

## Review Article

## A systematic review of tobacco smoking cessation services in Africa: practices and challenges faced by healthcare workers

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### Abstract

**Background:** Tobacco smoking is a global public health challenge, resulting in an estimated loss of 1.4 trillion United States Dollars (USD), a preventable risk that can be achieved through tobacco cessation services. The study, therefore, aimed to review the most frequently used methods employed by healthcare workers (HCWs) in providing tobacco cessation services and reported challenges in Africa.

**Methods:** A systematic review was conducted using five electronic databases (PubMed, Base, PsycInfo, Google Scholar, and African Journal Online) for published studies on HCW's practices and challenges on tobacco cessation in Africa. We adopted a three-stage methodology to conduct the study, which identified articles using pre-defined key terms, screened articles to remove duplicates, and excluded irrelevant articles after reading the manuscripts' titles and abstracts.

**Results:** We reviewed articles and found that 35.0% to 83.0% of HCWs frequently asked their patients to quit smoking. Also, 14.9% of HCWs assisted smoking cessation among their patients, among whom 3.9% prescribed oral depressants and 2.8% prescribed Nicotine Replacement Therapy (NRT). Further, 17.0% of HCWs had guidelines to help patients to cease smoking. Challenges were lack of efficacy and training, lack of system support, low sense of responsibility by some physicians to incorporate the smoking cessation therapy to their patients, lack of attractive educational resources on smoking cessation, limited knowledge on effective intervention strategies, lack of guidelines, lack of specialists for smoking cessation, and unavailability of NRT.

**Conclusion:** Follow-up should be commenced and intensified by HCWs for smoking cessation among tobacco smokers.

**Keywords:** Africa, Healthcare Workers, Tobacco, Tobacco Cessation, Tobacco Smokers, Systematic Review

### Background

Globally, about a billion people are estimated to die of tobacco smoking in the 21st century. Most of the deaths occurring in low and middle-income countries [1]. More than 80.0% of the world's 1.3 billion tobacco users live in low- and middle-income countries [2]. Tobacco use accounts for nearly 8 million deaths annually, which accounts for 7 million deaths from direct tobacco use and 1.2 million deaths of non-smokers exposed to passive smoking [2]. Tobacco accounts for 20.0% of all adult male deaths and 5.0% of adult female deaths [1]. Globally, 19.0% of adults currently smoke, with 22.0% from high-income countries, 19.5% in middle-income countries, and 11.0% in low-income countries [3]. The proportion of smoking among men is highest in middle-income countries (35.0%). However, more women (16.0%) smoke in high-income countries [3].

Moreover, 24 million smokers are within the age range of 13-15 years, out of which 13 million use smokeless tobacco products [4]. Tobacco smoking is a preventable cause of death, with 30% of deaths due to cancer [2]. Tobacco smoking has resulted in an annual estimated loss of nearly 1.4 trillion USD in economic damage [5]. The cost of tobacco-related illnesses is exceptionally high, representing nearly 2.0% of global Gross Domestic Products (GDP), while the health expenditure associated with smoking use represents 5.7% of total health expenditure [5]. Globally, indirect costs of smoking are estimated to be about 1 trillion USD, with two-thirds of the cost attributed to premature mortality [5]. The decline of tobacco use in high-income countries is almost proportional to its increase in low and middle-income countries, particularly in Africa, Asia, and Eastern Europe [6]. Tobacco use in Africa has garnered little attention [7]. Such little attention may be due to the perceived low smoking prevalence compared to other developing regions, alongside the more immediate burden of infectious diseases [7].

