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Knowledge, attitudes, and perceptions about cervical cancer, and the uptake of cervical cancer screening in Nigeria: An integrative review

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ABSTRACT

This review evaluated the evidence on the knowledge of, and attitudes towards cervical cancer, as well as the utilization of cervical cancer screening services in Nigeria. A literature search of articles was done on MEDLINE, Google Scholar, and EBSCO databases. Relevant articles were screened for eligibility and 9 papers were selected. One additional study was obtained from the reference list of one of the chosen papers. The Joanna Briggs Institute and AXIS Critical Appraisal tool checklists were used to evaluate the quality of the articles. The knowledge of cervical cancer, and the uptake of screening were poor among the general population. Expectedly, health workers had more awareness of the disease, however, their uptake of screening was found to be inadequate. Several barriers to cervical cancer screening were identified, including concerns about modesty and consent from partners. Culture, religion, and socioeconomic status affect the health-seeking behaviors of women in Nigeria, and this holds true for access of cervical cancer screening. In order to improve the uptake of screening services, health education interventions that are well suited to the prevailing cultures of the people should be embarked upon.

Introduction

Although cervical cancer is preventable and amenable to treatment if diagnosed early, the disease is still a major public health concern globally, especially in developing countries [51]. In Nigeria, cervical neoplasm is the commonest malignancy affecting the female genital tract, with about 10,000 new diagnoses and over 8000 deaths occurring yearly [60]. Also, around 36.6 million female Nigerians over 15 years are at risk of having cancer of the cervix [4]. Cervical cancer is preventable, and has a lengthy precancerous stage during which screening can be done and any premalignant lesion found could be treated so

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as to stop the progression of the disease to the invasive stage [55]. There is compelling evidence indicating that screening is an effective tool for identifying the disease at several stages of its progression [11]. Cervical cancer screening services (CCSS) have been found to be responsible for the decrease in cervical cancer-related morbidity and mortality in developed nations [34]. In the United Kingdom, CCSS helped stop an epidemic that would have been killing over 4600 women annually [33]. The incidence of cancer of the cervix has reduced significantly in advanced countries in the last three decades. However, in resource-poor nations, the disease is still a significant cause of death of women, and in 2010, it was responsible for over 200,000 deaths [65].

It has been established that differences in active participation in CCSS between developed nations and resource-poor countries is the major factor responsible for the inequality in the prevalence of the illness [54]. In both developed and developing nations, socioeconomic status is a significant health determinant [12], and this seems true for cancer of the cervix as well. Globally, there have been established links between low socioeconomic status on one hand, and a high incidence, morbidity and mortality of the disease on the other [41]. Even in industrialised countries, non-utilization of CCSS is predominantly higher in women of lower socioeconomic status [39]. However, several other factors like age, marital status, embarrassment, and physician's gender may influence poor utilization of CCSS [19]. Underutilization of CCSS is a major barrier to the fight against this illness, as it has been noted that around 70% of women who died from cervical cancer were not screened within three years before the diagnosis was made [61]. These deaths are avoidable because according to Lönnberg et al. [37], a single episode of screening can lead to a 60% decline in mortality associated with the disease.

The uptake of CCSS in low and middle income countries is below average [31]. In Nigeria particularly, uptake is poor even when compared to most other resource-poor nations [52]. In a research carried out among women in Lagos Nigeria, only about 15% of the respondents had knowledge of CCSS, and less than 5% of these women had ever had a Papanicolaou (Pap) smear – a type of cervical cancer screening [66]. In a similar research carried out in a University in Nigeria, only 23% of the female respondents knew that Pap smear is a screening test for the disease and only about 5.2% of them had ever utilised it [6]. From a different perspective, it may be that the poorly coordinated services which are disproportionately situated in urban areas, while neglecting rural settlements, are largely responsible for the poor uptake of CCSS [28]. This may be the reason why in Nigeria, most diagnoses of cancer of the cervix are made in the malignant stages of the disease, with minimal chances of survival [7]. This is because while at the curable preinvasive asymptomatic stages, the most vulnerable population who need the CCSS the most do not get to access it [21].

Furthermore, among female healthcare workers, despite a good knowledge about the disease, only a few of them have good disposition towards undergoing screening [3]. While a few studies in Nigeria have suggested that knowledge and awareness do not always translate to uptake of CCSS [17, 45], many others agree that lack of awareness of cancer of the cervix and its screening is a significant barrier to the uptake of these services [18, 66]. Therefore, this literature review was aimed at exploring and evaluating the evidence about the knowledge and perceptions of cervical cancer, and the level of utilization of CCSS in Nigeria.

Methods

This study was guided by the integrative review methodology framework proposed by Whittemore and Knafl [64], and this comprises of problem identification, search of the literature, evaluation and reduction of data, data analysis and synthesis, and discussion of findings [46]. The problem identified in this review was poor uptake of CCSS in Nigeria and the research questions included knowledge and attitude about cervical cancer and screening. Studies of interest were generated using the widely used PICO (Population-Intervention-Comparison-Outcome) model [23], which identifies the Population of interest (Nigeria), the Intervention under study (cervical cancer screening), any Comparisons (none in this case) and the Outcomes (knowledge of cervical cancer and uptake of cervical cancer screening).

The keywords and their synonyms inputted in EBSCO, MEDLINE, and Google Scholar databases are knowledge, attitude, perception, beliefs, views, experiences, cervical cancer, cervical malignancy, cancer of the cervix, cervical neoplasm, cervical screening, pap smear, Nigeria. These databases are user friendly and useful in obtaining medically related literature [8]; and being open access databases, they are readily available, and their text mining features are useful in identifying original peer-reviewed papers [63]. In addition, logic operators 'AND', 'NOT' and 'OR' were also used to generate relevant papers. Citation chaining was used to recruit one paper from the reference list of the articles.

Eligibility criteria. The inclusion criteria for this study included peer-reviewed papers published in English from 2009 to 2019. The search did not generate any non-English studies. Furthermore, because the factors influencing the knowledge of cervical cancer and its screening are multi-dimensional, quantitative and qualitative research methods were included. The decision to include these different methods was deliberate, as they both bring different perspectives to understanding the complexities of medical interventions [47]. Reviews and grey literatures were excluded. Review papers were not included in this study because there is ample research evidence relating to cervical cancer and CCSS in Nigeria, and according to Daldrup-Link [15], a literature review summarises the evidence and synthesizes knowledge from research articles, not review articles.

