing countries like Nigeria, cervical cancer prevention is usually implemented as donor programs for specific periods of research [29,30]. Neither the HPV vaccination nor screening programs are incorporated into the health system. Most preventive measures in Nigeria are opportunistic and poorly coordinated in nature, and these opportunities are often missed [12,29,30]. Cognitive barriers can be caused by biases or illusions from thinking processes that affect how one perceives or interprets information thereby hindering the person from taking necessary steps [31,32]. Biases and illusions previously identified by various studies include “I do not need to screen”, “I do not give priority to screening”, “I cannot have cancer”, “I am not at risk of cervical cancer”, “I prefer not to know my status” [27,32,33]. These healthcare workers may also be under the influence of these illusions which could have prevented them from taking appropriate actions towards prevention of cervical cancer.

The identified knowledge-practice gap reiterates that healthcare workers are not insulated from the prevailing social norms and values in the community [25,34]. Social norms and values are known to modulate the translation of knowledge to motivation and actions [25,35,36]. Vaccine hesitancy cannot be ruled out among this study population [28,37]. The cultural restraint of exposing genitalia to someone else while undergoing preventive services and the stigma associated with cancer are known social barriers in Nigeria [38-40].

Conclusion

Reasons many women have attributed to evading preventive measures for cervical cancer screening include the belief that they can identify changes in their body, the belief that one is not at risk of cancer, lack of confidence in the benefit of screening, and previous negative experience of healthcare or screening services.

We recommend that mitigating these barriers should be considered while developing cervical cancer prevention programs in which healthcare workers will work as educators. Healthcare workers have sufficient knowledge but these barriers need to be curtailed to translate into action. Further research is required to explore the incongruence between knowledge of cervical cancer prevention and its practice. Also, future research should explore the knowledge and practice of cervical cancer prevention among citizens in a community-based study.

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References

1. Singh D, Vignat J, Lorenzoni V, Eslahi M, Ginsburg O, Lauby-Secretan B, Arbyn M, Basu P, Bray F, Vaccarella S. Global estimates of incidence and mortality of cervical cancer in 2020: a baseline analysis of the WHO Global Cervical Cancer Elimination Initiative. *Lancet Glob Health*. 2023 Feb;11(2):e197-e206. doi: 10.1016/S2214-109X(22)00501-0. Epub 2022 Dec 14. PMID: 36528031; PMCID: PMC9848409.
2. Lintao RCV, Cando LFT, Perias GAS, Tantengco OAG, Tabios IKB, Velayo CL. Current status of human papillomavirus infection and cervical cancer in the Philippines. *Front Med*. 2022; 9:929062. <https://www.frontiersin.org/articles/10.3389/fmed.2022.929062/full>
3. Tsegay A, Araya T, Amare K, G/tsadik F. Knowledge, attitude, and practice on cervical cancer screening and associated factors among women aged 15–49 years in Adigrat town, northern Ethiopia, 2019: a community-based cross-sectional study. *IJWH*. 2021; 12:1283-98. <https://www.dovepress.com/knowledge-attitude-and-practice-on-cervical-cancer-screening-and-assoc-peer-reviewed-article-IJWH>
4. ICO/IARC Information Centre on HPV and Cancer. Nigeria Human Papillomavirus and Related Cancers, Fact Sheet 2023. https://hpvcentre.net/statistics/reports/NGA_FS.pdf
5. Okolie EA, Aluga D, Anjorin S, Ike FN, Ani EM, Nwadike BI. Addressing missed opportunities for cervical cancer screening in Nigeria: a nursing workforce approach. *ecancer*. 2022; 16. <https://ecancer.org/en/journal/article/1373-addressing-missed-opportunities-for-cervical-cancer-screening-in-nigeria-a-nursing-workforce-approach>
6. Okolie EA, Barker D, Nnyanzi LA, Anjorin S, Aluga D, Nwadike BI. Factors influencing cervical cancer screening practice among female health workers in Nigeria: A systematic review. *Cancer Reports*. 2022; 5(5): e1514. <https://onlinelibrary.wiley.com/doi/10.1002/cnr2.1514>
7. Akinola O, Aimakhu C, Ezechi O, Fasubaa O. Society of obstetrics and gynecology of Nigeria – Clinical practice guidelines: Guidelines for the prevention of cervical cancer. *Trop J Obstet Gynaecol*. 2018; 35(3):371. <http://www.tjgonline.com/text.asp?2018/35/3/371/251964>
8. Khanna D, Khargekar N, Budukh A. Knowledge, attitude, and practice about cervical cancer and its screening among community healthcare workers of Varanasi district, Uttar Pradesh, India. *J Family Med Prim Care*. 2019; 8(5):1715. https://journals.lww.com/10.4103/jfmpc.jfmpc_143_19
9. Okunowo A, Smith-Okonu S. Cervical cancer screening among urban Women in Lagos, Nigeria: Focus on barriers and motivators for screening. *Niger J Gen Pract*. 2020; 18(1):10. <http://www.njgp.org/text.asp?2020/18/1/10/275509>



