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Original articles

Barriers to integrating tobacco cessation treatment into tuberculosis DOT services: Perspectives of providers in Ibadan, Southwestern Nigeria

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Background

Tobacco use adversely affects tuberculosis (TB) outcomes, increasing the risks of treatment failure, disease progression, recurrence, and mortality. Integrating tobacco cessation treatment into directly observed therapy (DOT) services provides an opportunity to support patients with TB who smoke. However, DOT providers may face multiple barriers to delivering cessation interventions in routine practice. This study explored barriers to the delivery of tobacco cessation treatment by DOT providers in designated facilities in Ibadan, Southwestern Nigeria.

Methods

In-depth interviews were conducted with 12 DOT providers purposively recruited from DOT-designated facilities across six local government areas in Ibadan, Oyo State, Nigeria. Interviews were transcribed and analysed thematically to identify barriers to the delivery of tobacco cessation treatment within routine DOT services.

Results

Five major themes emerged. First, personnel-related barriers, including inadequate training, staff shortages, and heavy workloads, constrained providers' capacity to deliver cessation support. Second, facility-level limitations included inadequate space for private counselling and limited availability of educational materials and clinical guidelines. Third, insufficient institutional funding restricted cessation-related activities, including patient home visits. Fourth, patient-related factors, particularly attitudes towards smoking cessation, presented additional challenges. Fifth, tobacco vendors were reported to interfere with cessation efforts. Providers described instances in which vendors maintained contact with patients, visited them, and, in some cases, paid patients' bills to preserve customer relationships, potentially undermining attempts to quit smoking.

Conclusions

The delivery of tobacco cessation treatment within DOT services is constrained by interconnected provider-, facility-, institutional-, patient-, and community-level barriers. Tobacco cessation should be integrated as a funded component of routine TB care, supported by provider training, appropriate guidelines and educational materials, adequate resources for cessation activities, and stronger measures to address tobacco-industry and vendor practices that may undermine cessation efforts.

Tobacco consumption is a significant global health problem that contributes to the burden of diseases such as tuberculosis (TB). Smoking has been reported to be a risk factor for tuberculosis.[1] A case of 17.6% of TB Illnesses and 15.2% of TB cases that cause death were found to be a result of direct smoking.[2] The World Health Organisation (WHO) disclosed that smoking was a significant risk factor for 0.7 million incidences of TB all around the world.[3] Furthermore, smoking has been linked to a delay in TB diagnosis, which may result in more severe symptoms, complications, prolonged infectivity, and increased mortality. Other negative consequences of tobacco use among patients include increased community-level drug resistance, referrals for in-hospital care, and higher expenses for both patients

and the healthcare system.[4] The inclusion of tobacco cessation treatment into Directly Observed Therapy (DOT) programs has been documented to be a potential solution for addressing the syndemic relationship between TB and tobacco.[5] The WHO recommends coordinating national TB and tobacco control programs. This coordination involves registering tobacco users with TB to facilitate counselling and the delivery of appropriate treatment.[6] Furthermore, the International Union against Tuberculosis and Lung Diseases called for standard TB case management to include brief smoking cessation counselling.[7] The WHO and the International Union Against Tuberculosis and Lung Disease also provide guides to help national tobacco control and tuberculosis program managers plan and implement joint tobacco control activities. Within existing and evolving TB strategies, this can be done through the healthcare system.[6,7]

Tobacco cessation treatment encompasses a wide range of strategies aimed at helping individuals quit tobacco use and maintain abstinence.[8] This intervention is categorised into two broad groups: pharmacological and behavioural, which are often combined to achieve optimal efficiency.[8] Pharmacological interventions, on the one hand, are mainly associated with treating the physiological aspect of nicotine addiction.[8,9] The most effective pharmacological intervention is Nicotine Replacement Therapy (NRT), which comes in various forms, including patches, gum, lozenges, nasal spray, and inhalers. NRT functions by the application of controlled doses of nicotine to reduce withdrawal symptoms and cravings.[10] The prescription drugs, such as varenicline and bupropion, are meant to target the nicotine receptors in the brain to reduce the desire to smoke and withdrawal symptoms.[11] On the other hand, the behavioural interventions focus on the psychological and social aspects of tobacco addiction. These interventions may take several forms, including counselling, group therapy, and even phone support.[8,12,13]