Screening for research papers. Search results of databases yielded 415 articles. After removal of duplicates, 232 articles were selected. After screening the titles and abstract for relevance, 96 papers were then chosen for full text evaluation. Nine articles met the eligibility criteria, and an additional article was included after searching the reference lists (citation chaining) of these 9 articles (see Fig. 1 for the Prisma Flow diagram). The Joanna Briggs Institute Critical Appraisal Tool checklists

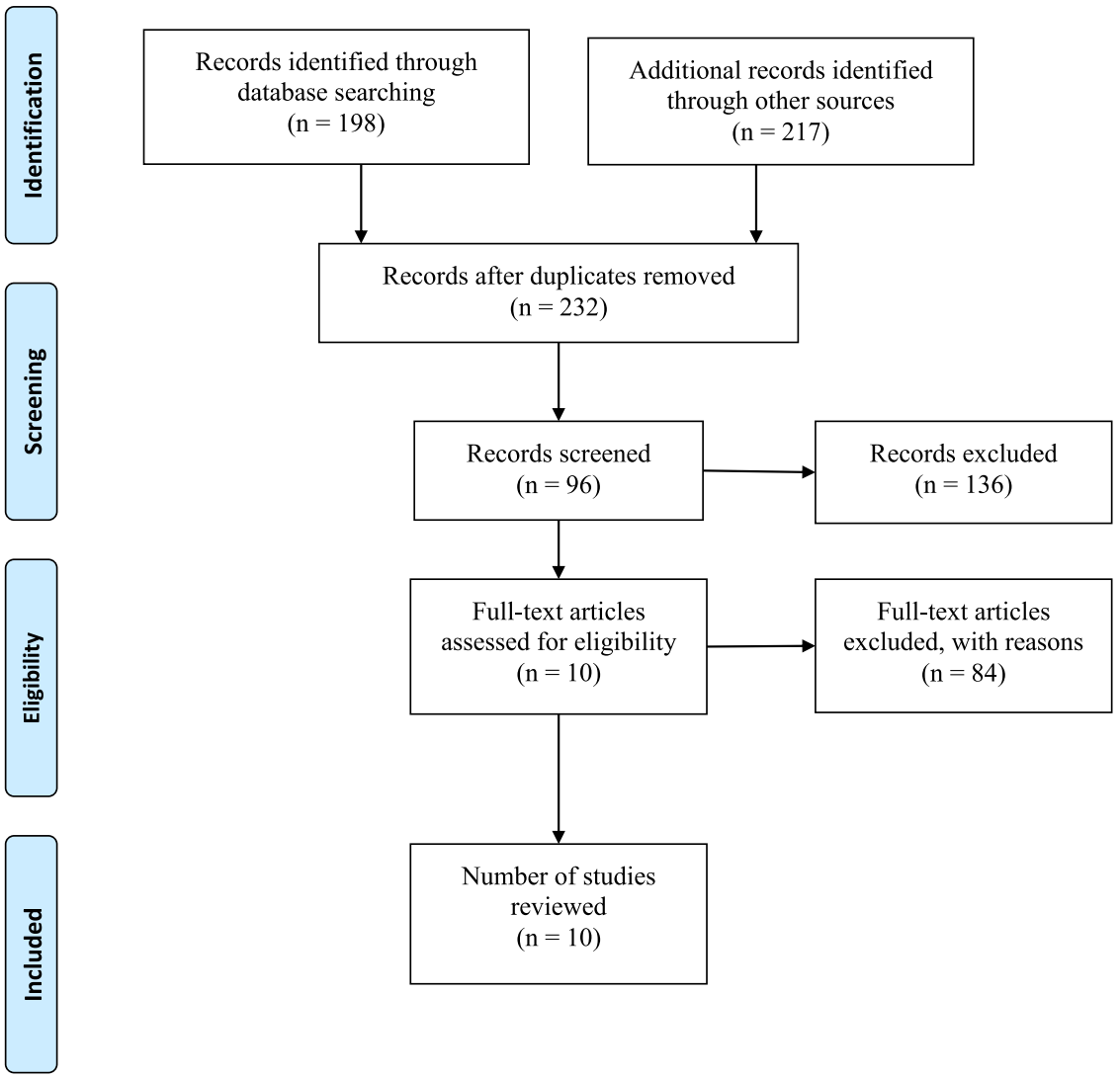

Fig. 1. PRISMA flow diagram for search of articles.

[13] were used to assess the relative strengths and weaknesses of the qualitative and Quasi-experimental studies, while the AXIS tool was used to appraise the cross-sectional quantitative studies [20]. This rigorous assessment process increases the trustworthiness of a research by objectively assessing whether to adopt findings of the articles [13]. Resulting data from these articles were carefully extracted, analysed, organised and presented; identifying recurrent themes and highlighting peculiar findings that raised new insight into the phenomena under review. Themes for the review were generated by identifying patterns, trends and relationships from each article; and conflicting evidence were also presented so as to ensure all the necessary evidence is made available to the reader. Table 1 is a list of the selected articles.

Results

The reviewed articles include one qualitative research, eight cross-sectional quantitative studies, and one quasi-experimental quantitative paper. Three of the articles sampled female healthcare workers, while male participants were included in one of the hospital-based studies. One research was carried out among female civil servants and the quasi-experimental study had two groups of participants, a control group and an intervention group. These articles were about the knowledge and attitude of participants to cervical cancer and CCSS, as well as their beliefs about the risks, in line with the objectives of this literature review. The themes that emerged from the studies include knowledge and perception of risk, knowledge and uptake of CCSS, and barriers and attitude towards CCSS. The results are presented below.

Table 1
Summary of articles reviewed.

