

## Research Article

# Awareness of Oral Cancer in a Northwestern Nigerian State: Assessing the Knowledge, Opinion, and Practice of Traditional Healers and Herbalists

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**Background:** Traditional healers/herbalists remain one of the most accessible and popular options of care to people suffering from cancers particularly at the community level in Nigeria. The majority of patients with oral cancer present at the terminal stage after exploring unorthodox care. This study assesses the awareness of oral cancer among traditional caregivers in Kano State, Northwestern (NW) Nigeria. **Methods:** Self-administered, structured questionnaires were administered to a cross section of 21 traditional caregivers. **Results:** Of the 21 traditional caregivers studied, the majority (66.7%) had never heard of oral cancer and only 7 (33.3%) were aware. The level of knowledge on oral cancer was assessed using a scoring system classifying respondents as having adequate (>50%) or inadequate (<50%) knowledge. There was a significant educational status gap as respondents with informal education had lesser knowledge than that of their counterparts who had formal education (61.9% versus 19.0%) ( $P = 0.012$ ). **Conclusions:** It is important to have allied healthcare providers informed about oral cancer, as their knowledge and awareness of oral cancer and its risk factors, which were low in our study, are vital in prevention and early detection. **Impact:** This study provides an insight into oral cancer prevention using traditional herbalists who are popular caregivers for those seeking health-related solutions.

## 1. Introduction

Oral cancer (squamous cell carcinoma) constitutes over ninety percent (90%) of malignancies affecting the oral and maxillofacial region [1]. The incidence is increasing, with most cases occurring in the fifth to seventh decades of life—probably because of long exposure to tobacco and alcohol, oftentimes with underlying poor nutrition, which is a prerequisite for malignant transformation [1, 2]. Patients generally present at a late stage when the prognosis is poor [2–4]. The population at risk of oral cancer includes those aged over 65 years, chronic alcohol and tobacco users, and black males [5].

In the United States, oral cancer represents less than thirty percent (30%) of all cancers but has one of the lowest five-year survival rates among major cancers, including breast,

prostate, and colon cancers [6]. It is estimated that thirty thousand (30,000) new cases are diagnosed yearly and about eight thousand (8000) will die of the disease [6].

Carcinoma of the oral cavity occurring in Africans is poorly documented [7], and most studies carried out are prevalence studies without statistics on survival rates [7–22]. Although oral cancer is considered rare in Africa [7], studies held in East Africa [8–10] and in major maxillofacial surgery centers in Kaduna [7], Ibadan [11–15], Lagos [16–18], Enugu [19], and Maiduguri [20–22] in Nigeria, West Africa, suggest that it may occur more frequently than has been documented.

Nigerians have been noted to consume alcohol the most in Africa, second only to South Africans [23]. The increasing consumption of alcohol and tobacco within the country [24] further poses an increased risk to the population at risk of oral

cancer. In the predominantly Islamic northwestern region with bans on alcohol use that largely limit availability [25], reports on consumption rates remain very high [26].

Tobacco consumption in ways pertinent to oral cancer (cigarette smoking, pipe smoking, and chewing tobacco) is reported to be lower than alcohol usage on the other hand [27], although the proportion of adults above 15 years of age who consume these products is said to be rising rapidly [27, 28].

Actinic radiation, due to exposure to sunlight, is also known to predispose to lip carcinomas [29]. Kano, NW Nigeria, is a semiarid state located in the Sudan savannah belt of Africa, almost abutting the Sahara Desert on longitude and latitude  $12^{\circ} 0' 0''$  N,  $8^{\circ} 31' 0''$ , receiving between 8 to 10 hours of sunshine daily [30].

People in the region may be at a higher risk of developing oral carcinoma, whether their daily jobs are outdoors or not, though this is bated by the protection conferred by the dark skin [29] of most individuals in the region.

The five-year survival rate of oral cancer directly correlates with the stage of the disease at presentation or diagnosis [5]. It ranges from eighty percent (80%) for cases diagnosed at localized stages to less than thirty percent (30%) for cases that have metastasized to other sites [31]. Early detection and treatment, thus, remain vital to surviving oral cancer [1, 32].

A viable alternative for early detection via screening modalities could be the use of other health caregivers in the region, including pharmacists, chemists, nurses, and traditional healers, who are frequently patronized by a large proportion of the population. This is because there is gross inadequacy of dental personnel in Kano State as the Maxillofacial Surgery Center—with its five oral and maxillofacial surgeons and twenty (20) resident doctors—serves the entire state with an estimated population of 12 million [33, 34] and receives referral cases from other states in Northwestern (NW) Nigeria. Kano State has a total of fifty (50) dentists in its population and this limits the effectiveness of screening modalities for early cancer detection.