Directly Observed Therapy (DOT) is an intervention designed to enhance adherence to treatment regimens, particularly for TB. DOT involves direct observation and notetaking by a healthcare worker, a community volunteer, or a patient's family member while the patient takes their medication.[14-16] In Nigeria, DOT has primarily been used to control tuberculosis. The National Tuberculosis, Leprosy and Buruli Ulcer Control Programme (NTBLCP) coordinates TB control at the national level.[17] At the state level, TB is coordinated by the State Tuberculosis and Leprosy Control Officer (STBLCO).[17] At the local government level (LGA), TB is coordinated by the LGA TB, Buruli Ulcer and Leprosy Supervisor (LGA TBLS), assisted by the DOT officer in each facility.[17] In each health centre, a nurse or community health officer is responsible for TB patients.[18]

Research has revealed that the effect of TB treatment can be improved through the aspect of tobacco quitting within DOT programs. It has been reported that six weeks after stopping smoking, most immunologic abnormalities caused by smoking can be resolved. Additionally, quitting smoking can improve the outcomes of TB treatment, the chance of TB recurrence, and the emergence of subsequent lung disease.[19] Also, smoking cessation during TB treatment was linked positively with treatment outcomes, such as the risk of treatment failure and relapse.[20]

The WHO recommends integrating tobacco cessation services into TB care. However, the implementation of such services in Nigeria remains suboptimal. In particular, DOT care providers have specific roles that could contribute to tobacco abstinence programs. This advantage may stem from regular patient contact, which provides numerous opportunities for interventions and support throughout the treatment process.[8,21,22] One significant role of DOT providers in tobacco cessation is to deliver brief, repeated cessation advice, which has been shown to be effective and efficient.[19] Also, DOT providers play a crucial role in treatment, as they monitor a patient's smoking status and provide ongoing support throughout the treatment period. Research shows that DOT providers are well positioned to provide continuous reassurance and reinforce cessation messages, which patients perceived as valuable and that helped them sustain their quit attempts.[23]

However, despite the well-established importance of tobacco cessation among TB patients who smoke, DOT care providers continue to encounter barriers that hinder the effective delivery of this intervention. Research has documented that, in most LMICs, limited access to cessation education materials hinders the delivery of evidence-based interventions.[24-26] Furthermore, time constraints associated with the already demanding nature of supervising TB treatment were identified as a barrier.[27] Another barrier found was the provider's lack of training and self-efficacy in delivering cessation interventions.[28] Little research has been conducted in LMICs such as Nigeria. Moreover, earlier studies have focused on a subset of medical professionals, such as doctors and dentists, rather than on those providing specialised care at TB facilities in Nigeria. To the best of our knowledge, no study in Nigeria has specifically examined the barriers to providing tobacco cessation treatment within DOT facilities. Therefore, this study explores the barriers that impede DOT care providers from offering tobacco cessation treatment in DOT-designated facilities.

METHODS

STUDY DESIGN

This study reports the qualitative component of a larger cross-sectional, convergent mixed-methods study examining healthcare workers' perceived roles, practice levels, and challenges in providing tobacco cessation treatment within DOT-designated facilities in Ibadan, Oyo State, Nigeria. The parent study included a quantitative component involving 305 healthcare workers recruited through two-stage cluster sampling and an interviewer-administered semi-structured questionnaire. While the quantitative component captured the perspectives of healthcare workers across different cadres, the qualitative component focused specifically on DOT providers to explore in depth the barriers they face in delivering tobacco cessation treatment to TB patients who use tobacco. In-depth interviews were con-

ducted among DOT providers in DOT-designated facilities across six local government areas (LGAs): four urban (Ibadan North, Ibadan North-East, Ibadan South-West, and Ibadan South-East) and two rural (Akinyele and Oluyole). The study purposively selected these LGAs because of their high tuberculosis (TB) burden.[29]

STUDY PARTICIPANTS

The study population comprised DOT care providers at selected DOT-designated facilities. To be eligible, healthcare workers had to be directly involved in TB patients' care, treatment, or routine supervision and have at least six months of experience delivering services in a DOT facility. We excluded healthcare workers not directly involved in TB patient care or management, as well as those who did not consent. In this setting, the DOT officer serves as the facility focal person for TB.[17] Screening officers work at the entry point of the diagnostic cascade, screening patients for TB.[30] TBLS oversee TB control at the LGA level, receive monthly records collated by DOT providers, and report them to the STBLCO and, finally, to the NTBLCP.

