

Quackery as a Cause of Maxillofacial Infections and Its Implications

Abstract

Background: In recent times, the prevalence of quackery in oral and maxillofacial practice has become rampant with complications, one of which is odontogenic infections. This study was aimed to identify how common quackery is among our patients with odontogenic infections and the outcome of the patients. **Materials and Methods:** The study was a descriptive cross-sectional study of all patients presenting with odontogenic infections seen at the accident and emergency unit and the oral and maxillofacial surgery clinics of a tertiary hospital in North Central Nigeria from January 2017 to December 2021. Information obtained included sociodemographic characteristics, presenting complaints, duration of illness, prehospital care, diagnosis, duration of hospital stay, where the patient was first managed, what is the “doctor/dentist” status, and outcome. **Results:** A total of 237 patients were recruited with a male to female ratio of 1:1.3. The commonest presenting complaints were toothache and jaw swelling with patients been ill for up to 2 weeks before presenting. About 41.8% of the patients have a co-existing health condition, and 46.4% of the patients had tooth extraction by a quack, with 82.7% taking antibiotics prescribed by a chemist before presentation. About 11.0% of the patients died; 96.2% of those that died had their tooth extracted by quacks. Patients with preexisting health conditions and preadmission tooth extraction were more likely to die with odds ratio (OR) = 2.230; 95% confidence interval (CI) = 1.06–4.71 and OR = 28.9; 95% CI = 3.97–209.6, respectively. **Conclusion:** Quackery is very common in our society. The odds of death are increased in patients with odontogenic infection if the patient has a preexisting health condition and even more significant if they had their tooth extracted by quacks.

Keywords: Nigeria, oral surgery, prevalence, quackery, tooth extraction

Introduction

There are currently only 4060 registered dentists in Nigeria.^[1] The population of Nigeria according to the United Nations data was about 206 million in 2020,^[2] giving a ratio of one dental surgeon to about 51,000 people, while the World Health Organization recommendation is 1:7500.^[3] This has led to a huge gap in service providers especially in the rural areas. This gap in dental surgeons to patient ratio has created room for quacks to move in and cause untold hardship to the unsuspecting dental patient.

A quack is a person who pretends professionally or publicly to have skills, knowledge, or qualifications he or she does not possess, and individuals in this category are on the rise.^[4-6] Quackery is defined as “the fraudulent misrepresentation of one’s ability and experience in the diagnosis and treatment of disease or of the effects to be achieved by the treatment offered.”^[7]

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In a study carried out in Nepal,^[4] quackery has been reported to be rampant with attendant transmission of infections and diseases among other things. Odontogenic infections, which are infections that originate in the teeth and/or their supporting tissues, are responsible for a majority of head and neck infections.^[5] The incidence of which is on the rise because of quackery.^[4,5]

Chauhan *et al.*^[6] describe the profession of dentistry as being under threat because of the increase in the practice of quacks worldwide. Mattoo *et al.*^[8] also reported that dental quacks have been found to be working even in luxurious cities and towns especially in low-income countries. They^[8] reported that the elderly, the less educated, and individuals from low socioeconomic class were the main victims.

The magnitude of this problem in Nigeria is not clear as there are no journal publications on quackery and the dental practice. Therefore, this study was carried out to determine the number of patients seen at the dental clinic with odontogenic infections that have been

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treated previously by quacks, the types of complications they present with, and what the outcome of the patients were.

The information obtained from this study will provide baseline data for policy makers to use as evidence to enable them tackle the issue of quackery on the both short term and long term.

Materials and Methods

The study was an analytical cross-sectional study of patients with odontogenic infections seen and admitted into the dental and maxillofacial surgery wards from the accident and emergency unit as well as the dental and maxillofacial surgery clinics of a teaching hospital in North Central Nigeria over a 5-year period (January 2017–December 2021).

All patients with odontogenic infection who consented to participate in the study were recruited. Where patient could not provide the necessary information, information was obtained from the care givers. Patients from whom relevant information could not be obtained were excluded from the study.

Information obtained with the aid of an interviewer-administered questionnaire included sociodemographic characteristics, presenting complaints, duration of illness, prehospital care, diagnosis, duration of hospital stay, and outcome. Ethical approval was obtained from the hospital ethics committee, and informed consent was obtained from the patients.