Articles	Titles and links to the articles	Population	Location
A. Abiodun, T. Oluwasola, A. Durodola, M. Ajani, A.D. Abiodun, A. Adeomi. [1]	Awareness and perception of risk for cervical cancer among women in Ogbomoso, Nigeria. http://www.tjogonline.com/article.asp?issn=0189–5117;year=2017;volume=34;issue=3;spage=218;epage=223;aulast=Abiodun	318 women	Ogbomoso, Nigeria
T. Olubodun, O. Odukoya, M.R. Balogun (2019)	Knowledge, attitude and practice of cervical cancer prevention among women residing in an urban slum in Lagos, South West, Nigeria. http://www.panafrican-med-journal.com/content/article/32/130/full/	305 women	Lagos, Nigeria
G. Eze, I. Obiebi, I. Umuago [24]	Perspectives of cervical cancer and screening practices among staff of a teaching hospital in South-South Nigeria https://www.sciencedirect.com/science/article/pii/S2311300617301350	328 health workers, 166 females, 162 males	Delta, Nigeria
H.Hyacinth, O. Adekeye, J.Ibeh, T.Osoba. [27]	Cervical cancer and pap smear awareness and utilization of pap smear test among federal civil servants in North Central Nigeria https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0046583	388 female civil servants	Jos, Nigeria
[58])	Acceptability of human papilloma virus vaccine and cervical cancer screening among female health-care workers in Enugu, Southeast Nigeria http://www.njcponline.com/article.asp?issn=1119–3077;year=2013;volume=16;issue=2;spage=249;epage=252;aulast=Ugwu	177 female health workers	Enugu, Nigeria
C.Ifemelumma, C. Anikwe, B.Okorochukwu, F. Onu, J. Obuna, B.Ejikeme, O.Ezeonu (2019)	Cervical cancer screening: Assessment of perception and utilization of services among health workers in low resource setting https://www.hindawi.com/journals/ijrmed/2019/6505482/	388 female nurses	Abakaliki, Nigeria
O. Arulogun, O. Maxwell (2012)	Perception and utilization of cervical cancer screening services among female nurses in University College Hospital, Ibadan, Nigeria. https://www.panafrican-med-journal.com/content/article/11/69/full/	503 female nurses	Ibadan, Nigeria
A.Okunowo, E. Daramola, A. Soibi-Harry, F. Ezenwankwo, J.Kuku, K.Okunade, R. Anorlu [48]	Women's knowledge of cervical cancer and uptake of pap smear testing and the factors influencing it in a Nigerian tertiary hospital https://www.sciencedirect.com/science/article/pii/S2311300617301490	205 women	Lagos, Nigeria
F. Isa Modibbo, E. Dareng, P. Bamisaye, E. Jedy-Agba, A. Adewole, L. Oyeneyin, O.Olaniyan, O. Adebamowo [30]	Qualitative study of barriers to cervical cancer screening among Nigerian women https://bmjopen.bmj.com/content/6/1/e008533	49 women	Abuja and Ondo, Nigeria
O.Abiodun, O. Olu-Abiodun, J. Sotunsa [2]	Impact of health education intervention on knowledge and perception of cervical cancer and cervical screening uptake among adult women in rural communities in Nigeria https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471–2458–14–814	700 women, 350 control, 350 intervention	Odogbolu and Ikenne, Ogun State, Nigeria

Table 2
Awareness of cervical cancer and perception of risk.

Study	Population	Findings
Abiodun et al. [1]	318 women	- 22.6% were aware of cervical cancer. - 50% believe it is common in Nigeria. - 5.7% believe they might be at risk. - Sources of information include seminars (50%), hospital staff (43.1%), media (20.8%)
Olubodun et al. [49]	305 women	- 12.8% have heard of cervical cancer - 64.3% consider themselves immune to the disease - 60.7% believe they are spiritually protected - 15.3% say they are not at risk as they do not engage in casual sexual practices
Okunowo et al. [48]	205 women attending antenatal clinics	- 78.5% were aware of cervical cancer - 41.5% believed it is common - 16.6% think they may be at risk
Hyacinth et al. [27]	388 female civil servants	- 50.9% had previously heard about cervical cancer - 45.6% think it is preventable - 27% think prevention can be achieved by screening - Major sources of information include the media (57.6%), hospital staff (22.5%) and family/friends (15.7%)
Ugwu et al. [58]	177 female health workers	- Awareness among respondents was 85.9% - 84.2% were aware of HPV as the primary cause - 78% were aware HPV is sexually transmitted
Ifemelumma et al. [29]	388 female nurses	- 100% awareness of cervical cancer - 86.4% were aware of HPV as the primary cause - Nursing training (73.5%) and media (25.5%) were the commonest sources of information
Arulogun and Maxwell [7]	503 female nurses	- 80.9% were aware cervical cancer is the commonest cancer of female genital tract in Nigeria - 54.5% were aware HPV is the primary cause - Vaginal bleeding (89.7%), dyspareunia (87.9%) and abnormal vaginal discharge (87.9%) were the most commonly identified symptoms
Eze et al. [24]	328 health workers, 166 females, 162 males	- 66.4% and 82.3% of male and female health workers respectively, were aware of cervical cancer
Modibbo et al. [30]	49 women	- Poor knowledge and awareness in both Christian and Muslim FDGs
Abiodun et al. [2]	350 control, 350 intervention	- Significant improvement in awareness from 16.9% pre-intervention to 100% post-intervention

Knowledge and perception of risk

The awareness of cervical cancer varied between different populations and various participants had several opinions about their susceptibility to the disease. However, there was an obvious pattern seen in eight of the studies; where awareness and perception of risk increased with increasing socioeconomic status. Table 2 summarises the results about the knowledge and perception of risk of the disease. In the study by Abiodun et al. [1] with 318 participants in a rural settlement, the awareness of cervical cancer was 22.6%; only half of these women believed cervical cancer was common in Nigeria and only 5.7% of them thought they might be at risk. Fifty percent of them heard about the disease from seminars, 43.1% from hospital staff and 20.8% from the media. Similarly, Olubodun et al. [49] found in an urban area with poor socioeconomic conditions that awareness was poorer; only 12.8% out of 305 participants had ever heard of cervical cancer, and 64.3% of these women considered themselves immune to the disease, 60.7% thought they were spiritually protected from it while 15.3% said they were not at risk because they did not engage in casual sexual practices.

The participants involved in the studies carried out in urban areas had better knowledge and perception of risk. According to Okunowo et al. [48], the awareness of the disease was higher in their study conducted among 205 women attending antenatal clinic in a city, where 78.5% of the participants were aware of cancer of the cervix, 41.5% of them believed it was common and 16.6% admitted that they could be at risk. Modibbo et al. [30] brought a different perspective into their

qualitative research by exploring the knowledge of cervical cancer between two sets of participants comprising two Christian and two Muslim Focus Group Discussions (FGD). They found that the knowledge about cervical cancer and HPV was poor overall, with most Christian respondents believing that every female was at risk, but that the disease could be inflicted on women by charms.