The TB physician is the clinical cadre at the secondary level, responsible for confirming TB and initiating and managing treatment.[31,32] The pharmacist's role in Nigerian TB care is narrower but distinct: pharmacists dispense and counsel patients on TB medication,[33] but they are often not directly involved in managing TB patients. Where they were engaged, pharmacist input in a DOT centre raised the treatment success rate from 62.4% to 87.3%.[34] Because the study sought to capture barriers to providing tobacco cessation treatment across the cadres through whom DOT is delivered, participants were recruited from this range of roles, so the sample comprised DOT officers, an assistant DOT officer, screening officers, TBLS, a TB physician, and a pharmacist working at both local government and state levels.

DATA COLLECTION

Twelve participants were recruited for the interview using purposive sampling, with one participant recruited from each of the two DOT-designated facilities in each of the six LGAs.Data collection took place between November 2024 and January 2025. All 12 facilities were public healthcare facilities, comprising 10 primary healthcare facilities and two secondary healthcare facilities. No participant declined to participate. All discussions followed a semi-structured interview guide with open-ended questions. The guide's development was informed by qualitative research principles and existing literature on the provision of tobacco cessation treatment in TB care in low-resource settings. Two senior global health and tobacco control experts, each with over 20 years of experience in public health implementation research, expert-validated the semi-structured interview guide.

At the time of the study, the corresponding author (I.K.T.), a female master's student trained in qualitative research methods, conducted the interviews. Before the study began, the researcher had no personal relationship with the participants. All interviews were conducted strictly face-to-face in a quiet environment within the designated healthcare facilities to ensure confidentiality and prevent third-party interruption. Before the session, the study aim was explained, and written informed consent was obtained before collecting sociodemographic data. Field notes captured contextual observations, and non-verbal cues were recorded during each session. No repeat interviews were conducted. Each session lasted 30-45 minutes and was audio-recorded with all participants' permission. Data collection continued until the interviewer observed that participants were no longer raising new information. Transcripts were not returned to participants for comment or verification.

DATA ANALYSIS

Data analysis was conducted after data collection. Saturation was therefore assessed retrospectively, during analysis. Transcripts were analysed in the sequence in which the interviews had been conducted, and saturation was judged to have been reached when the final transcripts produced no new codes or sub-themes and added no new information to the categories already identified.

The code list and codebook were developed following an iterative process grounded in inductive thematic analysis using ATLAS. ti software version 9. Following verbatim transcription by the corresponding author (I.K.T.), the transcripts were read repeatedly to achieve data immersion. Initial open coding was performed by a single primary analyst (I.K.T.), who also conducted all field interviews in English and developed the initial codebook and coding tree. To ensure validity, the emerging codes, sub-themes, and overarching thematic structures were regularly reviewed and refined through consensus discussions with the co-author, a reader and the first author's academic supervisor (E.O.C.). An audit trail of coding decisions, memos and successive versions of the framework was maintained in ATLAS.ti, and the first author kept reflexive notes throughout.

The coding process identified key themes in the study settings. The study used inductive thematic analysis, allowing themes to emerge directly from the qualitative data. The research focused on identifying barriers to providing tobacco cessation treatment in DOT-designated facilities. Several common findings emerged, which were categorised into five themes. These include: personnel barriers, infrastructure, lack of funds, patients' attitudes, and interference from tobacco vendors. Direct quotes illustrate key analytic points and preserve the richness of participants' voices. The study presents findings with relevant quotes to support conceptualisation.

RESULTS

SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

Twelve healthcare workers participated in the in-depth interviews. Participants were aged 32-55 years, with 11 females and 1 male. All participants were married. Regarding

Table 1. Sociodemographic characteristics of participants.

