

RESEARCH ARTICLE

Evaluation of Oral Health Treatment Needs encountered by Community Pharmacists in Plateau State, Nigeria

¹Olaniyi O Taiwo, ²Raymond M Panas

ABSTRACT

Aim: In Nigeria, alongside other developing countries, the pharmacy is the first resource for people with varied health conditions. It is likely that individuals suffering from toothache would contact the community pharmacist (CP) first rather than the dentist. This is because most illnesses are treated by self-medication. This study looks at the types of oral health conditions and treatment needs encountered by CPs in Plateau State, Nigeria.

Materials and methods: A quantitative cross-sectional study on CPs spanning all 17 local government areas (LGAs) in Plateau State was conducted. Data collection was survey method using paper-based self-administered questionnaires.

Results: Community pharmacists (113) participated in the study. In all, per week, about 534 patients requiring oral health care were seen by the CPs; 25% of the CPs encounter these patients daily. There was a positive correlation between these patients (534) and the average daily patient traffic to the pharmacies (7,018), Pearson's correlation coefficient, r was 0.443 ($p = 0.000$). Toothache (94.7%) was the most common oral health advice requested followed by bad breath (69.9%) and teething (69%). Nearly all (96.5%) the CPs provide some form of service to clients who approach them with oral health problems.

Conclusion: Community pharmacies by virtue of their locations and services make them a facility frequently visited by patients with oral health complaints. A lot of patients contact them regularly for different oral health needs.

Clinical significance: The vantage position of CPs in the community makes them viable sources of oral health information. Thus, CPs can be engaged in oral health-promotion activities complementing the functions of oral health care workers. This might help reduce oral health disparities by increasing oral health awareness, improving oral health-seeking behavior, better oral hygiene practices, and improving the quality of life via cost-effective delivery of pharmacy-based oral health care services.

Keywords: Community pharmacist, Oral health, Treatment needs.

How to cite this article: Taiwo OO, Panas RM. Evaluation of Oral Health Treatment Needs encountered by Community Pharmacists in Plateau State, Nigeria. *J Oral Health Comm Dent* 2018;12(1):1-7.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

In Nigeria, as well as other developing countries, most illnesses are treated by self-medication, though this practice increases risks of drug resistance, adverse drug reactions, drug interactions, and polypharmacy.¹⁻⁴ Because of self-medication, the pharmacy is usually the first place for people with varied disease conditions or symptoms.⁴ The pharmacy, therefore, constitutes a viable medium for dissemination of oral health information.

It is likely an individual suffering from a toothache would contact the pharmacist rather than the dentist.⁵ Although Sofola⁶ argued that physicians are probably the first point of contact for those with oral disease in developing countries, a culture of self-medication and self-care is rife in these areas.^{1,7} This behavior of self-care is augmented by the high cost of medical care, poor access to health facilities, and a belief that such ailments are minor.^{1,7} Self-care, which can be defined as those things people do for themselves to institute and maintain health and prevent or address illness, is a very common practice in Nigeria.^{1,8} Amien et al⁹ stated that many people with dental lesions often bypass the doctors and dentists to see the pharmacists for symptomatic relief. This happens because most dental conditions are painful and disturb the activities of the day as well as affect quality of life. Such an experience propels people to seek or request an over-the-counter drug for pain relief as it is more convenient compared with scheduling an appointment with the dentist where there might be a long waiting time for such an emergency.⁵

Dental pathologies could be signs of underlying systemic conditions, though some of them may have benign or mild manifestations.⁹ The burden of oral diseases is a result of poverty, high illiteracy rate, poor oral hygiene habits, lack of timely access to oral health services, unavailability and unaffordability of oral health services, and absence of oral health education.¹⁰ Some of

¹Principal Research Fellow, ²Contributing Faculty

¹Department of Basic Science and Research, Regional Center for Oral Health Research and Training Initiatives for Africa, Jos Plateau, Nigeria

²Department of Public Health, Walden University, Minneapolis Minnesota, United States of America