The culture of the indigenous population, though compounded at times by poor accessibility to healthcare facilities, largely influences the people's healthcare-seeking behavior. Traditional healers and herbalists are an integral part of the culture around parts of Africa and Nigeria [35, 36].

When members of the community develop oral pathologies, it is the norm to seek care from these traditional healers and herbalists, referred to as "Boka," and this is more likely than visiting a dentist or physician. This could be due to the paucity of orthodox healthcare practitioners practicing in NW Nigeria or poor knowledge and attitude of the populace related to dental needs and access to dental care.

Commuting to the city center from remote villages is also often a challenge, making these traditional healers and herbalists the most likely to be contacted when people have medical problems or symptoms. These traditional healers and herbalists live among the people and are thus more easily accessible and available. These and other factors make the traditional healers and herbalists very popular in NW Nigeria in particular.

Understanding the awareness of oral cancer among traditional healers and herbalists in Kano State, NW Nigeria, could be a first step to formulating strategies to improve early detection and treatment of oral cancer, especially since reports in the literature suggest that regardless of the time of diagnosis blacks appear to have a worse prognosis than whites [31, 37–40].

This study sought to assess the awareness of oral cancer among a group of traditional healers and herbalists in Kano State, NW Nigeria. The knowledge, opinion, and practice of traditional healthcare providers who serve as the closest and first point of call to many are essential to planning a training program for oral cancer detection.

## 2. Methods

**2.1. Study Design and Population.** The study was descriptive and cross-sectional in design. It was a questionnaire-based statewide study carried out to assess oral cancer awareness of traditional healthcare providers in Kano State, NW Nigeria. There was no central registry of traditional healers and herbalists in the state and, thus the authors did not know their addresses. Members of staff and patients of the Aminu Kano Teaching Hospital Dental and Maxillofacial Center, who are indigenes of the state and are familiar with the rural communities, were interviewed to provide clues in respect of the locations of the traditional healers and herbalists. This yielded a working list of thirty-three (33) traditional healers and herbalists with their addresses and was used as the sampling frame.

**2.2. Instrument Description/Data Collection.** The self-administered questionnaire was prepared in English and translated to Hausa language, as Hausa is the predominant language in Northern Nigeria. To ensure a verifiable standard, an independent, trained translator was recruited to translate the self-administered questionnaire from Hausa language back into English language, and this second English questionnaire was compared for similarity with the first. This was done to validate the Hausa questionnaire.

Two members of staff of the Maxillofacial Surgery Center delivered the questionnaires to identified traditional healers and herbalists, who filled out the document and handed them back to the dispatch staff.

The structured self-administered questionnaire was adapted from that used in a previous study and had four sections. The first section inquired about the sociodemographic characteristics of the respondents including age, gender, marital status, level of education, and ethnicity. The second part elicited information about awareness, the third sought information about risk factors, signs, and symptoms of oral cancer, and the fourth part assessed respondents' perception and practice as regards suspected cancer cases.

**2.3. Data Analysis.** Data was collated and processed using Microsoft Excel and IBM SPSS for Mac 2011. Quantitative variables were summarized using the mean and standard deviation while categorical variables were summarized as frequencies and percentages.

The level of knowledge of oral cancer was assessed among the respondents and each correctly answered question earned one mark giving a maximum score of 25 on “knowledge.” Scores 0–12 (<50%) were graded as inadequate knowledge on oral cancer while 13 and above (>50%) were graded as adequate knowledge on oral cancer. Perception was also assessed using knowledge- and practice-related opinion questions.

### 3. Results

**3.1. Sociodemographic Characteristics.** Thirty-three (33) traditional healers and herbalists constituted the study population. Of these, twenty-one (21) responded to the questionnaire; eight (8) desisted from answering; one (1) could not be located; and three (3) were away on business or family matters. Response rate was thus 63.63%.

The age of respondents ranged from 37 to 72 years with a mean of  $49.4 \pm 9.8$  years. Table 1 shows the sociodemographic characteristics of the respondents. Almost all were male (95%), and the majority were married and of the Hausa ethnic group (86% and 81%, resp.). Of the non-Hausas (19%), two were non-Nigerian and the other two were from northern minority tribes. Quranic education (Islamic education received by Muslims from imams and mullahs, lecturers of the Koran, that commonly takes place before and concurrently with, but independently of, formal education [41–43]) was the preponderant educational qualification (61.9%).