Furthermore, in a survey by Hyacinth et al. [27] with a response rate of 86% involving 388 female civil servants, the awareness of cervical cancer was 50.9%, and 45.6% of the respondents believed it is preventable, but only 27% of them knew prevention could be achieved by screening. The media (57.6%) and hospital staff (22.5%) were the major sources of information about the disease. Among 177 female Healthcare workers; doctors, nurses, pharmacists, dieticians and physiotherapists, Ugwu et al. [58] found that 85.9% were aware of cervical cancer and 84.2% knew HPV as the primary cause. These findings were similar to the research by Ifemelumma et al. [29] involving 388 female nurses in a Teaching Hospital, except that all the respondents here were aware of cervical cancer, 86.4% knew HPV as the main cause, postcoital bleeding was the most identified symptom, while Nursing training (73.%) was identified as the commonest source of information. In a larger study involving 503 female nurses, 80.9% of the respondents were aware that cervical malignancy was the most common cancer of the female genital tract in Nigeria, 54.5% were aware HPV was the primary cause, whereas vaginal bleeding (89.7%) and abnormal vaginal discharge (87.9%) were the most commonly identified symptoms [7]. In another study involving 328 Health workers of both genders; 166 females and 162 males, 66.4% of males and 82.3% of females were aware of cervical cancer, respectively [24]. A quasi-experimental research conducted by Abiodun et al. [2] evaluated the effect of health education on cervical cancer awareness. They reported no significant change in awareness in the control group, but the intervention group recorded an increase in awareness from 16.9% pre-education to 100% post-education.

Knowledge and uptake of CCSS

Another important finding identified was the absence of any direct relationship between knowledge and uptake of CCSS. For instance, according to Abiodun et al. [1], 79.2% of the women that were aware of cervical cancer had heard of CCSS, but only 1.6% of them had ever been screened. About 82% of them did not get screened because they were not aware of the importance of screening while 35.5% had not gone for screening because it had not been recommended by their doctors. Meanwhile, the knowledge and uptake of CCSS were poorer in the study by Olubodun et al. [49], where 7.9% of the respondents were aware of CCSS but only 0.7% of them had ever been screened. In the study, 91.4% of the women did not get screened because they were not aware of its importance while 15.9% said they did not get screened because they had no symptoms.

Among the 225 women who attended antenatal clinic in an urban settlement, 55.1% of them were aware of CCSS and 22.9% of them had been screened previously, mostly after it was recommended by their doctors [48]. However, in a much larger study involving female civil servants, 38.6% were aware of CCSS but only 10.2% had previously been screened, and this was mostly because it was part of the routine tests done during antenatal visits [27]. Looking at the qualitative article by Modibbo et al. [30], all the women from the Christian FGD were aware of CCSS, while only a few Muslim women had heard about it. In addition, more than 50% of Christian women had previously been screened but none had been screened from the Muslim FGD.

According to Ugwu et al. [58], among female health workers, the awareness of CCSS was 91%, however, only 15.5% had ever been screened. This low percentage of uptake of CCSS was similar to the findings of Eze et al. [24] where only 11% of the females had utilised CCSS, and they were motivated to undergo screening by media campaigns about the disease. In the research involving female nurses; awareness of CCSS was 89.2%, uptake of CCSS was 20.6%, and 85% of these women had only utilised CCSS once [29]. Busy work schedule (12.9%) and the fear of receiving a positive result (10.8%) were some of the reasons given for non-utilization of CCSS. In a similar article also involving female nurses, the knowledge of CCSS were not so different, but the uptake was better. According to Arulogun and Maxwell [7], 92.4% of female nurses were aware of CCSS, and 34.6% had ever accessed it (46% of these respondents screened once and 27.6% screened twice).

Barriers and attitude towards screening

Several barriers to screening were identified. According to Abiodun et al. [1], all the participants were willing to be screened if given the opportunity, and they expressed no concerns about CCSS. However, this was not the case in the research by Modibbo et al. [30]. In this study, the women in the Christian FGD said they would like to undergo screening and they did not mind being screened by a male service provider as long as there was a female chaperon. On the other hand, the women in the Muslim FGD were not willing to get screened and the major reasons for this decision included strong preference for female service providers and the need for spousal approval. Spousal approval was also the major barrier identified by 72.7% out of the 88.9% of women willing to utilize CCSS in the research by Olubodun et al. [49].

Among health workers, Ugwu et al. [58] said 71.4% of respondents were willing to undergo screening. Similarly, 81% of the nurses who participated in the study by Arulogun and Maxwell [7] were willing to undergo future screening, but 46.5% said they were constrained by their busy schedules. These participants identified the factors that can influence their decision to go for screening, which included spousal consent (58.1%) and doctor's recommendation (49.5%).

Discussion

The study findings indicate that the awareness of cancer of the cervix in the general population was poor, and the knowledge about the cause, risk factors, symptoms and perception of risk were somewhat rudimentary. Also, the utilization of CCSS was found to be inadequate among health workers, and the general population at large.

Knowledge and uptake of CCSS were found to be poor, and this was consistent with findings in resource-poor countries like Kenya, Ghana, and Democratic Republic of Congo [5, 22, 56]. However, they differed significantly with studies from developed countries such as the United Kingdom [33] where knowledge of cancer of the cervix was considerably better. Expectedly, when compared to the general population, health workers of different professions seemed to have better knowledge of the disease in Nigeria. Although knowledge of the disease was higher among nurses than the general population, it was still inadequate considering their professional training. This was not limited to Nigeria, as some other countries in Africa have been reported to have similar issues. For example, there was less than adequate knowledge of cervical malignancy and its risk factors and symptoms among nurses in Tanzania [59]. This has the potential to significantly impact on public health, given the important roles nurses and other health workers play in public enlightenment.

Among participants who were aware of cervical neoplasm and CCSS in the studies by Hyacinth et al. [27], Eze et al. [24], and Ifemelumma et al. [29], some believed they were not at risk of cervical cancer and therefore, did not need to undergo screening. These women considered CCSS to be unimportant based on the absence of symptoms, no multiple sexual partners and no risky sexual behaviours. Similar perception of risk of the disease was also identified among women who actively declined CCSS in a study involving British women [10]. Therefore, it may be argued that a lack of adequate information about the disease and women's knowledge and beliefs about their susceptibility to the illness could negatively influence their health-seeking behaviours [35], and therefore, increase the burden of morbidity and mortality of the ailment. Conversely, the willingness to undergo screening would arguably be higher among women who consider themselves susceptible to a disease.