Corresponding Author: Olaniyi O Taiwo, Principal Research Fellow, Department of Basic Science and Research, Regional Center for Oral Health Research and Training Initiatives for Africa, Jos, Plateau, Nigeria, Phone: +2348033450079, e-mail: taiwo25@yahoo.co.uk

the dental pathologies in socially disadvantaged people include dental caries, erosion, trauma, and fluorosis. Others are gingivitis, periodontal diseases, oral cancers, and oral manifestations of human immunodeficiency virus/acquired immunodeficiency syndrome.¹⁰ Apart from these clinical manifestations and their detrimental effects on health (quality of life), this leads to loss of function which can lead to malnutrition; facial mutilation; time lost from work, business, or school; and general social isolation.¹⁰⁻¹²

Community pharmacies are independent, chains, or supermarket-based pharmacies directly serving the general public.¹³ They are becoming an important source of treatment in developing countries, contributing as much as 80% of health provision in many countries.¹⁴ With the volume of nonprescription products in the market, a lot of people visit CPs as their first point of contact for health care.¹⁵ According to Cohen,¹⁶ over 250 million people visit the pharmacy weekly. This positions them as a source of public health resources for the public and a medium to deliver dental health care-related information.^{9,16}

Community pharmacists are an indispensable member of the health care team having important roles in addressing oral health care challenges.¹⁶ This is because they are suitably positioned to offer advice on oral health, and a variety of oral problems due to their frequent contact with people susceptible to a variety of dental conditions. Their consultative role is therefore important for those disadvantaged people who ordinarily do not have access to the dentist.^{9,16-18}

Only a few studies had been conducted to ascertain roles of CPs in promoting oral health and these studies affirmed that CPs were regularly approached for advice on oral health. The frequency ranged from up to 10 daily requests for oral health advice to weekly visits.^{5,9,18-23} The most common dental reasons for approaching CPs were oral ulcers (20–93%), toothache (18–88%), bleeding gums (4–84.4%), and loose dentures (1–48.5%).⁹ Others were oral thrush (49.2%) and halitosis (11.7%).^{19,23} Generally, less commonly sought advice were for teething problems, types of toothpaste and toothbrush to use.^{9,22,23} This study evaluated the frequency of visits for oral health complaints and the most common types of oral health issues encountered by CPs in Plateau State, Nigeria.

MATERIALS AND METHODS

Study Design and Population

Quantitative cross-sectional study design was used for this study. This study took place among CPs in Plateau State, one of the states in the North-central geopolitical zone of Nigeria. All practicing CPs in the state served as the study

sample. As pharmacies are commercial outfits, they are usually located along major streets. All the major streets in the 17 LGAs of Plateau State were navigated to find the community pharmacies from where the CPs were identified. For the purpose of this study, a CP was defined as the health care provider most accessible to the public. They supply medicine based on prescription, counsel patients, and participate in health-promotion activities. They also maintain links with other health care professionals.²⁴

Inclusion Criteria

The population of CPs was defined as those that had been in practice for a minimum of 6 months before the onset of the study. The CP must be a practicing pharmacist, not an intern or a student pharmacist; should be in constant contact with community members, practicing in settings, such as independently owned pharmacies, those attached to shopping malls, retail stores, and pharmacy chains. Included CPs were those who consented to participate in the study.

Recruitment and Participants

Community pharmacists were traced (by navigating all the major roads/streets in the state) and contacted at their pharmacies. A working list comprising the number of registered pharmacies in the state (compiled by the Director of Pharmaceutical Services, Ministry of Health, Plateau State) served as the starting point for locating the CPs in their practices. There were 104 community pharmacies on the list. There was a brief introduction of the purpose of the study where an informed consent form about the study was given. Willingness to partake in the study was based on signing the consent form after addressing any question that arose from the participants. All the CPs were approached and the number of those who agreed to participate in the study was noted.

Data Collection

This was done using a structured, paper-based, self-administered questionnaire. Every filled questionnaire was checked for adequacy and completeness, and any question about the exercise was addressed to dispel any misconceptions. A completed questionnaire was adequate if most of the relevant questions were filled (as there were some contingency questions that required skipping). A modified survey instrument developed from Mann et al. was used for data collection.⁵

Data Analysis

After data collection and cleaning (verification of retrieved questionnaires), it was entered into the computer and

analyzed with Statistical Package for the Social Sciences (version 23) software.

To ensure that participants in the study were adequately protected, the study proposal was submitted to and approved by Walden University's Institutional Review Board and the Plateau State Specialist Hospital Health Research Ethics Committee. The study was conducted in full accordance with the World Medical Association, Declaration of Helsinki.