10. Balogun FM, Omotade OO. Facilitators and barriers of healthcare workers' recommendation of HPV vaccine for adolescents in Nigeria: views through the lens of theoretical domains framework. *BMC Health Serv Res.* 2022; 22(1):824. <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-022-08224-7>
11. Sowemimo O, Ojo O, Fasubaa O. Cervical cancer screening and practice in low resource countries: Nigeria as a case study. *Trop J Obstet Gynaecol.* 2017; 34(3):170. <http://www.tjgonline.com/text.asp?2017/34/3/170/219072>
12. Ade-Ojo IP, Okunola TO, Temiloluwa Oso O. Missed opportunities of poor implementation of prevention with positives among HIV-positive women on treatment in Ekiti State, Southwest Nigeria. *OGIJ.* 2021; 12(4):269-73. <https://medcraveonline.com/OGIJ/missed-opportunities-of-poor-implementation-of-prevention-with-positives-among-hiv-positive-women-on-treatment-in-ekiti-state-southwest-nigeria.html>
13. Ayer A, Marić S. The problem of knowledge. Harmondsworth: Penguin books. 1956; 31.
14. Chala S, Houzmali S, Abouqal R, Abdallaoui F. Knowledge, attitudes and self-reported practices toward children oral health among mother's attending maternal and child's units, Salé, Morocco. *BMC Public Health.* 2018; 18(1):618. <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-018-5542-2>
15. Usman IM, Chama N, Aigbogun EO Jr, Kabanyoro A, Kasozi KI, Usman CO, Fernandez Diaz ME, Ndyamuhakyi E, Archibong VB, Onongha C, Ochieng JJ, Kanee RB, Ssebuufu R. Knowledge, Attitude, and Practice Toward Cervical Cancer Screening Among Female University Students in Ishaka Western Uganda. *Int J Womens Health.* 2023 Apr 14;15:611-620. doi: 10.2147/IJWH.S404845. PMID: 37082233; PMCID: PMC10112480.
16. Azuogu B, Eze N, Azuogu V, Onah C, Ossai E, Agu A. Appraisal of healthcare-seeking behavior and prevalence of workplace injury among artisans in automobile site in Abakaliki, Southeast Nigeria. *Niger Med J.* 2018; 59(5):45. <http://www.nigeriamedj.com/text.asp?2018/59/5/45/260426>
17. Odenusi AO, Oladoyin VO, Asuzu MC. Uptake of cervical cancer screening services and its determinants between health and non-health workers in Ibadan, southwestern Nigeria. *African Journal of Medicine and Medical Sciences.* 2020; 49(4):572-84. <https://ojshostng.com/index.php/ajmms/article/view/1753>
18. Narayana G, Suchitra Mj, Sunanda G, Ramaiah Jd, Kumar Bp, Veerabhadrapa K. Knowledge, attitude, and practice toward cervical cancer among women attending Obstetrics and Gynecology Department: A cross-sectional, hospital-based survey in South India. *Indian J Cancer.* 2017; 54(2):481. <http://www.indianjancer.com/text.asp?2017/54/2/481/225798>
19. Umukoro C, Makinde O. Perspectives of visual inspection of the cervix with acetic acid as an alternative to Pap smear test as a preventive measure of cervical cancer among female nurses in University College Hospital, Ibadan, Nigeria. *J Cancer Res Pract.* 2019; 6(1):18. https://journals.lww.com/10.4103/JCRP.JCRP_10_18
20. Daniyan BC, Ekwedigwe KC, Yakubu E, Mbamara SU, Amamilo IC, Sunday-Adeoye I. Assessment of Knowledge, Attitudes and Practice of Cervical Cancer Screening Among Female Health Workers in a Tertiary Health Facility in South-East Nigeria. *Journal of Integrative Oncology.* 2019; 6(1):228.
21. Awoyesuku PA, Altraide BOAA, MacPepple DA. Knowledge, uptake and barriers to pap smear test among female workers in the Rivers State University Teaching Hospital, Nigeria. *JAMMR.* 2019; 1-9. <https://journaljammr.com/index.php/JAMMR/article/view/3418>
22. Ifemelumma CC, Anikwe CC, Okorochukwu BC, Onu FA, Obuna JA, Ejikeme BN. Cervical cancer screening: assessment of perception and utilization of services among health workers in low resource setting. *International Journal of Reproductive Medicine.* 2019; 2019:1-8. <https://www.hindawi.com/journals/ijrmed/2019/6505482/>
23. Ahmed S, Ahmed R, Idris S, Sabitu K. Knowledge, attitude and practice of cervical cancer screening among market women in Zaria, Nigeria. *Niger Med J.* 2013; 54(5):316. <http://www.nigeriamedj.com/text.asp?2013/54/5/316/122337>