Another interesting finding is the influence of culture and religion on the knowledge and perception of cervical cancer by Modibbo et al. [30]. Among the group of women from the Christian FGD, there was a belief that women could be bewitched with cervical cancer by their male partners if the men are not happy with them. This could be a reflection of the emphasis on the supernatural nature of illness that is propagated by different cultures and religions in Nigeria [9] and some other parts of Africa [32]. These findings were similar to the results of a study carried out in Swaziland, where cervical cancer was seen as an affliction from promiscuity [44]. On the other hand, these beliefs may also be a manifestation of deep-rooted anxieties about gender roles and inequalities in the society which give men control over their female partners [26]. Cultural and religious beliefs as these could pose serious impediments to the uptake of CCSS, and therefore, increase the burden of the disease.

Furthermore, it was discovered in this review that awareness of cervical cancer and CCSS did not necessarily translate to increased uptake of CCSS, unlike studies in Cameroun and Ivory Coast where higher levels of utilization of CCSS were reported in populations with higher levels of awareness of cervical cancer and CCSS [40, 57]. One could argue that the knowledge these participants possess were quite rudimentary and may not have been enough to inspire proactive disease prevention behaviours. This therefore highlights the importance of well-developed public health education intervention strategies in order to promote uptake of CCSS. For example, according to Arulogun and Maxwell [7], Hyacinth et al. [27], Abiodun et al. [2], Abiodun et al. [1], Okunowo et al. [48], Ifemelumma et al. [29] and Olubodun et al. [49], increased awareness of the disease and willingness to utilize CCSS were improved following counselling from doctors/nurses and participation in media campaigns.

An earlier research in the United States of America suggests that health education, while improving awareness, may or may not significantly improve uptake of CCSS [50]. However, more recent studies in Ethiopia and Uganda, countries with similar sociodemographic features to Nigeria, found that both awareness of cervical cancer and utilization of CCSS could be improved by public health education from health professionals, and sustained media campaigns [25, 43]. Furthermore, socioeconomic factors such as higher education level and occupation may also influence knowledge and uptake of CCSS (Arulogun & Maxwell, 2012; [24, 27]). Similarly, while socioeconomic status predicted the uptake of CCSS in Uganda, China, Hong Kong and Italy, [16, 36, 43], it did not significantly influence it in a research done in Ghana by Ebu et al. [22].

Apart from sociodemographic and socioeconomic factors, cultural factors may influence uptake of CCSS in Nigeria. Some of the women who were unwilling to be screened cited religious norms as their main reasons while others identified the need to be attended to by female service providers. According to Modibbo et al. [30], the insistence on having a female service provider was stronger among female Muslims who believed it was in accordance with their faith. This is a likely indication that Islamic culture and tradition may have a profound impact on women's health seeking behavior, and overall public health. Also, cultural standards of modesty such as the fear of undressing and the perceived invasion of privacy were identified barriers to screening in Nigeria. These were similar barriers to utilization of CCSS identified in a study in Uganda [14], and these findings highlight the role and influence of culture and religion on public health.

Other barriers to access of CCSS identified include women's need to seek consent from their partners (husbands). While some of the participants said CCSS recommendations from their spouses would encourage them to access it, others feared their male partners might consider it an admittance of promiscuity. Similar results were identified in studies carried out in Burkina Faso and Tanzania, where it was stated that most women could only seek treatment and attend health education programs with approval from their male spouses [38, 53]. While lack of support from husbands may hinder their wives from

accessing CCSS, improving the knowledge and awareness of these men (spouses) may result in increased uptake of CCSS by their wives, promote early detection and treatment of the disease, and reduce the burden of the disease in the country. Another barrier to CCSS uptake is the fear of receiving a positive diagnosis. Like studies conducted in Iran and Kenya, most women were reported to be avoiding screening because they were afraid it could turn out positive [42, 62]. According to a review of qualitative studies on health screening in the UK, the fear of testing positive led to non-attendance of CCSS and other health screening services, and mostly created defensive responses, avoidance and alternative explanations that were based on personal convictions rather than medical facts [67].

Limitations

There were limitations identified in this study. The articles reviewed were published within a 10-year period, hence, the results may not necessarily reflect the current knowledge, attitude and views of cervical cancer and CCSS in Nigeria. The data from all the studies could have been influenced by recall bias because the participants mostly reported from past experiences.

Conclusion

This integrative review highlighted the factors that underpinned the utilization of CCSS in Nigeria. It further emphasized the role education, occupation, culture and religion play on the knowledge about cervical cancer and barriers to uptake of CCSS. There is need for further primary research to explore in-depth, the male partners' perspectives about cervical cancer, so as to arrive at a better conclusion about their roles in the uptake of CCSS by their spouses. Because of the highly influential sociocultural role men play in their female partners' health seeking behaviours in Africa, it is recommended that they should be actively engaged in interventions aimed at promoting female health, so as to increase chances of success.

However, on the long term, widespread health promotion programs and gender equality campaigns are needed to encourage women to take more responsibility for their health. This can be coordinated by the Government through the Ministry of Health and Primary Healthcare Agencies in the country.

Furthermore, in a multi-religious country with diverse cultures like Nigeria, there is a need to provide culturally appropriate and patient-centered health education and intervention programs. This is highly necessary in areas where health seeking behaviours are firmly rooted in the dictates of culture and religion, and this may be best achieved by liaising with religious and traditional leaders in the communities.

Declaration of competing interest

There is no conflict of interests in this study.