ID	Age (years)	Gender	Marital status	Qualifications	Role	Years of experience
P1	55	M	Married	Masters	TB physician	17
P2	47	F	Married	Masters	DOT officer	9
P3	52	F	Married	Diploma	DOT officer	25
P4	32	F	Married	Undergraduate	Pharmacist	6
P5	43	F	Married	Undergraduate	DOT officer	14
P6	36	F	Married	Undergraduate	Ass. DOT officer	3
P7	32	F	Married	Diploma	Screening officer	4
P8	48	F	Married	Diploma	DOT officer	17
P9	52	F	Married	Masters	TBLS	15
P10	51	F	Married	Masters	TBLS	30
P11	55	F	Married	Diploma	DOT officer	10
P12	42	F	Married	Diploma	Screening officer	6

educational qualifications, five participants had diploma qualifications, three had undergraduate qualifications, and four had master's qualifications. Participants held different roles within TB/DOT services, including DOT officers, screening officers, Tuberculosis and Leprosy Supervisor (TBLS), a TB physician, a pharmacist, and an assistant DOT officer. Their professional experience ranged from 3 to 30 years, reflecting varying levels of experience in TB-related service delivery.

BARRIERS TO THE INTEGRATION OF TOBACCO CESSATION TREATMENT

The discussions revealed several barriers to delivering tobacco cessation treatment in DOT care, categorised under five major themes: Personnel, Infrastructure, Funds, Tobacco industry interference, and Patients' attitude.

PERSONNEL BARRIER

DOT providers reported a lack of training, noting that while they had received training for diseases like malaria and COVID-19, no training had been provided for tobacco cessation treatment. This was complicated by staff shortages, which increased workload and reduced time available for counselling.

As said by respondents,

> *"Lack of training. We need training on this tobacco cessation treatment. Since I have been in service, we have attended antenatal training, immunisation training, COVID-19 training, and malaria training, but we have never received training on tobacco cessation. They have never trained us on tobacco cessation treatment," …* 55-year-old female DOT officer

We don't have enough healthcare workers, and the workload is too high" … 47-year-old female DOT officer.

> *"Lack of awareness about this tobacco cessation treatment" …. 52-year-old female TBLS.*

Beyond staffing and training challenges, participants identified gaps in the infrastructure and materials needed to provide tobacco cessation support.

INFRASTRUCTURE BARRIER

In terms of infrastructure, barriers to providing tobacco cessation treatment included a lack of Information, Education and Communication (IEC) materials, such as posters and educational resources for both staff and patients. Facilities also had inadequate infrastructure, including poor working conditions with no chairs, tables, or even toilets. Additionally, DOT providers reported that they have no access to tobacco cessation guidelines. Other factors mentioned include a lack of funds for monetary support. Respondents reported;

> *"Lack of anti-smoking posters. If you check around this facility, you will see posters for malaria, yellow fever, flaccid paralysis, and so on, but no tobacco." …52-year-old female DOT officer.*

> *"Lack of educational materials to guide us as healthcare workers." … 48-year-old female DOT officer.*

> *We also do not have a good working environment. No chairs, tables and even toilets… 32-year-old female Screening officer*

> *I am not familiar with any guidelines of tobacco cessation treatment. We do not even know that there is a guideline for tobacco cessation treatment. We have SOPs for malaria, yellow fever, tuberculosis and other illnesses, but we don't have one for tobacco here…. 55-year-old female DOT officer*

These infrastructure and materials gaps were compounded by limited funding, which further restricted providers' ability to deliver tobacco cessation support.

INADEQUATE FUNDS FOR CESSATION SUPPORT ACTIVITIES

Furthermore, DOT providers reported that they often used their own finances to follow up, including making calls, visiting patients, and providing financial assistance. This was reported to be a financial burden to them due to lack of funds.

> *The fund is a major challenge; even if we want to visit our patients, we have to sponsor ourselves, but how often can we do that? .... 55-year-old male physician*

> *"Financial burden on us for supporting patients with money and food" ... 48-year-old female DOT officer*

While the earlier barriers centred on the health system, participants also described how tobacco vendors in the community complicated efforts to support cessation.

TOBACCO VENDOR INTERFERENCE

Respondents mentioned interference from tobacco vendors. For instance, it was reported that tobacco sellers visited patients in the communities and even offered to settle their medical bills. The healthcare workers believed this act was just to maintain the relationship with their patients, which poses a difficult challenge for both patientsand care providers. DOT providers' efforts to support patients' attempts to quit are undermined.

> *Tobacco sellers come to the health centre and pay a visit to our patients who happen to be their customers. They claim they heard one of their customers was down here, and some even ask for the bill and say they are ready to pay. Those are the challenges, so when we advise them to stop taking it, the sellers of tobacco in the area use their logic by paying their bills and coming to check on them, so it's a terrible challenge" .... 52-year-old female TBLS.*

The influence of tobacco vendors was not the only challenge outside the health system; providers also encountered patient reluctance to quit smoking, which complicated cessation efforts.