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“Article 14 of the World Health Organization Framework Cessation on Tobacco Control states that each party shall take effective tobacco cessation promotive measures and adequate management for cases of tobacco dependence” [8]. Notwithstanding, the report of the WHO on the Global Tobacco Epidemic in 2017 indicated that ‘less than one- third of high-income countries, fewer than one in ten middle-income countries and one low-income country (Senegal) offer complete tobacco cessation support [9]. In Africa, Tobacco cessation services are deterred by multiple challenges such as inadequate training of healthcare workers (HCWs), competing for infectious disease burden, inadequate data, and lack of applicable local guidelines [4]. South Africa is reportedly the only country with specific smoking cessation guidelines, with initiatives like quit lines and web-based platforms for smoking cessation. Countries like Sudan, Tanzania, and Nigeria do not have such specific guidelines or initiatives to integrate tobacco cessation services into their tobacco control strategies [9]. The WHO's 5A's model is an effective and well-designed method of providing cessation services [10]. The model was created for HCWs to identify and assist individuals who use tobacco products and are ready to quit its use [11]: (i) Ask: about their tobacco use; (ii) Advise: should be specific and aimed at persuading the user to quit; (iii) Assess: determine the user's willingness to quit; (iv) Assist: the user should be supported in developing a quitting plan; and (v) Arrange: for follow-up on quitting process [11]. The WHO toolkit for delivering these 5A's states that the national healthcare sector is well placed to lead the implementation of these measures, provide cessation services, and point out some of the roles HCWs are to play in providing comprehensive tobacco control services [12]. These are founded on basic roles as educators, role models, opinion builders, clinicians, and leaders. It admonishes that all health professionals should address tobacco cessation activities as a component of their standard of care service, serve as tobacco-free models for the public, assess exposure to passive smoking, and provide information about avoiding all forms of exposure to tobacco [12]. Literature regarding specific tobacco cessation interventions carried out in Africa is not comprehensive enough to conclude what works and what does not [7,13]. Studies have reported that cessation interventions are well established in developed countries with various literature on what services work through selected professionals on various groups of people [13-15]. Reviews have been done on cessation services integrated through various cadres of health care providers and targeted at various groups of smokers, either based on health status and the age group or type of product used [15,16]. Therefore, the study aimed to review the most frequently used methods employed by HCWs in providing tobacco cessation services and reported challenges in Africa.

## Methods

### Study design and procedure

A systematic review of the literature was conducted using the guidelines outlined by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for assessment of intervention studies [17,18]. We reviewed all literature found irrespective of their study design. All literature that examined the mode of delivery of smoking cessation service, most used practices, population interventions are

targeted, and the effectiveness of these interventions in Africa was reviewed.

### Inclusion criteria

We included all studies on HCWs' practices on tobacco cessation in Africa. All study designs used in conducting research, as long as they reported on smoking cessation activities in Africa were also included in the search.

### Exclusion criteria

The exclusion criteria incorporate the following: (a) Guidelines only explaining the appropriate measures to be taken by tobacco users., (b) Studies focused on cessation attempts by tobacco users only., and (c) Studies on tobacco use from the perspectives of the patients only.

### Search for eligible literature

The five highly-indexed electronic databases (PubMed, Base, PsycInfo, Google Scholar, and African Journal Online (AJOL) have been searched for literature on HCW's practices, and tobacco cessation in Africa. The database search was not limited to any date but was restricted to the English language for easy understanding of all the authors who participated in the literature search process. The strategy used for the search is described here: 'Healthcare workers' OR 'tobacco', 'Health workers' OR 'tobacco cessation, 'Healthcare staff' AND 'tobacco interruption', "healthcare workers' AND 'tobacco cessation, as well as 'Health staff' AND 'Tobacco use control'. Eligible literature was also selected from the reference list of articles that met the inclusion criteria.

### Article screening and selection

We used the five databases and searched the terms specified above to retrieve articles. We adopted a four-stage methodology to conduct the study (Figure 1):

Step One: The identification of articles using pre-defined search criteria. A total of 6,693 articles were retrieved.

Step Two: Screening articles to remove duplicates and exclude articles after reading through the titles and abstracts according to the study's objectives to identify potentially relevant articles. Thus, we excluded 6,653 articles that had unrelated themes to the study objectives.

Step Three: We used the eligibility and inclusion criteria to review the full texts. Here, 19 articles were excluded due to unmatched content.

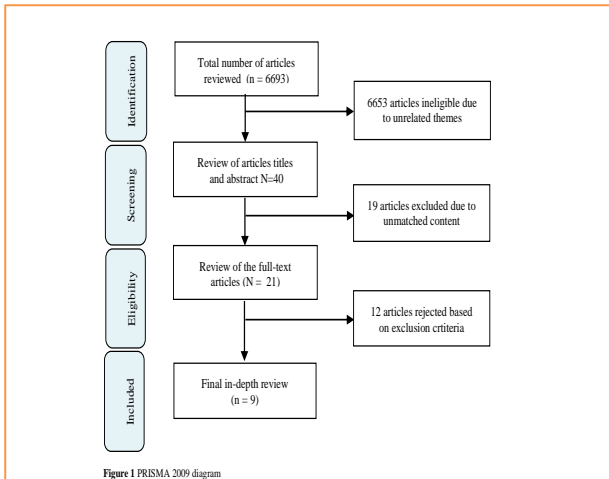
Step Four: In response to using the predefined exclusion criteria, 12 articles were excluded. Thus, we included nine articles in the final in-depth review.