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References

[1] A. Abiodun, T.O. Oluwasola, A. Durodola, M. Ajani, A. Abiodun, A Adeomi, Awareness and perception of risk for cervical cancer among women in Ogbomoso, Nigeria, Trop. J. Obstet. Gynaecol. 34 (3) (2017) 218, doi:10.4103/tjog.tjog_56_16.
[2] O.A. Abiodun, O.O. Olu-Abiodun, J.O. Sotunsa, F.A. Oluwole, 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 (1) (2014) 814, doi:10.1186/1471-2458-14-814.
[3] A. Addah, J. Ojule, P. Fiebai, Knowledge, attitude and practice of cervical cancer screening - Papanicolaou test (Pap smear) among female health care providers in Port Harcourt, Port Harcourt Med. J. 6 (1) (2012) 74–80.
[4] S.A. Ahmed, K. Sabitu, S.H. Idris, R. Ahmed, Knowledge, attitude and practice of cervical cancer screening among market women in Zaria, Nigeria, Nigerian Med. J.:J. Nigeria Med. Assoc., 54 (5) (2013) 316–319, doi:10.4103/0300-1652.122337.
[5] C. Ali-Risasi, P. Mulumba, K. Verdonck, D. Vanden Broeck, M. Praet, Knowledge, attitude and practice about cancer of the uterine cervix among women living in Kinshasa, the Democratic Republic of Congo, BMC Women's Health 14 (1) (2014) 30, doi:10.1186/1472-6874-14-30.
[6] P.N. Aniebue, U.U. Aniebue, Awareness and practice of cervical cancer screening among female undergraduate students in a Nigerian university, J. Cancer Educ. 25 (1) (2010) 106–108, doi:10.1007/s13187-009-0023-z.
[7] O.S. Arulogun, Perception and utilisation of cervical cancer services among female nurses in University College Hospital, Ibadan, Nigeria, Pan. Afr. Med. J. 11 (2012) 69.
[8] S. Aslam, P. Emmanuel, Formulating a researchable question: a critical step for facilitating good clinical research, Indian J. Sexually Transmit. Dis. AIDS 31 (1) (2010) 47–50, doi:10.4103/0253-7184.69003.
[9] F. Balogun, O. Omotade, She must have been sleeping around"…: contextual interpretations of cervical cancer and views regarding HPV vaccination for adolescents in selected communities in Ibadan, Nigeria, PLoS ONE 13 (9) (2018) e0203950, doi:10.1371/journal.pone.0203950.
[10] K.F. Bennett, J. Waller, A.J. Chorley, R.A. Ferrer, J.B. Haddrell, L.A. Marlow, Barriers to cervical screening and interest in self-sampling among women who actively decline screening, J. Med. Screen. 25 (4) (2018) 211–217, doi:10.1177/0969141318767471.
[11] P. Biewenga, J. van der Velden, B.W.J. Mol, L.J.A. Stalpers, M.S. Schilthuis, J.W. van der Steeg, M.P.M. Burger, M.R. Buist, Prognostic model for survival in patients with early stage cervical cancer, Cancer 117 (4) (2011) 768–776, doi:10.1002/cncr.25658.
[12] P. Braveman, L. Gottlieb, The social determinants of health: it's time to consider the causes of the causes, Publ. Health Rep. (Washington, D.C.: 1974 129 (2) (2014) 19–31 Suppl 2 (Suppl, doi:10.1177/00333549141291s206.
[13] R.K. Buccheri, C Sharifi, Critical appraisal tools and reporting guidelines for evidence-based practice, Worldviews Evid.-Based Nurs. 14 (6) (2017) 463–472, doi:10.1111/wvn.12258.