24. Olubodun T, Odukoya OO, Balogun MR. Knowledge, attitude and practice of cervical cancer prevention, among women residing in an urban slum in Lagos, South West, Nigeria. *Pan Afr Med J.* 2019; 32. <http://www.panafrican-med-journal.com/content/article/32/130/full/>
25. Kahlke RM, McConnell MM, Wisener KM, Eva KW. The disconnect between knowing and doing in health professions education and practice. *Adv in Health Sci Educ.* 2020; 25(1):227-40. <http://link.springer.com/10.1007/s10459-019-09886-5>
26. Ginsburg S, Bernabeo E, Holmboe E. Doing what might be "wrong": understanding internists' responses to professional challenges. *Academic Medicine.* 2014; 89(4):664-70. <http://journals.lww.com/00001888-201404000-00036>
27. Vega Crespo B, Neira VA, Ortíz Segarra J, Andrade A, Guerra G, Ortiz S. Barriers and facilitators to cervical cancer screening among under-screened women in Cuenca, Ecuador: the perspectives of women and health professionals. *BMC Public Health.* 2022; 22(1):2144. <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-022-14601-y>
28. Nguyen NY, Okeke E, Anglemeyer A, Brock T. Identifying perceived barriers to human papillomavirus vaccination as a preventative strategy for cervical cancer in Nigeria. *Annals of Global Health.* 2020; 86(1):118. <https://annalsofglobalhealth.org/article/10.5334/aogh.2890/>
29. Kabir A, Bukar M, Nggada HA, Rann HB, Gidado A, Musa AB. Prevalence of human papillomavirus genotypes in cervical cancer in Maiduguri, Nigeria. *Pan Afr Med J.* 2019; 33. <http://www.panafrican-med-journal.com/content/article/33/284/full/>
30. Idowu A, Olowookere SA, Fagbemi AT, Ogunlaja OA. Determinants of cervical cancer screening uptake among women in Ilorin, north-central Nigeria: a community-based study. *Journal of Cancer Epidemiology.* 2016; 2016:1-8. <http://www.hindawi.com/journals/jce/2016/6469240/>
31. Savolainen R. Cognitive barriers to information seeking: A conceptual analysis. *Journal of Information Science.* 2015; 41(5):613-23. <http://journals.sagepub.com/doi/10.1177/0165551515587850>
32. Oscarsson MG, Wijma BE, Benzein EG. 'I do not need to... I do not want to... I do not give it priority...' - why women choose not to attend cervical cancer screening. *Health Expectations.* 2008; 11(1):26-34. <https://onlinelibrary.wiley.com/doi/10.1111/j.1369-7625.2007.00478.x>
33. Bukowska-Durawa A, Luszczynska A. Review Cervical cancer screening and psychosocial barriers perceived by patients. A systematic review. *wo.* 2014; 3:153-9. <http://www.termedia.pl/doi/10.5114/wo.2014.43158>
34. Alam Z, Deol H, Dean JA, Janda M. Reasons behind low cervical screening uptake among south asian immigrant women: a qualitative exploration. *IJERPH.* 2022; 19(3):1527. <https://www.mdpi.com/1660-4601/19/3/1527>
35. Cook DA, Artino AR. Motivation to learn: an overview of contemporary theories. *Med Educ.* 2016; 50(10):997-1014. <https://onlinelibrary.wiley.com/doi/10.1111/medu.13074>
36. Kirubarajan A, Leung S, Li X, Yau M, Sobel M. Barriers and facilitators for cervical cancer screening among adolescents and young people: a systematic review. *BMC Women's Health.* 2021; 21(1):122. <https://bmcmwomenshealth.biomedcentral.com/articles/10.1186/s12905-021-01264-x>
37. Kutz JM, Rausche P, Gheit T, Puradiredja DI, Fusco D. Barriers and facilitators of HPV vaccination in sub-Saharan Africa: a systematic review. *BMC Public Health.* 2023; 23(1):974. <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-023-15842-1>
38. Mafiana JJ, Dhital S, Halabia M, Wang X. Barriers to uptake of cervical cancer screening among women in Nigeria: a systematic review. *Afr H Sci.* 2022; 22(2):295-309. <https://www.ajol.info/index.php/ahs/article/view/228970>



39. Dozie U, Ebirim CIC, Dike CR, Dozie INC, Ibe SNO, Abanobi OC. Determinants of cervical cancer screening uptake among female undergraduates in a tertiary institution in southeastern Nigeria: a cross-sectional study. *Journal of Preventive Medicine and Hygiene*. 2021; E213. <https://www.jpnh.org/index.php/jpmh/article/view/1828>
40. Isa Modibbo F, Dareng E, Bamisaye P, Jedy-Agba E, Adewole A, Oyeneyin L. Qualitative study of barriers to cervical cancer screening among Nigerian women. *BMJ Open*. 2016; 6(1): e008533. <https://bmjopen.bmj.com/lookup/doi/10.1136/bmjopen-2015-008533>