### Data extraction

From the recruited literature, details on the study type, characteristics of HCWs, cadre in the healthcare profession, smoking cessation practices, and challenges faced regarding smoking cessation interventions were enlisted.

### Authors' role

The review authors independently conducted the literature search and assessment of relevant literature for eligibility and inclusion. Bias in the assessment has reduced with decision making through group discussions. In other cases, a third-party opinion was sought.



## Results

### Synopsis

The systematic review focused on studies investigating the application of smoking cessation therapy by HCWs in Africa between 2004 and 2018 (Table 1). We reviewed nine studies with a total population of 2,913 persons. Four of the studies indicated that HCWs frequently smoking cessation in their patients with a range of 35.0% to 83.0%. Also, 23.0% to 61.3% of HCWs advised their patients to quit smoking after assessment, while 14.9% of HCWs assisted their patients to quit tobacco use and smoking. Among the HCWs, 3.9% prescribed oral depressants, while 2.8% prescribed NRT. A study revealed that 17.0% of HCWs had guidelines to help patients quit tobacco use and smoking. Two of the studies reported follow-up visits of patients (17.0% and 57.0%). Challenges were lack of efficacy and training, lack of system support, limited consultation time, low sense of and responsibility by some physicians to incorporate the smoking cessation therapy to their patients. Other challenges were lack of attractive educational resources on smoking cessation, limited knowledge of HCW on effective intervention strategies, lack of guidelines and dearth of smoking cessation specialists, and unavailability of NRT.

### Description of retrieved literature in tandem with the study objectives

Dedeke et al. [19] was a cross-sectional study that described the challenges facing Nigerian dentists in implementing tobacco cessation services. Information was collected and collated from 205 dental trainees at a tertiary hospital. Eighty-three percent (83.0%) of the dental trainees frequently asked their patients their smoking status, with less than 10.0% assisting patients to quit. A couple of reasons were viewed as impediments to smoking cessation practices, with lack of perceived efficacy and training as the most important hindrance and lack of reimbursement as the least.

Mostafa et al. [20] was a cross-sectional study designed to describe the effect of physicians' smoking status on their knowledge, behavior, and smoking cessation practice. The study revealed that 21.5% of respondents were current smokers, 8.3% former smokers, and 70.2% were never smokers. The study showed that a significant number of physicians either did not know or think that smoking affected the health worker, while 41.9% of physicians did not agree that advice from a health professional increased the chances of a smoker quitting.

27% of respondents did not think HCW should routinely ask their patients to quit smoking, and 27.4% did not think HCW should routinely provide smoking cessation advice. More than half (63.7%) of the physicians in the study did not firmly agree that their smoking status affected their cessation practice.

Murphy et al. [21] was a cross-sectional study carried out to assess midwives' knowledge, attitudes, and current practices in South Africa to provide smoking cessation education or counseling to pregnant women. The study used qualitative methods to explain some of the data collected as 24 interviews were organized with midwives. Fifty-eight percent (58.0%) reported that they held smoking cessation lessons at every visit and 30.0% at some visits if established that a patient smoke. Less than a third (27.2%) of the midwives reported that they provided patients with educational resources about smoking cessation. Although all midwives agreed that maternal smoking during pregnancy is harmful to the unborn child, about 75.0% of them reported wrong responses to statements regarding conditions caused by smoking in pregnancy, such as agreeing that smoking caused hypertension, pre-eclampsia, anemia, and congenital abnormalities.

Gichuki et al. [22] was a cross-sectional study that assessed HCWs' practices regarding smoking cessation practices in health facilities in Kenya. Participants were from 5 health cadres of HCWs, including clinical officers, community health officers, dentists, nurses, and medical officers. Information collected from 338 respondents showed that 35.0% reported consistently inquire about patients' smoking status while 43.5% consistently advised having to quit smoking and tobacco use. Sixty-five percent of respondents reported tin setting never discussed the use of cessation medication, while 54.0% assisted patients to set quit dates, and 57.0% assessed patients' progress during follow-up visits. The significant barriers to cessation practices were insufficient training and knowledge, lack of guidelines, and specialists in smoking cessation programs.

Okeke et al. [23] was a cross-sectional study carried out to determine the prevalence of smoking and tobacco use among HCWs in Kwazulu-Natal, and their willingness and practice in offering assistance for patients to quit. The HCWs were categorized as doctors, pharmacists, nurses, student nurses, allied health workers, and others (clerks and data capturers). When analyzed according to the professional category, others had the highest prevalence (27.3%) and student nurses the lowest (7.5%). When current, former, and never smokers were compared, never smokers more regularly counseled their patients to quit smoking. Only 22.3% of all HCW in the study followed up on their smoking patients that were advised to quit. The most recommended NRT were nicotine gum and lozenges with spray, while inhaler was the least.