[14] A. Bukirwa, J.N.N. Mutyoba, B. Mukasa, Y. Karamagi, M. Odiit, E. Kawuma, R.K Wanyenze, Motivations and barriers to cervical cancer screening among HIV infected women in HIV care: a qualitative study, BMC Women's Health 15 (1) (2015) 82, doi:10.1186/s12905-015-0243-9.
[15] H.E. Daldrup-Link, Writing a review article - are you making these mistakes? Nanotheranostics 2 (2) (2018) 197–200, doi:10.7150/ntno.24793.
[16] G. Damiani, B. Federico, D. Basso, A. Ronconi, C.B.N.A. Bianchi, G.M. Anzellotti, G. Nasi, F. Sassi, W Ricciardi, Socioeconomic disparities in the uptake of breast and cervical cancer screening in Italy: a cross sectional study, BMC Public Health 12 (1) (2012) 99, doi:10.1186/1471-2458-12-99.
[17] C.C. Dim, E. Ekwe, T. Madubuko, N.R. Dim, H.U. Ezegwui, Improved awareness of Pap smear may not affect its use in Nigeria: a case study of female medical practitioners in Enugu, southeastern Nigeria, Trans. R. Soc. Trop. Med. Hyg. 103 (8) (2009) 852–854, doi:10.1016/j.trstmh.2009.03.020.
[18] C.C. Dim, U.I. Nwagha, H.U. Ezegwui, N.R. Dim, The need to incorporate routine cervical cancer counselling and screening in the management of women at the outpatient clinics in Nigeria, J. Obstet. Gynaecol. (Lahore) 29 (8) (2009) 754–756, doi:10.3109/01443610903225323.
[19] A.M. Dodo, P. Sykes, C. Powell, Exploring the barriers to breast and cervical cancer screening in Nigeria: a narrative review, Afr. J. Reprod. Health 20 (4) (2016) 89–98, doi:10.29063/ajrh2016/v20i4.9.
[20] M.J. Downes, M.L. Brennan, H.C. Williams, R.S. Dean, Development of a critical appraisal tool to assess the quality of cross-sectional studies (AXIS), BMJ Open 6 (12) (2016) e011458, doi:10.1136/bmjopen-2016-011458.
[21] N.I. Ebu, Socio-demographic characteristics influencing cervical cancer screening intention of HIV-positive women in the central region of Ghana, Gynecol. Oncol. Res. Practice 5 (1) (2018) 3, doi:10.1186/s40661-018-0060-6.
[22] N.I. Ebu, S.C. Mupepi, M.P. Siakwa, C.M. Sampselle, Knowledge, practice, and barriers toward cervical cancer screening in Elmina, Southern Ghana, Int. J. Women's Health 7 (2015) 31–39, doi:10.2147/ijwh.s71797.
[23] M.B. Eriksen, T.F. Frandsen, The impact of patient, intervention, comparison, outcome (PICO) as a search strategy tool on literature search quality: a systematic review, J. Med. Lib. Assoc.: JMLA 106 (4) (2018) 420–431, doi:10.5195/jmla.2018.345.
[24] G.U. Eze, I.P. Obiebi, I.J. Umuago, Perspectives of cervical cancer and screening practices among staff of a teaching hospital in South-South Nigeria, J. Cancer Res. Practic. 5 (2) (2018) 67–73, doi:10.1016/j.jcrpr.2018.01.001.
[25] F. Getahun, F. Mazengia, M. Abuhay, Z. Birhanu, Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia, BMC Cancer 13 (1) (2013) 2, doi:10.1186/1471-2407-13-2.
[26] J. Heslop, R. Banda, Moving beyond the "male perpetrator, female victim" discourse in addressing sex and relationships for HIV prevention: peer research in Eastern Zambia, Reprod. Health Matters 21 (41) (2013) 225–233, doi:10.1016/s0968-8080(13)41697-x.
[27] H.I. Hyacinth, O.A. Adekeye, J.N. Ibeh, T Osoba, Cervical cancer and pap smear awareness and utilization of pap smear test among Federal civil servants in North Central Nigeria, PLoS ONE 7 (10) (2012) e46583, doi:10.1371/journal.pone.0046583.
[28] A. Idowu, S.A. Olowookere, A.T. Fagbemi, O.A. Ogunlaja, Determinants of cervical cancer screening uptake among women in Ilorin, North Central Nigeria: a community-based study, *J. Cancer Epidemiol.*, 2016 6469240 (2016), doi:10.1155/2016/6469240.
[29] C.C. Ifemelumma, C.C. Anikwe, B.C. Okorochukwu, F.A. Onu, J.A. Obuna, B.N. Ejikeme, O.P. Ezeonu, Cervical cancer screening: assessment of perception and utilization of services among health workers in low resource setting, *Int. J. Reprod. Med.*, 2019 (2019) 1–8, doi:10.1155/2019/6505482.
[30] I.F. Modibbo, E. Dareng, P. Bamisaye, E. Jedy-Agba, A. Adewole, L. Oyeneyin, O. Olaniyan, C Adebamowo, Qualitative study of barriers to cervical cancer screening among Nigerian women, BMJ Open 6 (1) (2016) e008533 http://dx.doi.org/, doi:10.1136/bmjopen-2015-008533.
[31] J. Jeronimo, P. Bansil, J. Lim, R. Peck, P. Paul, J.J. Amador, F. Mirembe, J. Byamugisha, U.R. Poli, L. Satyanarayana, S. Asthana, START-UP Study Group, A multicountry evaluation of careHPV testing, visual inspection with acetic acid, and papanicolaou testing for the detection of cervical cancer, Int. J. Gynecol. Cancer: Off. J. Int. Gynecol. Cancer Soc. 24 (3) (2014) 576–585, doi:10.1097/IGC.0000000000000084.
[32] M.H. Kahissay, T.G. Fenta, H Boon, Beliefs and perception of ill-health causation: a socio-cultural qualitative study in rural North-Eastern Ethiopia, BMC Public Health 17 (1) (2017) 124, doi:10.1186/s12889-017-4052-y.
[33] A. Labeit, F. Peinemann, A. Kedir, Cervical cancer screening service utilisation in UK, Sci. Rep. 3 (2013) 2362, doi:10.1038/srep02362.
[34] R. Landy, F. Pesola, A. Castañón, P. Sasieni, Impact of cervical screening on cervical cancer mortality: estimation using stage-specific results from a nested case-control study, Br. J. Cancer 115 (9) (2016) 1140–1146, doi:10.1038/bjc.2016.290.
[35] C.A. Laranjeira, Portuguese women's knowledge and health beliefs about cervical cancer and its screening, Soc Work Public Health 28 (2) (2013) 150–157, doi:10.1080/19371918.2011.592042.
[36] S.S. Leung, I. Leung, Cervical cancer screening: knowledge, health perception and attendance rate among Hong Kong Chinese women, Int. J. Women's Health 2 (2010) 221–228, doi:10.2147/ijwh.s10724.
[37] S. Lönnberg, P. Nieminen, T. Luostarinen, A. Anttila, Mortality audit of the Finnish cervical cancer screening program, Int. J. Cancer 132 (9) (2013) 2134–2140, doi:10.1002/ijc.27844.
[38] F.S. Lyimo, T.N. Beran, Demographic, knowledge, attitudinal, and accessibility factors associated with uptake of cervical cancer screening among women in a rural district of Tanzania: three public policy implications, BMC Public Health 12 (1) (2012) 22, doi:10.1186/1471-2458-12-22.
[39] B. Matejic, D. Vukovic, T. Pekmezovic, V. Kesic, M. Markovic, Determinants of preventive health behavior in relation to cervical cancer screening among the female population of Belgrade, Health Educ. Res. 26 (2) (2011) 201–211, doi:10.1093/her/cyq081.
[40] C. McCarey, D. Pirek, P.M. Tebeu, M. Boulvain, A.S. Doh, P. Petignat, Awareness of HPV and cervical cancer prevention among Cameroonian healthcare workers, BMC Women's Health 11 (1) (2011) 45, doi:10.1186/1472-6874-11-45.
[41] S. McDermott, M. DesMeules, R. Lewis, J. Gold, J. Payne, B. Lafrance, B. Vissandjée, E. Kliewer, Y. Mao, Cancer incidence among Canadian immigrants, 1980–1998: results from a national cohort study, J. Immigrant Minority Health 13 (1) (2011) 15–26, doi:10.1007/s10903-010-9347-3.
[42] M.R. Miri, M. Moodi, G.R. Sharif-Zadeh, M.H. Moghadam, M. Miri, E Norozi, Cognitive predictors of cervical cancer screening's stages of change among sample of Iranian women health volunteers: a path analysis, PLoS ONE 13 (3) (2018) e0193638, doi:10.1371/journal.pone.0193638.
[43] T. Mukama, R. Ndejjo, A. Musabyimana, A.A. Halage, D Musoke, Women's knowledge and attitudes towards cervical cancer prevention: a cross sectional study in Eastern Uganda, BMC Women's Health 17 (1) (2017) 9, doi:10.1186/s12905-017-0365-3.
[44] D. Ngwenya, S.L. Huang, Knowledge, attitude and practice on cervical cancer and screening: a survey of men and women in Swaziland, J. Public Health (Bangkok) 40 (3) (2018) e343–e350, doi:10.1093/pubmed/fdx174.
[45] O. Nnodu, L. Erinosho, M. Jamda, O. Olaniyi, R. Adelaiye, L. Lawson, F. Odedina, F. Shuaibu, T. Odumuh, N. Isu, H. Imam, O. Owolabi, N. Yaqub, A. Zamani, Knowledge and attitudes towards cervical cancer and human papillomavirus: a Nigerian pilot study, Afr. J. Reprod. Health 14 (1) (2010) 95–108.
[46] M. Noonan, O. Doody, J. Jomeen, A. O'Regan, R. Galvin, Family physicians perceived role in perinatal mental health: an integrative review, BMC Fam. Pract. 19 (1) (2018) 154, doi:10.1186/s12875-018-0843-1.
[47] J. Noyes, A. Booth, G. Moore, K. Flemming, Ö. Tunçalp, E. Shakibazadeh, Synthesising quantitative and qualitative evidence to inform guidelines on complex interventions: clarifying the purposes, designs and outlining some methods, BMJ Global Health 4 (Suppl 1) (2019) e000893, doi:10.1136/bmjgh-2018-000893.
[48] A.A. Okunowo, E.S. Daramola, A.P. Soibi-Harry, F.C. Ezenwankwo, J.O. Kuku, K.S. Okunade, R.I. Anorlu, Women's knowledge of cervical cancer and uptake of Pap smear testing and the factors influencing it in a Nigerian tertiary hospital, J. Cancer Res. Practic. 5 (3) (2018) 105–111, doi:10.1016/j.jcrpr.2018.02.001.
[49] T. Olubodun, O.O. Odukoya, M.R. Balogun, Knowledge, attitude and practice of cervical cancer prevention, among women residing in an urban slum in Lagos, South West, Nigeria, Pan Afr. Med. J. 32 (2019), doi:10.11604/pamj.2019.32.130.14432.
[50] D. Papa, T.A. Moore Simas, M. Reynolds, H Melnitsky, Assessing the role of education in women's knowledge and acceptance of adjunct high-risk human papillomavirus testing for cervical cancer screening, J. Low. Genit. Tract. Dis. 13 (2) (2009) 66–71, doi:10.1097/lgt.0b013e31818a53f0.
[51] D.U. Ramathuba, D. Ngambi, L.B. Khoza, N.J. Ramakuela, Knowledge, attitudes and practices regarding cervical cancer prevention at Thulamela municipality of Vhembe district in Limpopo province, Afr. J. Primary Health Care Family Med. 8 (2) (2016) 1–7, doi:10.4102/phcfm.v8i2.1002.
[52] K.H. Sait, Attitudes, knowledge, and practices in relation to cervical cancer and its screening among women in Saudi Arabia, Saudi Med. J. 30 (9) (2009) 1208–1212.