**3.2. Knowledge.** Only 7 (33%) respondents had ever heard of oral cancer. Respondents’ knowledge of risk factors, signs, and symptoms was assessed among the 7 respondents who were aware (Tables 2 and 3). Overall, the knowledge level on oral cancer was considered adequate in 4 (19.0%) of the respondents.

None of the socio-demographic characteristics of the traditional caregivers except educational status was significantly associated with their level of knowledge of oral cancer.

None of the respondents who had only Quranic knowledge had adequate knowledge of oral cancer. The four respondents who had adequate knowledge of oral cancer had at least secondary education. This difference in level of knowledge and formal education was statistically significant (Fisher’s exact test = 0.01) (Table 5).

Respondents were asked questions on “real” risk factors and “non-real” risk factors. “Real” risk factors constituted those proven by research and include excessive exposure to sunlight, regular alcohol consumption, tobacco use, poor nutrition (vegetables and fruits), previous oral cancer lesions, older age, and occupational hazard [44].

Regular consumption of alcohol and tobacco use were the most identified as risk factors (28.6%) while age was not mentioned by any of the respondents as a risk factor. Of the seven respondents who had heard of oral cancer before, almost all (86%) correctly identified smoking and tobacco as risk factors. The values were much less for other “real” risk factors as follows: sunlight and poor nutrition (vegetables and fruits) (9.5%), previous oral cancer lesions (19.0%), older age (0%), and occupational hazard (19.0%).

TABLE 1: Sociodemographic characteristics of respondents.

Characteristic	Frequency ( $n = 21$ )	Percentage (%)
Age group (years)		
30–39	3	14.3
40–49	9	42.9
50–59	6	28.6
60 and above	3	14.3
Gender		
Male	20	95.2
Female	1	4.8
Marital status		
Married	18	85.7
Single	1	4.8
Divorced	1	4.8
Widowed	1	4.8
Educational qualification		
Quranic	13	61.9
Primary	—	—
Secondary	6	28.6
Tertiary	2	9.5
Ethnicity		
Hausa	17	81.0
Others	4	19.0
Nationality		
Nigerian	19	90.5
Non-Nigerian	2	9.5

TABLE 2: Awareness of oral cancer.

Ever heard of oral cancer	Frequency ( $n = 21$ )	Percentage (%)
Yes	7	33.3
No	14	66.7

TABLE 3: Awareness of oral cancer examinations.

Ever heard of oral cancer examination?	Frequency ( $n = 21$ )	Percentage (%)
Yes	0	0
No	21	100

TABLE 4: Knowledge of oral cancer.

Knowledge of oral cancer	Frequency	Percentage (%)
Adequate	4	19.0
Inadequate	17	81.0

“Non-real” risk factors are those without supporting research evidence but “common-sense” and popular belief identify as leading to oral cancer. They do not, in actual fact, cause oral cancer. These were eating hot, spicy foods; frequent biting of the cheek or lip; dirty mouth; poorly fitting dentures; family history; and spiritual/demonic attack [44].

For the “non-real” risk factors, values were as follows: eating hot and spicy food, frequent biting of the cheek or lip, poorly fitting dentures, and previous family history (4.8%)

TABLE 5: Factors associated with respondents' knowledge of oral cancer.

Sociodemographic characteristic	Adequate <i>n</i> (%)	Inadequate <i>n</i> (%)	Total	<i>P</i> value
Age group (years)				
<50	3 (25.0)	9 (75.0)	12 (100)	0.6
≥50	1 (11.1)	8 (88.9)	9 (100)	
Total	<b>4 (19.0)</b>	<b>17 (81.0)</b>	<b>21 (100)</b>	
Gender				
Male	4 (20.0)	16 (80.0)	20 (100)	1.0
Female	0 (0)	1 (100)	1 (100)	
Total	<b>4 (19.0)</b>	<b>17 (81.0)</b>	<b>21 (100)</b>	
Marital status				
Married	2 (11.1)	16 (88.9)	18 (100)	0.08
Not married	2 (66.7)	1 (33.3)	3 (100)	
Total	<b>4 (19.0)</b>	<b>17 (81.0)</b>	<b>21 (100)</b>	
Educational qualification				
Formal	4 (50.0)	4 (50.0)	8 (100)	0.012*
Informal	0 (0)	13 (100)	13 (100)	
Total	<b>4 (19.0)</b>	<b>17 (81.0)</b>	<b>21 (100)</b>	
Ethnicity				
Hausa/Fulani	4 (23.5)	13 (76.5)	17 (100)	0.5
Others	0 (0)	4 (100)	4 (100)	
Total	<b>4 (19.0)</b>	<b>17 (81.0)</b>	<b>21 (100)</b>	
Nationality				
Nigerian	4 (21.1)	15 (78.9)	19 (100)	1.0
Non-Nigerian	0 (0)	2 (100)	2 (100)	
Total	<b>4 (19.0)</b>	<b>17 (81.0)</b>	<b>21 (100)</b>	

\*Statistically significant.