Uti and Sofola [24] was a cross-sectional study that assessed the attitude and practices of the dentist and dental students in Nigeria in providing smoking cessation in the dental setting and the likely barriers to smoking cessation services. Results showed that while a high proportion of respondents believed that cessation could be carried out in the clinic, none of the respondents strongly agreed that they were professionally responsible for encouraging or educating patients on tobacco cessation. Regarding practice, more than  $\frac{3}{4}$  of the respondents reported having advised at least one patient to quit smoking. The major barriers reported were lack of time, lack of necessary

materials, and lack of knowledge on smoking cessation. Jamda et al. [25] was a cross-sectional study that assessed the provision of health facility-based smoking cessation services and the competence of the HCW to provide these services. Five percent of the respondents reported having received training on tobacco control. 40% of the HCW had high knowledge, 23.6% had a positive attitude, and 7.7% had good tobacco cessation practice. Desalu et al. [26] conducted a snap-shot study to evaluate the knowledge and practices of smoking cessation among Nigerian physicians. Information collected from 436 physicians was assessed, and 86.7% asked their patients about their smoking status. Also, 61.3% advised their patients briefly to quit, 14.9% set target dates, 3.7% prescribed oral antidepressants, and 2.8% prescribed NRT. However, 70.7% did not schedule follow-up visits with their patients, 17.6% scheduled follow-up visits, and 11.9% did not see the relevance of the visit. The major perceived barriers were poor knowledge of smoking cessation (66.3%), lack of time (12.6%), and unavailability of NRT (4.6%). Nollen et al. [27] was a cross-sectional study aimed at understanding the workplace smoking policies and cessation practices of physicians in Nigeria. Information collected from 379 respondents cut across two major teaching hospitals in the southwest. Results indicate 81.0% of physicians reported assessing their patient's smoking status, and their patients asked 9.0% for assistance to quit. Ninety-five percent (95.0%) of respondents thought counseling was effective, 17.0% were reported to have any guideline to help smokers quit, while less than one percent (0.79%) prescribed pharmacotherapy. Regarding workplace smoking policy, 52.0% reported practicing in a completely non-smoking building, 41.0% had no established smoking policy, and 3% reported having designated smoking areas.

## Discussion

Given the WHO 5A's model for providing cessation services, HCWs are critical in implementation [12]. Their access to and relationship with their patients positions them to ask about smoking status, advise smoking patients to quit, assess willingness to take advice, and then assist and arrange for a suitable quitting plan and process. A key observation made during the study is the limited literature covering Africa that addresses the views of and actions taken by HCWs in promoting smoking cessation among their patients. Despite the paucity of research available, all the studies reported that a significant number of HCWs made use of at least one of the 5A's strategies in promoting cessation among their patients. The most common strategy employed was asking about smoking status. Although most HCWs reported asking after patients' smoking status, fewer went further to advise on smoking cessation, and even fewer assisted and arranged for the cessation procedure [19,22,23,26,27]. A massive lack of follow-up was noted among the HCWs, and although questions were asked, solutions in most cases were not provided. Such a sequence of events does not guarantee the success and practicality of smoking cessation among willing smokers. In the few situations where HCWs assisted patients and arranged for cessation, different methods were employed to promote cessation. The use of educational materials, counseling, and recommendation of NRT with prescription of antidepressants were methods commonly employed by HCWs [21,23,26].

However, HCWs should be dynamic with each method while ensuring that the adopted method explicitly suits the situation at hand. The common barriers to the provision of smoking cessation services cited by HCWs were poor knowledge of the practices and lack of training. Other barriers included lack of time, lack of efficacy of interventions, unavailability of NRT, and educational resources. These barriers, however, need to be removed to ensure that the input of HCWs regarding smoking cessation yields credible results. Most HCWs examined were found in tertiary and secondary institutions. Physicians and dentists were the most common HCWs studied. Therefore, a gap in study is identified as the WHO has noted that 80.0% of all tobacco users per year would be accessed by primary HCWs [12]. The one study carried out in a community setting was focused on the midwives and their role in providing cessation services for their patients [21]. Interestingly, the study reported a high level of dedication by the midwives to ensure their patients quit smoking, especially during their pregnancy. The finding, therefore, posits that smoking cessation should not be limited to a specific period or certain population groups. Instead, a concentric approach should be adopted to ensure that no one is missed out. Given the recommendation of the WHO for HCWs to be tobacco-free models for the general public [12], the smoking state of HCWs was taken into consideration. Only two studies reported a relationship between HCW's smoking status and cessation practice [20,23]. Both studies, however, had conflicting conclusions as Mostafa et al. [20] reported that physicians did not believe their smoking status affected their provision of cessation services while Okeke et al. [23] reported that never smokers more frequently advised patients to quit smoking. Mostafa et al. [20] and Uti and Sofola [24] also reported that a significant proportion of HCWs did not agree that they were in a critical position to assist patients in quitting smoking. The finding suggests that the responsibility of smoking cessation is not known and assumed by many HCWs and should therefore be looked into.