RESULTS

A total of 207 community pharmacies were identified in the state from where 113 CPs were recruited as participants (Flow Chart 1). About half (56.6%) of the pharmacies were registered with the Directorate of Pharmaceutical Services, Plateau State Ministry of Health. Only 5 out of the 17 LGAs in Plateau State had community pharmacies. Nearly all (95.5%) the pharmacies were located in the state capital of Jos. Jos town is made up of three LGAs: Jos North (62.8%), Jos South (32.7%), and Jos East (0%—does not have a pharmacy). Most of the pharmacies (89) were individually owned, while four were owned by cooperative societies and missionary groups. Daily patient traffic in these pharmacies ranged from 4 to 500 patients with a mean of 66.18 ± 70.6 . Cumulatively, about 7,018 people visit the community pharmacies included

in the study daily. When the daily patient traffic in these pharmacies was grouped into three groups, 39.8% of the pharmacies had patient flow of between 31 and 90 patients/day followed by ≤ 30 patients/day (31%) and >90 patients/day (22.1%).

Demographic Characteristics of Study Population (CPs)

Most of the CPs (89.4%) were registered with the Association of Community Pharmacists in Nigeria (ACPN), Plateau State branch. Their ages ranged from 23 to 70 years. The average age was 41.28 ± 11.62 years with more male CPs in the population (62.8%). Twenty-eight CPs had postgraduate qualifications. Number of years after postgraduation (from a basic degree) also ranged from 1 to 40 years with a mean of 13.29 ± 11.86 . Duration of practice ranged from 0.5 to 36 years, with mean of 9.26 ± 9.28 . Table 1 summarizes other demographic details of the CPs.

Encounters of CPs with Patients requiring Oral Health Care

On average, per week, the number of patients requiring oral health care seen by the CPs ranged from 1 to 50, with mean of 5.13 ± 6.15 . In all, per week, about 534 patients were seen by the CPs in the pharmacies that participated

Flow Chart 1: The CP identification for data collection. Please note that a CP (an individual CP) may be either a registered or unregistered member of the ACPN working in a nonlicensed (unregistered) or licensed CP

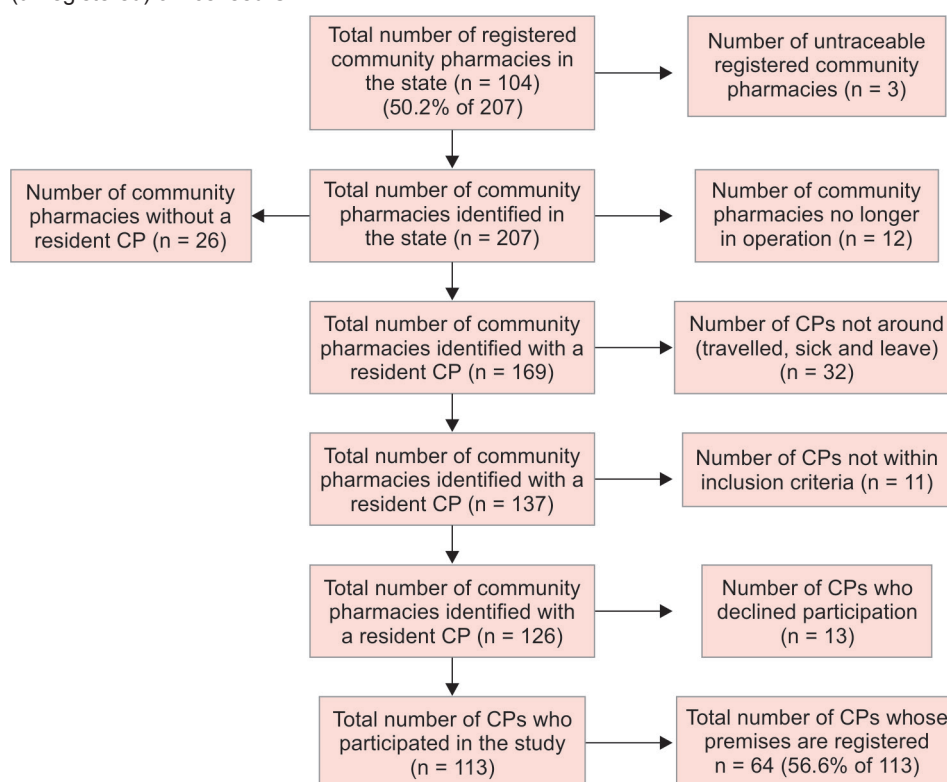
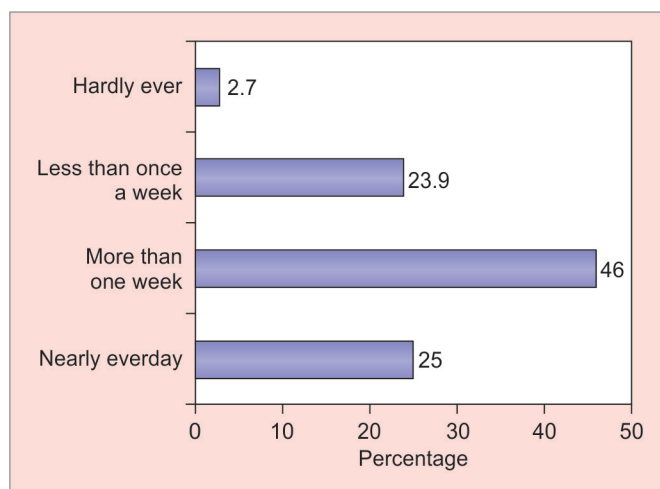