Data analysis

The data obtained were entered into SPSS version 23 and analysed. Frequency tables were used to present the sociodemographic and clinical characteristics of the study population, while chi-squared test was used to determine the association between preexisting health conditions, prehospital tooth extraction, and patient outcome. The odds of death from odontogenic infections in patients with preexisting health conditions or prehospital tooth extraction were also calculated.

Then among the patients that died, the percentage of those who were managed by quacks was then calculated.

Results

A total of 237 patients were recruited for the study with a male to female ratio of 1.3:1 and a mean age of 35.6 years. Other sociodemographic characteristics of the study population are presented in Table 1.

The commonest presenting complaint was toothache and jaw swelling while almost half of the patients were ill for over a week before they presented to the hospital. The most common diagnosis was descending cervicofacial cellulitis, and as high as 41.8% of the patient had a preexisting medical condition [see Table 2].

Of the patients seen, 46.4% had their tooth extracted before presentation, of which 90% were at a chemist or at home, with 82.7% of the patients having received some form of antibiotics before presentation. Up to 13.5% of the patients spent over

Table 1: Sociodemographic characteristics of the study population (N = 237)

Variables	Frequency (%)	Mean ± SD
Age (years)		35.6±18.2
1–10	20 (8.4)	
11–20	44 (18.6)	
21–30	36 (15.2)	
31–40	63 (26.6)	
41–50	16 (6.8)	
51–60	36 (15.2)	
61–70	18 (7.6)	
>70	4 (1.7)	
Sex		
Male	136 (57.4)	
Female	101 (42.6)	
Educational qualification		
Primary	30 (12.7)	
Secondary	121 (51.1)	
Tertiary	74 (31.2)	
None	12 (5.1)	
Occupation		
Professional	0 (0)	
Semi-professional	19 (8.0)	
Medium grade civil servants and similar cadre	46 (19.4)	
Junior civil servant or similar cadre	41 (14.3)	
Unemployed	109 (46.0)	
Others	22 (9.3)	
Marital status		
Married	169 (71.3)	
Single	65 (27.4)	
Widowed	3 (1.3)	

SD = standard deviation

4 weeks on admission before they were stable enough to go home, and 11.0% of the patients died [Table 3].

Chi-squared test of association showed that there was a significant association between prehospitalisation tooth extraction and odontogenic abscess formation with $P = 0.007$ [Table 4].

There was a significant association between the presence of a preexisting medical condition and patient's outcome as well as prehospital tooth extraction and patient outcome. A patient with a preexisting health condition was about twice more likely to die from odontogenic infections than a patient without a preexisting health condition, whereas a patient with prehospital tooth extraction was about 29 times more likely to die from odontogenic infections than those who had not extracted their teeth outside the hospital [Tables 5 and 6].

Discussion

This study recruited a total of 237 patients over the study period. The mean age of patients with odontogenic infections was 35.6 years, and the male to female ratio was 1.3:1. This

Table 2: Clinical characteristics of the study population

Variables	Frequency (%)
Presenting complaints	
Toothache	6 (2.5)
Fever	3 (1.3)
Toothache + fever	14 (5.9)
Jaw swelling	92 (38.8)
Toothache + jaw swelling	101 (42.6)
Jaw swelling + difficulty breathing	18 (7.6)
Toothache + chest ulcer	3 (1.3)
Duration of illness before presentation (days)	
1–7	94 (39.7)
8–14	106 (44.7)
15–21	11 (4.6)
21–28	0 (0)
>28	26 (11.0)
Clinical diagnosis	
Submandibular abscess	47 (19.8)
Ludwig's angina	50 (21.1)
Ludwig's angina with cervicothoracic spread	16 (6.8)
Necrotising fasciitis	33 (13.9)
Descending cervicofacial cellulitis	83 (35.0)
Buccal space abscess	4 (1.7)
Dento-alveolar abscess	4 (1.7)
Preexisting health conditions	
Yes	99 (41.8)
No	138 (58.2)
Type of preexisting conditions (<i>n</i> = 99)	
Diabetes mellitus	51 (51.5)
Hypertension	26 (26.3)
Diabetes + hypertension	11 (11.1)
Hypertension+ chronic liver disease	3 (3.0)
Hepatitis B infection	4 (4.0)
Diabetes + hypertension + hepatitis B	4 (4.0)

is similar to the study from Germany^[9] where the mean age of patient with odontogenic infections was 34.8 years. Another study from Brazil^[10] also found that odontogenic infections occurred more in males and was commonest in the age group of 31–40 years. Sun *et al.*^[11] found odontogenic infection to be common in males and the mean age affected was 39.8 years, whereas the study by Babaiwa *et al.*^[12] found that odontogenic infections were common in the age group of 20–29 years. The reason for these observed differences in the age group of presentation was not stated.