## Conclusion

In conclusion, the information gathered showed that although patients were asked, they were rarely followed up to set quit dates. Such acts showed a lack of commitment on the part of the HCW to ensure these patients quit smoking. A couple of HCWs even reported not considering it their responsibility to advise their patients on smoking cessation. The barriers highlighted above also need to be addressed to encourage the commitment of HCWs to smoking cessation. Training should be regularly organized for HCWs to improve smoking cessation service delivery in their facilities. Reviews should be conducted every six months to enable a report on the challenges facing HCWs involved in the smoking cessation services and chart strategies to improve. HCWs should also be empowered to serve as counselors for smokers who are willing to cease smoking. Our study indicates a dearth in research that studies the role and action of HCWs in providing smoking cessation services to their patients in Africa. Hence, there is need to provide adequate and accurate data in assessing the smoking cessation services provided by HCWs in Africa. We recommend that more studies be conducted to identify why HCWs rarely move on to organize and promote tobacco cessation procedures among smokers.



**Table 1. Findings from studies conducted on health workers' practices in promoting smoking cessation in Africa (n = 9)**

Author (Year)	Study Design	Gender	Cadre	Objectives	Smoking Cessation Practices	Challenges	Quality Assessment
<b>Dedeke et al. [19]</b>	Cross-sectional	Male Female	Dental trainees	To determine the challenges facing Nigerian dentists when implementing tobacco cessation services.	Eighty-three percent (83%) of respondents frequently asked their patients their smoking status, with less than 10% assisting patients to quit.	The major barriers were lack of efficacy and training, lack of system support, and lack of time. Lack of reimbursement was the least perceived barrier.	The research methodology did not indicate the was no definition of good or poor cessation practice.
<b>Mostafa et al. [20]</b>	Cross-sectional	Male Female	Physicians	To describe the effect of physicians' smoking status on their knowledge, attitude, and practice of smoking cessation.	The study revealed that 21.5% of the physicians were current smokers, 8.3% quit smoking, and 70.2% never smoked. A total of 33% of physicians either did not know or did not think that smoking affected the health of smokers. Also, 41.9% of physicians disagreed that advice from a health professional increases the chances of a smoker quitting. 27% of the physicians did not think health workers should routinely question patients, while 27.4% did not think they should advise their patients on smoking cessation. Also, 44.9% of physicians in the study did not always ask their patients if they smoked, 54.7% did not explain to them the consequences of smoking, 51.8% did not encourage them to quit, 71% did not educate them on the methods of smoking cessation. Nearly two-thirds of respondents (63.7%) in this study did not think their smoking status affected their cessation practice.	Low sense of responsibility by some physicians to incorporate smoking cessation therapy into their patients.	The sample was representative of the various specialties of physicians in the population. This study showed that the smoking status of the physicians did not significantly affect their cessation practices which are contrary to another study carried out in South Africa [22], where the smoking status of the HCWs had a significant effect on their cessation practice.
<b>Murphy et al. [21]</b>	Qualitative Study	Female	Midwives	To assess the knowledge, beliefs, attitudes, and current practices of midwives in South Africa on the provision of smoking cessation education or counseling to pregnant women.	The study revealed that 58.0% of the midwives discussed smoking at every visit and 30% at some visits when established that a patient smoke. Less than a third (27.2%) of the midwives reported that they provided patients with educational resources about smoking cessation. Although all midwives agreed that smoking in pregnancy is harmful to the unborn child, about 75% of them responded wrongly to statements regarding	Challenges reported were lack of attractive educational resources on smoking cessation, lack of consultation time, and lack of knowledge and training in effective intervention strategies.	The study gave an in-depth on the sense of responsibility of midwives and actions taken to ensure the baby's safety and well-being. The qualitative method used in this study gave a deeper insight into the subject matter.