Table 1: Demographic characteristics of study population—CPs (n = 113)

Variable	Frequency	Percentage
<i>Registered member of ACPN?</i>		
Yes	101	89.4
No	9	8.0
No response	3	2.6
<i>Age group (years)</i>		
20–35	41	36.3
36–55	40	35.4
>55	32	28.3
<i>Gender</i>		
Male	71	62.8
Female	42	37.2
<i>Highest education</i>		
University degree	85	75.2
Masters	26	23.0
PhD	2	1.8
<i>Number of years postgraduation</i>		
1–10	64	56.6
11–20	15	13.3
>20	26	23.0
No response	8	7.1
<i>Duration of practice (years)^a</i>		
≤10	80	70.8
11–20	16	14.2
>20	16	14.2
<i>Previous dental education^b</i>		
Yes	58	51.3
No	54	47.8
<i>Previous visit to the dentist</i>		
Yes	78	69.0
No	35	31.0

^{a,b}Have one missing system each (unfilled response)

with requests on oral health advice. Graph 1 shows that a quarter (25%) of the CPs come across these patients on a daily basis, while 2.7% hardly see these patients. Graph 2 shows a scatter plot correlating the average weekly



Graph 1: Community pharmacist encounters with patients requiring oral health care

number of patients requiring oral health advice and the daily patient traffic in the pharmacies. There is moderate positive correlation ($r = 0.446$, $p = 0.000$), implying that weekly number of patients requiring oral health advice moderately increases with increasing daily patient traffic to the pharmacies.

Types of Oral Health Condition/Advice Patients are requesting

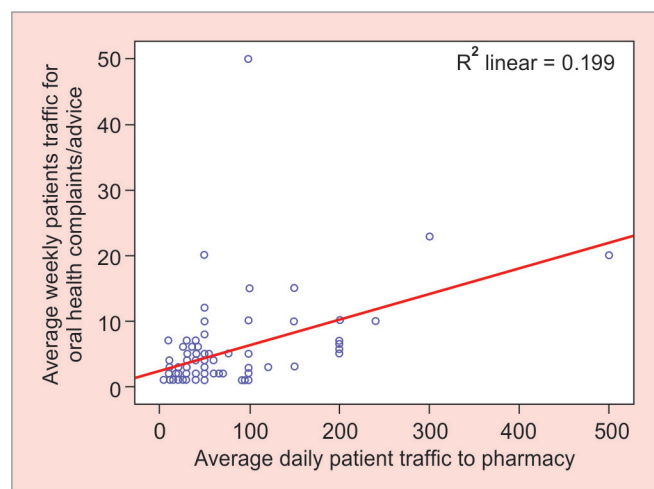
Toothache (94.7%) was the most common oral health advice patients were requesting followed by bad breath (69.9%) and teething (69%). Table 2 documents the frequencies of the oral health advice patients requested.