Fishers exact test was used to calculate *P*-values.

TABLE 6: Respondents' knowledge of risk factors of oral cancer.

Risk factor	Frequency (%)		Total
	Yes	No	
Excessive exposure to sunlight	2 (9.5)	19 (90.5)	21 (100)
Eating hot, spicy foods	1 (4.8)	20 (95.2)	21 (100)
Regular consumption of alcohol	6 (28.6)	15 (71.4)	21 (100)
Tobacco use	6 (28.6)	15 (71.4)	21 (100)
Frequent biting of the cheek or lip	1 (4.8)	20 (95.2)	21 (100)
Poor nutrition (lack of vegetables and fruits)	2 (9.5)	19 (90.5)	21 (100)
Previous oral cancer lesions	4 (19.0)	17 (81.0)	21 (100)
Old people	0 (0)	21 (100)	21 (100)
Dirty mouth	3 (14.3)	18 (85.7)	21 (100)
Poorly fitting dentures	1 (4.8)	20 (95.2)	21 (100)
Family history	1 (4.8)	20 (95.2)	21 (100)
Occupational hazard	4 (19.0)	17 (81.0)	21 (100)
Spiritual/demonic attack	21 (100)	0 (0)	21 (100)

and dirty mouth (14.3%). Responses to risk factors are as shown in Table 6.

Questions were also asked on the signs and symptoms of oral cancer, including presence of a chronic nonhealing ulcer, a lump in the cheek that can be felt with the tongue, white or red patches on intraoral soft tissues, soreness in the throat, dysphagia or difficulty chewing, numbness of tongue

or some other mouth parts, abnormal neck swelling, burning sensation in the mouth (dysgeusia), dry mouth, and bleeding from the gums.

Burning sensation was the most identified symptom (33.3%), while soreness or a feeling of something being caught in the throat was the least identified (4.8%). Respondents' knowledge of signs and symptoms is as shown in Table 7.

TABLE 7: Respondents' knowledge of signs and symptoms of oral cancer.

Sign/symptom	Frequency (%)		
	Yes	No	Total
A sore in the mouth that bleeds easily and does not heal	6 (28.6)	15 (71.4)	21 (100)
A lump or thickening in the cheek that can be felt with the tongue	6 (28.6)	15 (71.4)	21 (100)
A white or red patch on the gums, tongue, or lining of the mouth	4 (19.0)	17 (81.0)	21 (100)
Soreness or a feeling that something is caught in the throat	1 (4.8)	20 (95.2)	21 (100)
Difficulty chewing or swallowing	2 (9.5)	19 (90.5)	21 (100)
Numbness of the tongue or other area of the mouth	4 (19.0)	17 (81.0)	21 (100)
An abnormal swelling in the neck	4 (19.0)	17 (81.0)	21 (100)
Burning sensation	7 (33.3)	14 (66.7)	21 (100)
Loss of taste	2 (9.5)	19 (90.5)	21 (100)
Dry mouth	3 (14.3)	18 (85.7)	21 (100)
Bleeding from the gums	3 (14.3)	18 (85.7)	21 (100)

TABLE 8: Respondents' choice of patient referral.

Choice of patient referral	Yes <i>n</i> (%)	No <i>n</i> (%)
Doctor	5 (23.8)	16 (76.2)
Dentist	12 (57.1)	9 (42.9)
Buying products	13 (61.9)	8 (38.1)
Self-care	17 (81.0)	4 (19.0)
Rituals	3 (14.3)	18 (85.7)

Interestingly, all the 4 herbalists who had adequate knowledge of oral cancer correctly identified chronic alcohol usage, tobacco use, previous oral lesions, and occupational hazard/exposure as risk factors of developing oral cancer. Knowledge of other risk factors, including symptoms, was more equivocal.

**3.3. Perception.** Perception questions included *knowledge-related opinions*, from which 4 (19%) strongly agreed that early detection would improve the chances of successfully treating oral cancers. Unsurprisingly, these were those whose knowledge about oral cancer turned out as "adequate." These were also the only four who disagreed with the assertion that the development of cancer was a matter of chance and so nothing could be done to avoid it. Seventeen (81.0%) of the respondents agreed with this.