					conditions caused by smoking in pregnancy. The study indicated a positive attitude on providing smoking cessation advice to pregnant women. Also, 31% of the midwives were offended with their patients when they did not take their advice, while the rest remain optimistic about influencing their patients to quit smoking.		
<b>Gichuki et al. [22]</b>	Cross-sectional study	Male Female	Nurses, Medical officers, Clinical officers, Dentists, and Community oral health officers	To assess the practices of healthcare workers in public health facilities of Kiambu county regarding smoking cessation. To discover the perceived impediments to the provision of cessation services.	This study indicated that 35% of healthcare workers consistently inquired about patients' smoking status, 43.5% advised smoking patients to quit consistently. More than half (64.5%) of respondents reported having never discussed the use of cessation medication (65%), assisted patients in setting quit date (54%) or following up on appointments to assess patients progress (57%).	The major barriers perceived by respondents to cessation practices were insufficient training and knowledge, lack of guidelines, and dearth of smoking cessation specialists.	Stratification was not based on profession, which could have biased the study as different cadres act in different capacities for patients.
<b>Okeke et al. [23]</b>	Cross-sectional	Male Female	Nurses, Doctors and Student nurses	To determine the prevalence of smoking and alcohol use among healthcare workers in Kwazulu-Natal, and their willingness and practice to offer assistance for patients to quit.	When compared with former and current smokers, never smokers more regularly counseled patients to quit. Only 22.3% of all HWC in this study followed up on their smoking patients who advised quitting. The most recommended NRT was nicotine gum and lozenges with sprays and inhalers the least.		The analysis of cessation counseling was not done according to health cadres, and as such, there is no means of associating their practice to the profession.
<b>Uti and Sofola [24]</b>	Cross-sectional	Male Female	Dentists and Dental students	To assess the attitude and practices of the dentist and dental students in Nigeria in providing smoking cessation in the dental setting and the possible barriers to the provision of smoking cessation services.	A high proportion (77%) of respondents believed that cessation could be carried out in the clinic. None of the respondents strongly agreed that they were professionally responsible for encouraging or educating patients on tobacco cessation practices. Among the respondents, 86.1% disagreed that cessation counseling carried out in the dental clinic can impact the patients quit, and 87.5% of participants believed that cessation counseling is not important as the smoking patients are aware they should quit. Regarding practice, more than 3/4 of the respondents reported having advised at least one patient to quit smoking. The majority of respondents	The major hinderances to tobacco cessation provision cited were; lack of time, lack of necessary materials, and lack of knowledge on smoking cessation.	This study represents both sexes, dental students and dentists. The study was conducted in one institution; thus, it cannot be generalized to the entire dental population. The study assessed the attitudes of respondents to tobacco cessation. However, the reported attitude of respondents did not

					(72.8%) were willing to provide cessation services to their patients whereas, 27.2% were not interested.		correspond with their reported practice.
<b>Jamda et al. [25]</b>	Cross-sectional study	Male Female	Nurse, Pharmacist, and Physician	To assess the provision of health facility-based smoking cessation services and competence of the health workers to provide these services.	The study indicates that 5% of the respondents received training on tobacco control which was statistically insignificant. Gender, age, marital status, and cadre were statistically significant sociodemographic factors that affected knowledge. Gender and cadre were not significant for attitude while age and marital status were. Religion, although not statistically significant in knowledge, was statistically significant for both attitude and practice. The study showed that 40% of respondents had high knowledge of cessation practice, 23.6% had a positive attitude, and 7.7% had good practice of tobacco cessation practice.		The study sample was representative. The mean age of respondents was 36.65 years. There was no report of the average years of work experience. There was no definition of what constitutes high or low, poor or good, positive or negative knowledge, attitude, and tobacco cessation practice.
<b>Desalu et al. [26]</b>	Cross-sectional studies	Male Female	Physicians	To evaluate the knowledge and practices of physicians regarding smoking cessation.	Sixty-eight percent (68%) of the healthcare workers did not know about smoking cessation therapy, while 30.3% were knowledgeable. The smoking status of patients was asked by 86.7% of healthcare workers. Also, 61.3% of respondents advised their patients to cease smoking, 14.9% set target dates, 3.7% prescribed oral antidepressants, and 2.8% prescribed NRT. Regarding follow-up, 70.7% of respondents did not schedule follow-up visits with their patients, 17.6% scheduled follow-up visits, and 11.9% did not see the relevance of the visit.	The major challenges were poor knowledge of smoking cessation therapy (66.3%), insufficient time for counseling (12.6%), and unavailability of NRT (4.6%).	There was no definition of smoking cessation therapy and what constituted good or poor knowledge of smoking cessation.
<b>Nollen et al. [27]</b>	Cross-sectional study	Male Female	Physicians	To increase understanding of physicians smoking cessation practices and their workplace smoking policies.	The study indicates that 81% of physicians assessed their patient's smoking status. Counseling was said to be effective by 95% of respondents 17% of respondents had a guideline to help smokers quit, and 0.79% of respondents prescribed pharmacotherapy. Regarding workplace smoking policy, 53% reported practicing in a completely non-smoking building, 44% had no established smoking policy, and 3% reported having designated smoking areas.		There was no analysis to show the relationship between the smoking policy in the hospital and the physicians smoking cessation practice.