Services rendered by CPs for Oral Health Problems

Nearly all (96.5%) the respondents provided services to clients who approached them with oral health problems. Most (90.3%) of the CPs prescribe pain relievers, 77.9%

Table 2: Frequency of oral health condition/advice as requested by patients

Condition/advice	Frequency	Percentage
Mouth ulcers	68	60.2
Toothache	107	94.7
Teething	78	69.0
General oral hygiene	31	27.4
Mouthwash	62	54.9
Dentures	2	1.8
Broken teeth	26	23.0
Location of a dentist	36	31.9
Bleeding gums	55	48.7
Toothpaste/toothbrush advice	41	36.3
Sensitive teeth	51	45.1
Tooth whitening	29	25.7
Bad breath/mouth odor	79	69.9



Graph 2: Correlation between traffic inflow to pharmacies with patients requiring oral health care

prescribe an antibiotic, while 90.3% refer the clients to the dentist. Other services provided were a recommendation of an oral health product to use (54%) and others (5.3%) which includes referral to other health care institutions. Only 28.3% of the CPs received payments for rendering these services. Most (94.7%) of the CPs were interested in becoming more involved in provision of services on oral health problems.

DISCUSSION

Toothache (94.7%) was the most common oral health advice patients were requesting in this study. A toothache is a pain in or around the tooth with varied causes. It is the most common type of orofacial pain and its presence (or absence) could be a reflection of the oral hygiene of the host. Toothache (78%) was also the most common oral complaint encountered in an Indian study followed by bleeding gums, mouth odor, and oral ulcers.²³ A similar pattern was noticed in a UK study with toothache (93.5%), oral ulcers (88.1%), and teething (76.3%) presenting as the most commonly encountered oral health complaints from patients.⁵ In Kingdom of Saudi Arabia, the types of oral conditions most commonly encountered were toothache (29.7%), mouth ulcers (24.9%), and halitosis (11.7%).¹⁹ The varying causes of toothache could account for the differences in the proportion of its presentation in these studies. It is likely that some mouth ulcers could have been misclassified as toothaches especially those in close proximity to the teeth as CPs may not have the ability to differentiate this. On the contrary, in South Africa, oral ulcers (55.8%), oral thrush (49.2%), and toothache (33.3%) were the most common presentations.⁹ Likewise, in Northern England, mouth ulcers (20%) and toothache (18%) were the most prevalent presentations.²²

Our study shows that about 534 patients visited the community pharmacies included in this study with different oral health complaints weekly. Invariably, this is a fraction of the whole as only about half (54.6%) of the visited pharmacies (207) were eventually recruited into the study. The number of these patients (presenting with oral health complaints) could partly be explained by the main reason for visiting the CPs—toothache (94.7%). Toothaches as well as other dental pathologies are usually painful and incapacitating conditions requiring urgent attention for relief. Such an experience usually propels people to seek or request an over-the-counter drug for pain relief as it is more convenient compared with scheduling an appointment with the dentist where there might be a long waiting time for such an emergency.⁵ It had been noted that many people with dental lesions often bypass the doctors and dentists to see the pharmacists for symptomatic relief.⁹ This symptomatic relief in most cases ends up being the

only treatment as relief from pain usually hinders the need for further oral health care.

A quarter (25%) of CPs in this study come across patients requiring oral health advice on a daily basis. In a South African study, most of the CPs (91%) dealt with oral problems regularly.⁹ An earlier study, also in South Africa, assessing the extent to which pharmacists were asked about oral health care showed that 44.1% of the respondents (out of 54 CPs) were approached every day with oral health complaints, 44.2% about once a week, 8.8% twice a week, and the rest (2.9%) once a month.²¹ In Kingdom of Saudi Arabia, of the 141 CPs interviewed, 33.8% reported 10 daily requests for oral health advice, 35.5% reported less than that, while 30.7% stated that they had more than 10 daily requests for oral health advice.¹⁹ This is similar to an Indian study where 84% of the CPs also claimed that they had about 10 patients with dental complaints who visit their pharmacy every day.²³ In Northern England, 67.4% of the CPs reported more than 11 requests per week.²² All these frequencies support the earlier assertion that many people with oral health challenges bypass the dentists to see the CPs for symptomatic relief.⁹