PATIENTS' ATTITUDES: WILLINGNESS TO QUIT, COST OF TREATMENT-SEEKING AND PRIVACY

Lastly, respondents reported that patients' attitudes are a significant barrier. For example, many respondents said patients complain of hunger and a lack of money for transportation as reasons for not attending the clinic for treatment. Another challenge mentioned was patients' unwillingness to quit, combined with a lack of privacy.

> *"Patients complain of hunger and lack of money for transport fare; some of our patients trek from a very long distance to come for treatment"... 48-year-old female DOT officer.*

> *"If the patient is proving too stubborn to stop smoking after giving counsel, we get fed up" ... 55-year-old female DOT officer.*

> *"Patients also just want to come here quickly and get their drugs, so you ask them questions in an open place like this, they will probably not want to answer you, or they will lie" ... 32 years*

DISCUSSION

This study identified several barriers to providing tobacco cessation treatment within DOT-designated facilities. This study identified a lack of training as a barrier. This is similar to a study conducted across three countries, namely Bangladesh, Nepal, and Pakistan.[35] Participants reported that the lack of training and inadequate staff support affect their capabilities and opportunities to deliver tobacco cessation behavioural support.[35] A possible reason could be that in many TB care settings, DOT providers are primarily trained to focus on TB diagnosis and treatment outcomes, with no or minimal training on tobacco cessation treatment. Shortage of staff is another barrier mentioned by respondents. This mirrors findings in Pakistan and Bangladesh, where DOT providers had higher workloads due to inadequate staffing, which limited cessation support.[36] This may be because, in many TB programs, DOT providers handle multiple roles, including treatment monitoring, documentation, contact tracing, and reporting. Furthermore, the lack of awareness of tobacco cessation treatment among our respondents is consistent with a finding that revealed that DOT providers have poor knowledge of tobacco cessation treatment.[37] This could be attributed to the limited integration of tobacco cessation training into TB program curricula as well as the absence of continuing professional education for providers**.** In addition, the lack of standardised guidelines for tobacco cessation in TB settings may further contribute to poor providers' awareness and knowledge.[38]

Furthermore, this study indicates that the lack of IEC materials is a barrier that hinders HCWs from providing tobacco cessation treatment. This is consistent with a study in Uganda, where participants stated that the facility lacks IEC materials to support self-management in tobacco use cessation among patients.[39] A possible reason is the systemic gaps in TB control programs in low-resource settings, where infrastructure and material support for integrated services are often unavailable.[40] Inadequate infrastructure, such as inadequate space for private counselling, was reported to be a barrier to the provision of tobacco cessation treatment. Similarly, research conducted across healthcare facilities in southeastern Nigeria identified infrastructure limitations as barriers to the delivery of quality care.[41]

Our study also identified interference from tobacco vendors as a barrier. These were the tobacco sellers from whom the patients bought tobacco. Vendors visited patients after hearing a customer was ill and came to the facility to check on a patient. Participants said vendors asked to see the patient's bill, offered to pay it, and paid patients' bills. Providers saw this as an attempt to keep the customer and said it undermined DOT providers' efforts to support patients' attempts to quit. However, the reported interference was not corporate, as no participant mentioned manufac-

turers, distributors, or wholesalers, and none knew whether the vendors were linked to any particular brand. This direct interference by tobacco vendors is a significant challenge that is not commonly reported in studies from other countries.

Also, our findings that patients' unwillingness to quit acts as a barrier are consistent with a study by Zvolska et al. that identifies low motivation/self-efficacy among smokers as a common individual-level barrier to quitting.[27] This act, in turn, limits the effectiveness of provider-delivered cessation offers. In contrast, a study in Tehran found that many newly diagnosed patients with pulmonary TB expressed an intention to quit. However, this intention did not always translate into action.[42] Furthermore, patient-related economic challenges, such as lack of food and insufficient funds for transportation to seek treatment, were similar to findings reported in Nigerian research.[43] The authors found that transportation costs and income loss were significant barriers to adherence to TB treatment, which in turn limits the chance to provide tobacco cessation support. A possible reason for this in the Nigerian context is the prevailing economic hardship and widespread poverty in Nigeria, where a large proportion of the population lives below the poverty line. Many rely on daily income from informal employment, making it difficult to afford transportation to health facilities or to maintain adequate nutrition during treatment.