## Abbreviation

USD: United States Dollars; HCWs: Healthcare Workers; NRT: Nicotine Replacement Therapy; world health organization: WHO; GDP: Gross Domestic Product; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; AJOL: African Journal Online; PsycInfo

## Declaration

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## Availability of data and materials

Data will be available by emailing afoanade@gmail.com

## Authors' contributions

OSI conceptualized the study. OSI, VIA, and AAA participated in the literature review process. All authors edited the manuscript for critical intellectual content and approved the final version of the manuscript.

## Ethics approval and consent to participate

We conducted the research following the Declaration of Helsinki. However, Review Articles need no ethics committee approval.

## Consent for publication

Not applicable

## Competing interest

The authors declares that they have no competing interests.

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## References

1. Jha P, MacLennan M, Chaloupka FJ, Yurekli A, Ramasundarahettige C, Palipudi K, et al. Global Hazards of Tobacco and the Benefits of Smoking Cessation and Tobacco Taxes. In: *Cancer: Disease Control Priorities*. Volume 3. Edition 3. The International Bank for

Reconstruction and Development / The World Bank; 2015. [https://doi.org/10.1596/978-1-4648-0349-9\\_ch10](https://doi.org/10.1596/978-1-4648-0349-9_ch10).

2. Perez-Warnisher MT, de Miguel M del PC, Seijo LM. Tobacco Use Worldwide: Legislative Efforts to Curb Consumption. *Ann Glob Health*. 2018; 84(4): 571–579. <https://doi.org/10.9204/aogh.2362>.

3. World Health Organization. WHO Report on the Global Tobacco Epidemic, 2019. [Internet]. The MPOWER package. Geneva; 2019. Available from: <https://apps.who.int/iris/bitstream/handle/10665/325968/WHO-NMH-PND-2019.5-eng.pdf?ua=1> [Accessed on 27 December 2020].

4. World Health Organization. Fact sheet on the SDGs: Tobacco control. [Internet]. Geneva; 2019. [Internet]. Geneva; 2019. Available from: <https://www.euro.who.int/en/media-centre/sections/fact-sheets/2019/fact-sheet-on-the-sdgs-tobacco-control-2019> [Accessed on 27 December 2020].

5. U.S. National Cancer Institute and World Health Organization. The Economics of Tobacco and Tobacco Control. National Cancer Institute Tobacco Control Monograph 21. NIH Publication No. 16-CA-8029A. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; CH: World Health Organization, Geneva, 2016. [Internet]. Available from: <https://cancercontrol.cancer.gov/brp/tcrb/monographs/monograph-21> [Accessed on 27 December 2020].

6. Network of African Science Academies. Preventing a tobacco epidemic in Africa: A call for effective action to support health, social and economic development. [Internet]. 2014. Available from: <https://www.assaf.org.za/files/reports/AfricaTobaccoControlReportFinal11.pdf> [Accessed on 25 December 2020].

7. Blecher E, Ross H. Tobacco Use in Africa: Tobacco Control through Prevention. American Cancer Society, Inc. 2013. [cited 2021 March 15]. Available from: <file:///C:/Users/Hp/Downloads/tobacco-use-in-africa-tobacco-control-through-prevention.pdf> [Accessed on 15 March 2021].

8. World Health Organization. World No Tobacco Day. [Internet]. Geneva; 2012. Available from: <https://www.who.int/tobacco/wntd/2012/announcement/en/>. Published May 2012 [Accessed on 20 December 2020].

9. Batini C, Ahmed T, Ameer S, Kilonzo G, Ozoh OB, van Zyl-Smit RN. Smoking cessation on the African continent: Challenges and opportunities. *African Journal of Thoracic and Critical Care Medicine*. 2019;25(2):46. <https://doi.org/10.7196/SARJ.2019.v25i2.015>.