Due to the paucity of health care facilities, in Nigeria, as well as other developing countries, most illnesses are treated by self-medication.^{1,2} Because of self-medication, the pharmacy is usually the first place for people with varied disease conditions or symptoms.⁴ This is because they are accessible, often situated close to people's homes, and generally are not operating on appointment-based schedules.¹⁶ Plateau State (the study location) presently has 14 dental clinics to cater for more than 3 million residents. Most of these clinics are ill equipped and understaffed. Moreover, only two of these clinics are located outside the state capital Jos exemplifying the lack of oral health capacity in the state. The state presently has an estimated dentist to population ratio of 1:106,884, a far cry to the 1:7,500 recommended by the World Health Organization for effective oral health delivery.²⁵ Additionally, in the country as a whole, there is poor oral health awareness with less than one-fifth of Nigerians having access to oral health care.^{11,26-28} Consequently, the few available oral health facilities are underused, and patients mostly present late for treatment with complications that may have been prevented.⁵ These are factors that could also explain the frequency of patients visiting the CPs for oral health care.

A limitation of this study was an assumption that oral health consultations in community pharmacies were handled by the CPs rather than pharmacy counter assistants. It is possible that the volume of patients with oral health complaints seen by the CPs was undermined. Pharmacy counter assistants, being the first set of people

encountered by the public in community pharmacies for different requests, traditionally handle a large proportion of complaints before challenging ones are referred to the CPs on duty. They might have attended to some of the oral health complaints seen in the pharmacies. This could have impaired the full picture of the CPs' role with oral health care. Also, this study reflects primarily the views of those CPs who consented to participate. Thus, the experiences of the other CPs could have had some significant influences on the study findings constituting a limitation with generalizability. Lastly, though it was assumed that the CPs answered the questions truthfully, this could never be fully guaranteed. Some of the CPs may have fallen victim to obsequiousness bias because the person who administered the survey instrument is a dentist.

CONCLUSION

The findings from this study suggest that CPs in Plateau State, northern Nigeria, regularly come across a lot of patients with oral health complaints. Although they presently provide some degree of oral health advice, their oral health capacity could be expanded to do more and to gain confidence in providing the appropriate advice related to oral health conditions. Additionally, CPs may be effectively employed in oral health promotion because patients frequently contact them and regularly ask for their advice on both general and oral health care.

CLINICAL SIGNIFICANCE

As a result of CPs' established role in promoting and improving the health within the community, it would be beneficial to empower them via training and access to oral health information in order to engage them as conduit pipes to improve oral health awareness of the people. It may also be possible to incorporate oral health within the Pharmacists Council of Nigeria's community pharmacy practice standard to help them take a more active and integrated role as part of a multidisciplinary health care team attending to the oral health concerns of the people.

