

# Cross-sectional study of dental cellulitis and associated factors in Kinshasa City, Democratic Republic of the Congo

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## ABSTRACT

### Introduction

The prevalence of dental cellulitis remains high in developing countries like the Democratic Republic of the Congo, and its epidemiology varies by region and country. Therefore, they represent a significant public health problem.

### Purpose

The purpose of this cross-sectional study was to assess the status of dental cellulitis in the communities of Kinshasa to improve its management.

### Methods

An analytical cross-sectional study was conducted within the healthcare system of the Archdiocese of Kinshasa through the networks of the Bureau des Œuvres Médicales, specifically at the grassroots ecclesial communities, from March 1 to March 31, 2020, and then from September 1 to December 31, 2020. The study population consisted of individuals with oral and dental pathologies who responded to the Community Health Workers' call for screening.

### Results

A total of 512 individuals suffering from oral and dental pathologies were included in the study, of which 176 had dental cellulitis. The prevalence of dental cellulitis was 34.4%. Low socioeconomic status, poor oral hygiene, diabetes, alcohol exposure, self-medication with antibiotics and NSAIDs, and traditional medicine were factors associated with its occurrence. Dental causes accounted for 86.4% of dental cellulitis cases, with dental caries and its complications being the most incriminated (79.6%).

### Conclusion

Dental cellulitis is common among oral and dental pathologies in the communities of Kinshasa. Dental caries and its complications are the primary determinants, and low socioeconomic status, poor oral hygiene, NSAIDs, antibiotics, diabetes, alcohol exposure, and traditional medicine are associated factors in their occurrence. This study will serve as a database to help policymakers better tailor strategies to combat oral health conditions in general, and dental cellulitis.

## INTRODUCTION

Dental cellulitis (COD) refers to infections of the celluloadipose space in the face and neck originating from the tooth or the surrounding structures (Keita et al., 2008). They constitute one of the emergencies that dentists encounter in their daily practice (Kaij et al., 2012). They are common worldwide, and their prevalence remains high in developing countries (Mlata et al., 2012) due to a lack of financial resources and the absence of an adequate healthcare system. They primarily affect young individuals, with a male predominance, as men sometimes tend to be more negligent regarding their oral hygiene compared to women.

The microorganisms involved in COD originate from the aerobio-anaerobic commensal flora of the oral cavity (Marsot-Dupuch et al., 2003). COD is exacerbated by poor oral hygiene (POH) and certain conditions such as immunosuppression (Ghammam et al., 2019; Zaghré et al., 2016).

The poor prognosis of COD is multifactorial (traditional medicine, ignorance, poverty, and lack of awareness) because patients often seek medical attention late and present with an advanced stage of the disease, making management difficult (Togo et al., 2019).

According to literature data, COD is characterized in sub-Saharan Africa in general, and in Kinshasa in particular, by its high frequency, extensive spread, and poor prognosis (Maiga, et al., 2020).

Most available studies in Africa, including the Democratic Republic of the Congo (DRC), on COD are descriptive cross-sectional hospital-based studies, while analytical cross-sectional studies are rare. The most recent one in Kinshasa was conducted by Bobe et al. in 2019, which determined the hospital-based frequency of COD. This study also described the epidemiological, clinical, and bacteriological profiles, and identified associated factors. All of these studies indicated that late consultations by COD patients at medical facilities were attributed to low socioeconomic status (SES), and a lack of financial means was identified as the primary reason limiting patient access to hospitals. This suggests that, due to a lack of financial means, other patients may still not seek care at medical institutions. However, there is a lack of available data on

COD in the community setting. This motivated the current study, which aimed to assess the status of dental cellulitis in the communities of Kinshasa to improve its management.

## METHODS

This is an analytical cross-sectional study carried out between 1 March and 31 March 2020, and between 1 September and 31 December 2020. The Episcopal Health System of Kinshasa is provided by the network of the Bishop's Office for Medical Works (BDOM) as a comprehensive study site, particularly at the basic level of the community of living religion (CEVB). The BDOM network was chosen because it serves the largest number of people living in Kinshasa.

The BDOM network aims to return as many people as possible who have been tested to the hospital (Kennedy, 2010). The study is conducted using the monthly calendar set by BDOM through the Community Relay (RECO), which has the role of raising public awareness through CEVB meetings in neighborhoods and streets on BDOM's medical activities and disease detection campaigns.

**Table 1:**  
Data collection sites

Region (512)	Communes (20)	Survey location (Parish)
Kin-Centre (214)	BUMBU	St Antoine
	NGIRI-NGIRI	St Pierre
	KISENCO	St Etienne
	MAKALA	St Sauveur
	NGABA	St Adrien
	KALAMU	St Fidèle
Kin-Ouest (116)	MATETE	St trinité et St Madeleine
	LEMBA	St Benoit
	LIMETE	St Raphael, St Jean Apôtre et St Dominique
	LINGWALA	Notre Dame
	KITAMBO	St Françoise de Sales
	KASAVUBU	Christ-Roi
	BARUMBU	St jean Baptiste
	NGALIEMA	St Luc
	KINSHASA	St Pierre
	MONT-NGAFULA	St Tharcisse
NSELE	St Isidore, St Bruno, St Lucie et St Denis	
Kin-Est (182)	N'DJILI	St Thérèse
	KIMBANSEKE	St Mbagu, St Marthe et St Frederick
	MASINA	St Isabelle, St Barthelemie et Cœur Immaculé de Marie

**Table 1** shows the data collection sites for this study.

The selection of screening sites was dictated by the BDOM structure based on an already set annual calendar. The population studied was determined by the number of people with oral pathologies diagnosed during the study period. People who were diagnosed with COD after a clinical examination and agreed to participate in the study after giving informed consent (they themselves or under the age of 18 with the participation of a guardian or companion) were included; people who were unable to provide all the variables of the study were excluded.