10. van Zyl-Smit RN, Allwood B, Stickells D, Symons G, Abdool-Gaffar S, Murphy K, et al. South African tobacco smoking cessation clinical practice guideline. *South African Med J*. 2013;103(11):869–76. <https://doi.org/10.7196/SAMJ.7484>.

11. Schellack N, Bronkhorst E. Smoking cessation. *South African Fam Pract*. 2015;57(1):39–42.

12. World Health Organization. Toolkit for delivering the 5A's and 5R's brief tobacco interventions in primary care. [Internet]. Geneva; 2014. Available from: [https://www.who.int/tobacco/publications/smoking\\_cessation/9789241506953/en/](https://www.who.int/tobacco/publications/smoking_cessation/9789241506953/en/)

13. Ebbert JO, Montori V, Vickers KS, Erwin PC, Dale LC, Stead LF. Interventions for smokeless tobacco use cessation (Review). *Cochrane Database Syst Rev*. 2007;4(CD004306). DOI: 10.1002/14651858.CD004306.pub5

14. Grimshaw GM, Stanton A. Tobacco cessation interventions for young people. *Cochrane Database Syst Rev*. 2006; (4): CD003289. DOI: 10.1002/14651858.CD003289.pub6



15. Carr AB, Ebbert J. Interventions for tobacco cessation in the dental setting: a systematic review. *Cochrane Database Syst Rev.* 2012;(6):CD005084.
16. Stead LF, Buitrago D, Preciado N, Sanchez G, Hartmann-Boyce J, Lancaster T. Physician advice for smoking cessation. *Cochrane Database Syst Rev.* 2013;2017(12). DOI: 10.1002/14651858.CD000165.pub4
17. Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche PC, Ioannidis JPA, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. *BMJ* 2009;339:b2700. <https://doi.org/10.1136/bmj.b2700>
18. Saha S. A juxtaposition of safety outcomes between various doses of sodium-glucose co-transporter inhibitors, in insulin-treated type-1 diabetes mellitus patients: a protocol for systematic review and meta-analysis of randomized controlled trials. *Journal of Ideas of Health.* 2020; 3(2):167-172. <https://doi.org/10.47108/jidhealth.Vol3.Iss2.56>
19. Dedek AA, Popoola OA, Adebisi AO, Asuzu MC. Tobacco Cessation Services and Related Challenges Among Dentists in Southwest Nigeria. *Ann Ibadan Postgrad Med.* 2018;16(2):125–130.
20. Mostafa NS, Mome M. Effect of physicians' smoking status on their knowledge, attitude, opinions and practices of smoking cessation in a university hospital, in Egypt. *J Egypt Public Health Assoc.* 2017;92(2):96–106. DOI: 10.21608/epx.2018.8947
21. Murphy K, Steyn K, Mathews C. The midwife's role in providing smoking cessation interventions for pregnant women: The views of midwives working with high risk, disadvantaged women in public sector antenatal services in South Africa. *Int J Nurs Stud.* 2016;53:228–237. DOI: 10.1016/j.ijnurstu.2015.08.004
22. Gichuki JW, Opiyo R, Mugenyi P, Namusisi K. Healthcare providers' level of involvement in provision of smoking cessation interventions in public health facilities. *J Public Health Africa.* 2015;6(2):523. doi: 10.4081/jphia.2015.523
23. Okeke P, Ross A, Esterhuizen T, Van Wyk J. Tobacco and alcohol use among healthcare workers in three public hospitals in KwaZulu-Natal, South Africa. *South African Fam Pract.* 2014;54(1): 61-67. DOI: 10.1080/20786204.2012.10874177
24. Uti OG, Sofola OO. Smoking cessation counseling in dentistry: attitudes of Nigerian dentists and dental students. *J Dent Educ.* 2011;75(3):406–412.
25. Jamda MA, Bajoga U, Gajida AU. Knowledge and practice of smoking cessation services among health care workers in Abuja, Federal Capital Territory, Nigeria. *J Prim Care Community Health.* 2010;27:37–45.
26. Desalu OO, Adekoya AO, Elegbede AO, Dosunmu A, Kolawole TF, Nwogu KC. Knowledge of and practices related to smoking cessation among physicians in Nigeria. *J Bras Pneumol.* 2009;35(12):1198–203. DOI: 10.1590/s1806-37132009001200006
27. Nollen NL, Adewale S, Okuyemi KS, Ahluwalia JS, Parakoyi A. Workplace Tobacco Policies and Smoking Cessation Practices of Physicians. *J Natl Med Assoc.* 2004;96(6):838-842.