[53] B. Sawadogo, S.N. Gitta, E. Rutebemberwa, M. Sawadogo, N. Meda, Knowledge and beliefs on cervical cancer and practices on cervical cancer screening among women aged 20 to 50 years in Ouagadougou, Burkina Faso, 2012: a cross-sectional study, Pan Afr. Med. J. 18 (2014) 175, doi:10.11604/pamj.2014.18.175.3866.
[54] I.C. Scarinci, F.A.R. Garcia, E. Kobetz, E.E. Partridge, H.M. Brandt, M.C. Bell, M. Dignan, G.X. Ma, J.L. Daye, P.E. Castle, Cervical cancer prevention: new tools and old barriers, Cancer 116 (11) (2010) 2531–2541, doi:10.1002/cncr.25065.
[55] O. Sowemimo, O. Ojo, O. Fasubaa, Cervical cancer screening and practice in low resource countries: nigeria as a case study, Trop. J. Obstet. Gynaecol. 34 (3) (2017) 170, doi:10.4103/tjog.tjog_66_17.
[56] S.L. Sudenga, A.F. Rositch, W.A. Otieno, J.S Smith, Knowledge, attitudes, practices, and perceived risk of cervical cancer among Kenyan women: brief report, Int. J. Gynecol. Cancer 23 (5) (2013) 895–899, doi:10.1097/igc.0b013e31828e425c.
[57] B.K. Tchounga, A. Jaquet, P.A. Coffie, A. Horo, C. Sauvaget, I. Adoubi, P. Guie, F. Dabis, A.J. Sasco, D.K. Ekouevi, Cervical cancer prevention in reproductive health services: knowledge, attitudes and practices of midwives in Côte d'Ivoire, West Africa, BMC Health Serv. Res. 14 (1) (2014) 165, doi:10.1186/1472-6963-14-165.
[58] E. Ugwu, S. Obi, P. Ezechukwu, I. Okafor, A. Ugwu, Acceptability of human papilloma virus vaccine and cervical cancer screening among female health-care workers in Enugu, Southeast Nigeria, Niger. J. Clin. Pract. 16 (2) (2013) 249, doi:10.4103/1119-3077.110141.
[59] M. Urasa, E. Darj, Knowledge of cervical cancer and screening practices of nurse at a regional hospital in Tanzania, Afr. Health Sci. 11 (1) (2011).
[60] S. Vaccarella, J. Lortet-Tieulent, M. Plummer, S. Franceschi, F. Bray, Worldwide trends in cervical cancer incidence: impact of screening against changes in disease risk factors, Eur. J. Cancer (Oxford, England: 1990) 49 (15) (2013) 3262–3273, doi:10.1016/j.ejca.2013.04.024.
[61] D. Vicus, R. Sutradhar, Y. Lu, L. Elit, R. Kupets, L. Paszat, Investigators of the Ontario Cancer Screening Research Network, The association between cervical cancer screening and mortality from cervical cancer: a population based case-control study, Gynecol. Oncol. 133 (2) (2014) 167–171, doi:10.1016/j.ygyno.2014.02.037.
[62] E. Were, Z. Nyaberi, N. Buziba, Perceptions of risk and barriers to cervical cancer screening at Moi Teaching and Referral Hospital (MTRH), Eldoret, Kenya, Afr. Health Sci. 11 (1) (2011) 58–64.
[63] C.L. Winchester, M Salji, Writing a literature review, J. Clin. Urol. 9 (5) (2016) 308–312 https://doi.org/10.1177%2F2051415816650133.
[64] R. Whittemore, K. Knafl, The integrative review: updated methodology, J. Adv. Nurs. 52 (5) (2005) 546–553, doi:10.1111/j.1365-2648.2005.03621.x.
[65] World Health Organisation, 2012. *World Health Statistics*. Geneva. Retrieved from https://www.who.int/gho/publications/world_health_statistics/EN_WHS2012_Full.pdf
[66] K.O. Wright, B. Faseru, Y.A. Kuyinu, F.A. Faduyile, Awareness and uptake of the Pap smear among market women in Lagos, Nigeria, J. Public Health Africa 2 (1) (2011) e14, doi:10.4081/jphia.2011.e14.
[67] B. Young, L. Bedford, D. Kendrick, K. Vedhara, J. Robertson, R. das Nair, Factors influencing the decision to attend screening for cancer in the UK: a meta-ethnography of qualitative research, J. Public Health (Oxf.) 40 (2) (2018) 315–339, doi:10.1093/pubmed/fdx026.