Slightly more than half (11 (52%)) thought that life changes could be made to reduce the risk of developing oral cancer, but all the respondents felt a spiritual or demonic attack could cause oral cancer. Finally, none of the respondents had ever heard of an oral cancer examination as indicated in Table 4.

When respondents were asked "How concerned are you about oral cancer?" only 11 (52.4%) were "very" concerned, 6 (28.6%) were "somewhat" concerned, and the remaining claimed not to be concerned. Sixteen (76.2%) indicated that they would refer a patient with a mouth sore to a doctor, 12 (57.1%) indicated a dentist, and 17 (81.0%) indicated that they would attempt some "self-care." Only 3 (14.3%) indicated that they would suggest some rituals (Table 8).

Only 12 (57%) of the respondents desired some further information or teaching on oral cancer even though all but one of the respondents (95%) felt their knowledge about

prevention and detection of oral cancer was insufficient. Of those who wanted further information, the most frequently desired format of teaching was via information packs (50%), as opposed to lectures (33%) and seminars (17%).

#### 4. Discussion

The cultural nature of some African communities such as ours has allowed a deep influence of traditional caregivers on people's healthcare-seeking behavior. Many a times they are the first option of care and may remain the only option for some patients [35]. Their practice usually involves combination of healing techniques; some are visible such as the use of herbs, while others involving the use of spiritual or divine means are invisible. Many a times though, these traditional healers have no standards in their practice, albeit, they are highly respected and patronized.

The lopsided distribution of oral health professionals (dentist-patient ratio of 1:260,000) might have also encouraged the patronage of traditional healers and herbalists by the people of the state. Although they are very popular, there is no central registry for traditional healers and herbalists practicing in the state. This was a limitation in this present study.

The level of the awareness about oral cancer (33.3%) among traditional healers is abysmally low. Traditional healers are considered the first point of call when seeking for holistic healthcare in our setting and the low awareness about oral cancer may be partly responsible for late presentations as commonly seen in our clinics. Worse still, only 4 (19.0%) of the traditional healers had knowledge of oral cancer.

With such low levels of awareness among traditional caregivers, patients would be badly managed and only present at the terminal stages of their disease. Late diagnoses have been attributed to the public's lack of knowledge about the risk factors and early signs of oral cancer [45, 46].

However, much higher levels of awareness (72%) were reported among dental patients in a southwestern tertiary hospital in Nigeria [47] and a comparable level of awareness was noted in a population-based study in North Carolina [48] in the United States, where 86% of the respondents had heard of oral cancer and 56% ( $n = 1096$ ) had knowledge

of the risk factors. The low level of awareness noted in our study may be connected to the fact that the sample size was small and the traditional healers being studied probably had lower educational qualifications, as awareness has been noted to be linked to educational status [47]; it is not surprising that educational qualification of the traditional healers and herbalists played a significant role in their level of knowledge of oral cancer ( $P = 0.012$ ).

Our study supports a generally held notion that traditional healers regard themselves as knowledgeable in the understanding and treatment of diseases. This was typified by the choice of referral that most of the traditional healers would recommend for a patient with oral cancer. Most of them would prescribe care that would be given by them (81.0%). Even though the majority of them (95.2%) judged their knowledge as inadequate, a much lesser proportion (57.1%) desired more information to be given to them on oral cancer.

The fact that all the traditional healers and herbalists enrolled in this study believed that spiritual or demonic attack is responsible for oral cancer is a clear reflection of the religious and cultural beliefs of our society. Culturally sensitive but scientific means of health-educating the traditional healers in different settings would have to be devised to overcome barriers of ignorance and the feeling of self-sufficiency in patient care. An untapped potential, however, may be integrating the practice of traditional healers into biomedical care, as traditional medicine remains culturally acceptable, available, and accessible to many Africans [35].

Such integration has been found to be useful in the comprehensive management of HIV/AIDS and other STIs particularly in rural settings where proximity to traditional healers prompted early referral to medical care [35].

In summary, building the capacity of traditional healers and herbalists by improving their knowledge and awareness of oral cancer and its risks factors would remain vital in the prevention and early detection of oral cancer. The importance of early detection and referral to equipped healthcare facilities for appropriate care must also be emphasized.

### Conflict of Interests

The authors report no conflict of interests. The authors alone are responsible for the content and writing of the paper.

### Authors' Contribution

Dr. Adebola was responsible for conception and design of the study, as well as study supervision; Dr. Bamgbose coordinated the paper writing and review and provided administrative support; Dr. Adeoye developed the methodology, acquired the data, and analyzed the result; Dr. Amole also supplied technical and material support.

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