This study found toothache and jaw swelling were the commonest presenting complaints. This finding is similar to the study by Goncalves *et al.*^[13] who documented toothache and facial swelling as the common presentation in odontogenic infections. Most of the patients in this study also presented after the first week of the onset of symptoms. This finding is in keeping with the pathophysiology of odontogenic infections, whereby pain is usually the first symptom, and by the fifth day, abscess formation is already present.^[14] Vytla and Gebauer^[15] documented that the research of medical databases to identify evidence-based guidelines for the management of odontogenic infections showed that patients who delayed presentation for more than 1 week

Table 3: Other clinical characteristic of the study population (N = 237)

Variables	Frequency (%)
Preadmission tooth extraction	
Yes	110 (46.4)
No	127 (53.6)
Place of preadmission tooth extraction (<i>n</i> = 110)	
Home	47 (42.7)
Chemist	53 (47.4)
Peripheral centre	11 (10.0)
Preadmission antibiotic use	
Yes	196 (82.7)
No	41 (17.3)
In-hospital incision and drainage	
Yes	194 (81.9)
No	43 (18.1)
Quantity of pus drained in milliliters (<i>n</i> = 194)	
1–49	35 (18.0)
50–99	53 (27.3)
100–149	83 (42.8)
150–199	23 (11.9)
Duration of hospital admission (days)	
1–7	51 (21.5)
8–14	77 (32.5)
15–21	63 (26.6)
22–28	14 (5.9)
>28	32 (13.5)
Outcome	
Discharged	211 (89.0)
Died	26 (11.0)

were found to be significantly more likely to have a spreading deep neck infection. This further supports why descending cervicofacial cellulitis was the most common diagnosis.

This study found that 41.8% of the study population had a co-existing medical condition. Shah *et al.*^[16] in their study demonstrated that underlying systemic diseases in odontogenic infections predispose the patients to life-threatening complications. Some other studies^[15,17] have also shown that a major factor contributing to the spread of odontogenic infections includes conditions such as diabetes, corticosteroids use, smoking, human immunodeficiency virus (HIV), alcoholism, malignancy, malnutrition, and renal disease among others.

Almost half of the patient seen with odontogenic infections had their teeth extracted before presentation to the teaching hospital, and for those that had prehospitalisation tooth extraction, 90% were carried out at home or in a chemist by quacks. About 82% of the patients had already developed abscesses that needed drainage by the time they presented to the hospital. This is not surprising because most quacks do not use sterilised instruments in addition to conducting the extractions in unhygienic environments, thereby predisposing the patients to infection.^[4,6]

About 11% of the patients seen died and the odds of dying from odontogenic infections were found to be almost two

Table 4: Test of association between prehospitalisation tooth extraction and odontogenic abscess formation

Variables		Presence of abscess		Total
		Yes	No	
Prehospitalisation tooth extraction	Yes	98	12	110
	No	96	31	127
Total		194	43	237

$P = 0.007$

Table 5: Preexisting conditions versus outcome

Variables		Outcome		Total
		Discharged	Died	
Preexisting health conditions	Yes	83	16	99
	No	128	10	138
Total		211	26	237

$P = 0.03$; odds ratio = 2.230; 95% confidence interval = 1.06–4.71

Table 6: Prehospitalisation tooth extraction versus outcome

Variables		Outcome		Total
		Discharged	Died	
Prehospitalisation tooth extraction	Yes	85	25	110
	No	126	1	127
Total		211	26	237

Fisher exact <0.00; odds ratio = 28.9; 95% confidence interval = 3.97–209.6

times more likely in patients with an underlying medical condition and almost 29 times more likely in patients who had prehospitalisation tooth extraction. In a study carried out in Taiwan,^[18] about 67% of the patients had an underlying medical condition and sepsis was reported as the commonest cause of death. A study carried out in Ghana^[19] recorded a mortality rate of 5.8%. The higher mortality observed in this study was most likely as a result of the fact that most of the patients presented late after complications had set in.

Conclusion

Quackery is very common in our society. The odds of death are increased in patients with odontogenic infections if the patient has a preexisting health condition and even more significant if they had their tooth extracted by quacks.

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Conflicts of interest

There are no conflicts of interest.

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