LIMITATIONS

This study has several limitations. It reports only the qualitative component of a larger mixed-methods study, and the findings reflect the accounts of the twelve DOT providers interviewed across six local government areas. Although the sample was relatively small, data collection stopped when successive interviews yielded no new information or themes, indicating data saturation. The convergence of these findings with those of the parent study's quantitative component strengthens confidence in the consistency of the identified barriers. However, this does not establish that the findings are transferable to facilities beyond those included in the study. A single researcher conducted all interviews, transcription, and initial coding, which may have introduced interviewer and analytic bias. To support analytic rigour, the co-author and supervisor reviewed codes and themes, documented coding decisions in an audit trail, and maintained reflexive notes. However, formal independent double coding was not undertaken.

Future research should expand the participant pool to include monitoring and evaluation officers, programme managers, and policymakers. Studies involving a wider range of facilities and settings could also help establish whether the identified barriers occur in other contexts and provide a more comprehensive understanding of the challenges affecting the integration of tobacco cessation treatment into DOT care.

RECOMMENDATIONS

Based on the study findings, several policy and practice recommendations are proposed to strengthen the integration of tobacco cessation treatment into routine care in DOT-designated facilities in Ibadan, Nigeria, and similar settings. First, comprehensive capacity-building programmes should be developed to address identified knowledge gaps among DOT providers with particular emphasis on evidence-based cessation techniques beyond general advice. Second, tobacco cessation should be systematically integrated into routine TB care protocols and documentation systems. Standardised tobacco use assessment tools should be incorporated into TB patient intake forms to ensure that screening is a routine component of initial assessment. Third, TB control programmes should allocate adequate funding to support the delivery of cessation services. This should include culturally and linguistically appropriate educational materials, visual aids such as flip charts and counselling guides, and facility-based posters to reinforce cessation messages. These efforts should be supported by adapting and disseminating context-specific tobacco cessation guidelines for TB care in Nigeria. In addition, policies should be strengthened and effectively enforced to safeguard healthcare facilities from tobacco vendors' interference. Finally, social support mechanisms for TB patients should be enhanced to address the economic challenges that may undermine treatment adherence and cessation efforts. Collectively, these measures could strengthen healthcare workers' capacity, improve the integration of cessation services into routine TB care, and create a more supportive environment for tobacco cessation among smoking patients receiving TB treatment.

CONCLUSIONS

This study identifies multiple barriers that constrain the integration of tobacco cessation treatment into DOT services in Ibadan, Nigeria. These barriers include inadequate training, staff shortages, heavy workloads, poor infrastructure, lack of educational materials and guidelines, lack of funds, negative patient attitudes, and interference from tobacco vendors. Although DOT providers are well positioned to support smoking cessation because of their regular contact with patients, these challenges limit their capacity to provide consistent and effective support. Tobacco cessation treatment should therefore be embedded as a core component of DOT services through clear policies, standardised guidelines, educational materials, and tobacco cessation training.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was submitted and approved by the Oyo State Ministry of Health Ethical Review Committee (NHREC/OYOSHRIEC/10/11/22). Approval was also obtained from the Oyo State Primary Health Care Board. Participants were

also informed of their right to decline or withdraw at any point during the interview with no consequences. Written informed consent was obtained from all participants included in the study.

CONSENT AND ALREADY AVAILABLE DATA AND/OR BIOLOGIC MATERIAL

Not Applicable

CONSENT TO PUBLISH

Not Applicable

DATA AVAILABILITY

The de-identified qualitative data generated and analysed in this study are not publicly available because they contain information that could compromise participants' privacy and confidentiality. Anonymised transcripts may be made available by the corresponding author on reasonable request.

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None

AUTHORS' CONTRIBUTIONS

Ibukun K. Teslim and Eniola O. Cadmus made substantial contributions to the conception and design and performed data acquisition, analysis, and interpretation.

Ibukun K. Teslim and Eniola O. Cadmus critically drafted and revised the article for intellectual content.

Ibukun K. Teslim and Eniola O. Cadmus reviewed the final version for approval for publication.

COMPETING INTERESTS

The authors have completed the International Committee of Medical Journal Editors (ICMJE) Uniform Disclosure Form and declare that they have no competing interests.

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SUPPLEMENTARY MATERIALS

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

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