REFERENCES

1. Afolabi OA, Ehalaiye BF, Fadare JO, Abdur-Rahman AB, Ehalaiye DN. Survey of ototopical self-medication among patients attending ENT and family medicine departments in a Nigerian hospital. *Eur J Gen Pract* 2011 Sep;17(3):167-170.
2. Eticha T, Mesfin K. Self-medication practices in Mekelle, Ethiopia. *PLoS One* 2014 May;9(5):e97464.
3. George PP, Molina JA, Cheah J, Chan SC, Lim BP. The evolving role of the community pharmacist in chronic disease management—a literature review. *Ann Acad Med Singapore* 2010 Nov;39(11):861-867.
4. Ogbo PU, Aina BA, Aderemi-Williams RI. Management of acute diarrhea in children by community pharmacists in Lagos, Nigeria. *Pharm Pract (Granada)* 2014 Jan;12(1):376.
5. Mann RS, Marcenes W, Gillam DG. Is there a role for community pharmacists in promoting oral health? *Br Dent J* 2015 Mar;218(5):E10.
6. Sofola OO. Implications of low oral health awareness in Nigeria. *Niger Med J* 2010 Nov;51(3):131-133.
7. Auta A, Banwat SB, Dayom DW, Shalkur D, Avu MO. Occurrence and treatment of common health problems in a Nigerian community. *J Young Pharm* 2012 Jan;4(1):49-53.
8. Mohamed SS, Mahmoud AA, Ali AA. The role of Sudanese community pharmacists in patients' self-care. *Int J Clin Pharm* 2014 Apr;36(2):412-419.
9. Amien F, Myburgh NG, Butler N. Location of community pharmacies and prevalence of oral conditions in the Western Cape Province. *Health SA Gesondheid* 2013 Aug;18(1):1-9.
10. Karim A, Mascarenhas AK, Dharamsi S. A global oral health course: Isn't it time? *J Dent Educ* 2008 Nov;72(11):1238-1246.
11. Braimoh M, Ogunbodede E, Adeniyi A. Integration of oral health into primary health care system: views of primary health care workers in Lagos State, Nigeria. *J Public Health Afr* 2014 Jun;5(1):328.
12. Okunseri C, Chattopadhyay A, Lugo RI, McGrath C. Pilot survey of oral health-related quality of life: a cross-sectional study of adults in Benin City, Edo State, Nigeria. *BMC Oral Health* 2005 Jul;5:7.
13. Meyerson BE, Ryder PT, Richey-Smith C. Achieving pharmacy-based public health: a call for public health engagement. *Public Health Rep* 2013 May-Jun;28(3):140-143.
14. Faduyile T, Oparah AC, Oreagba IA. Potentials of community pharmacists to improve maternal, newborn and child health. *West Afr J Pharm* 2012;23(2):27-33.
15. Azmi S, Nazrin N, Azmi AH. Extending the roles of community pharmacists: views from general medical practitioners. *Med J Malaysia* 2012 Dec;67(6):577-581.
16. Cohen LA. Enhancing pharmacists' role as oral health advisors. *J Am Pharm Assoc* (2003) 2013 May-Jun;53(3):316-321.
17. Amin ME, Chewing B. Pharmacist-patient communication about medication regimen adjustment during Ramadan. *Int J Pharm Pract* 2016 Dec;24(6):419-427.
18. Wibowo Y, Parsons R, Sunderland B, Hughes J. An evaluation of community pharmacy-based services for type 2 diabetes in an Indonesian setting: patient survey. *Peer J* 2015 Dec;3:e1449.
19. Bawazir OA. Knowledge and attitudes of pharmacists regarding oral health care and oral hygiene products in Riyadh, Saudi Arabia. *J Int Oral Health* 2014 Nov-Dec;6(6):10-13.
20. Chestnutt IG, Taylor MM, Mallinson EJH. The provision of dental and oral health advice by community pharmacists. *Br Dent J* 1998 Jun;184(11):532-534.
21. Gilbert L. The role of community pharmacists as an oral health adviser: an exploratory study of community pharmacists in Johannesburg, South Africa. *SADJ* 1998 Sep;53(8):439-443.
22. Maunder PE, Landes DP. An evaluation of the role played by community pharmacies in oral health care situated in a primary care trust in the north of England. *Br Dent J* 2005 Aug;199(4):219-223.
23. Priya S, Madan Kumar PD, Ramachandran S. Knowledge and attitudes of pharmacists regarding oral health care and

- oral hygiene products in Chennai city. *Indian J Dent Res* 2008 Apr-Jun;19(2):104-108.
24. World Health Organization. The role of the Pharmacist in the health care system. WHO/PHARM94.569. Geneva: WHO; 1994. Available from: <http://apps.who.int/medicinedocs/pdf/h2995e/h2995e.pdf>.
25. Ogunbodede EO. Implementation of oral health policies in African countries: South Africa and Nigeria as case studies. Doctoral dissertation, University of the Western Cape, South Africa. 2014. [cited 2014 Sep]. Available from: <http://etd.uwc.ac.za/xmlui/handle/11394/3717>.
26. Etiaba E, Uguru N, Ebenso B, Russo G, Ezumah N, Uzochukwu B, Onwujekwe O. Development of oral health policy in Nigeria: an analysis of the role of context, actors, and policy process. *BMC Oral Health* 2015 May;15:56.
27. Olusile AO. Improving low awareness and inadequate access to oral health care in Nigeria: the role of dentists, the government & non-governmental agencies. *Niger Med J* 2010 Nov;51(3): 134-136.
28. Osazuwa-Peters N. The Alma-Ata declaration: an appraisal of Nigeria's primary oral health care three decades later. *Health Policy* 2011 Mar;99(3):255-260.