Before starting the study, we contacted the BDOM managers via the RECOs to plan the field activities. For this study, we provided the RECO with two dentists (interviewers) to raise awareness of oral pathologies in the field.

### *Awareness*

According to RECO, awareness is raised at two levels:

- i. Churches are organized every Sunday during church services, with a press release read by the priest of the parish inviting believers to be scrutinized for pathological diseases planned by the BDOMs. Screening covers a variety of diseases (oral, gastrointestinal, eye, surgical, and diabetes).
- ii. In communities, depending on the CEVB to be tested, community workers accompanied by two dentists for oral and dental pathologies held a daily Tuesday awareness session on streets. These awareness-raising sessions communicated the date, location, and time of the screening.

### *Screening*

The screenings took place on Wednesdays of each week in parishes and schools, according to the internal organization of the CEVB, according to the BDOM calendar.

### *Sample*

The sample in this study is comprehensive, and the size of the sample was determined by the number of people suffering from COD during the study period.

### *Epidemiological features*

The selected epidemiological features were socio-demographic parameters and causes of COD.

The following socio-demographic variables were selected:

- Gender: male and female.

- Age: all ages.
- Marital status: married, single, widowed, and divorced.
- Education levels: illiterate, primary, secondary, and higher education.
- Occupation: Higher education/student, shopkeeper, public servant, retired, and unemployed.
- Religion: Catholic, Protestant, Islamic, Kimbanguist, Evangelical, and others.
- Residence: Mont Amba, Funa, Lukunga and Tshangu.
- Social-economic level: low, medium, and high.

Other features were:

- Causes of COD - determining causes: Dental entry points (dental caries and complications, dental injuries, and therapy); The peri or iatrogenic (periodontal infection and accident of oral eruption).
- Contributing causes: bad oral hygiene, diabetes history, HIV, pregnancy, alcohol and/or tobacco consumption, over 60 years of age, self-treatment, and radiation therapy.

### *Education*

Education is divided into 4 categories:

- a) Illiterate: those who have not attended Western schools.
- b) Primary education: A person who attended primary school.
- c) Secondary education: a person who has attended secondary or vocational school.
- d) Higher education: people who have obtained a tertiary education.

### *Tobacco exposure*

Tobacco exposure was defined as regular smoking at least 30 days before the present study, regardless of the number of cigarettes.

### *Alcohol dependence*

Alcohol dependence was defined as regular alcohol consumption for at least 30 days before the current study, regardless of the number of bottles.

### General conditions

General conditions were classified into three categories:

- a) Good general conditions: a lucid, consistent person with a non-suffering appearance.
- b) Conscious people with a slightly painful face: General condition satisfied.
- c) Poor general condition: feeling unwell, asthenic, and suffering from dyspnoea.

### Level of oral hygiene

The level of oral hygiene was classified into three categories:

- i. Good: no soft deposits and no tartar in the mouth cavity.
- ii. Satisfactory: People with soft deposits and light tartar in their mouths.
- iii. Poor: people with general heavy tartar and/or soft deposits in the oral cavity.

### Self-medication

Self-medication is defined as taking prescription drugs without any prescription.

### Traditherapy

Traditherapy was considered to be the use of indigenous medicinal products.

### Kinshasa Community

All persons present outside the medical facilities of the city of Kinshasa during the study period were considered to be part of the Kinshasa community.

### Determination of socio-economic status

The socio-economic status of individuals was determined using a scoring system that considered their assets and housing characteristics based on the 2014 Demographic and Health Survey (DHS, 2014) (Rockville et al., 2015). The socio-economic level was categorized as follows:

- High socio-economic level: Score > 9;
- Medium socio-economic level: Score between 4 and 8;
- Low socioeconomic level: Score between 0 and 3.

### Interviewers' training

The interviewers received training at two levels:

The first level involved community workers from the RECO structure. This training aimed to explain the study's

objectives and the specific pathology being investigated, to raise community awareness.

The second level of training included six dentists. This training covered ethical guidelines, medical history-taking, completion of survey forms, and data-collection techniques.

An evaluation test was conducted to assess the understanding and performance of each community worker and dentist, with those not meeting the standards being eliminated. The principal investigator conducted the training.

### Data collection

Data were collected during the screening sessions; at which time a clinical examination was performed. Individuals were seated in chairs, and the examiner used a headlamp. The exobucal examination aimed to identify painful and inflammatory swelling in the peri-maxillary/peri-mandibular and/or cervico-facial/thoracic areas, considering the presence of collection, fluctuation, or crepitation upon palpation.

The intraoral examination was conducted using disposable tongue depressors, a single-use mirror, and a single-use probe to detect dental or peri-dental infections. Individuals screened for COD or other oral pathologies received comprehensive care from the research team. Those with the financial means were referred for treatment based on their specific pathology. For individuals without financial means, the research team subsidized their treatment, and the SEMA dental practice was utilized as a reference point for their dental care.

### Data analyses

The data were entered and analyzed using Excel 2013 and SPSS 22.0 software packages. Descriptive statistics represented qualitative data as proportions and quantitative data as means  $\pm$  standard deviation. Analytical statistics involved the use of the chi-square test to compare two proportions and the student's t-test to compare two means. Logistic regression was employed for both single-variable and multi-variable analyses to investigate factors related to COD. Odds ratios (ORa) and their 95% confidence intervals (CIs) were used to quantify the strength of association between independent variables and the dependent variable (COD). In all conducted tests, a

significance threshold of  $P < 0.05$  was employed to determine statistical significance.

*Ethical considerations and conflicts of interest*

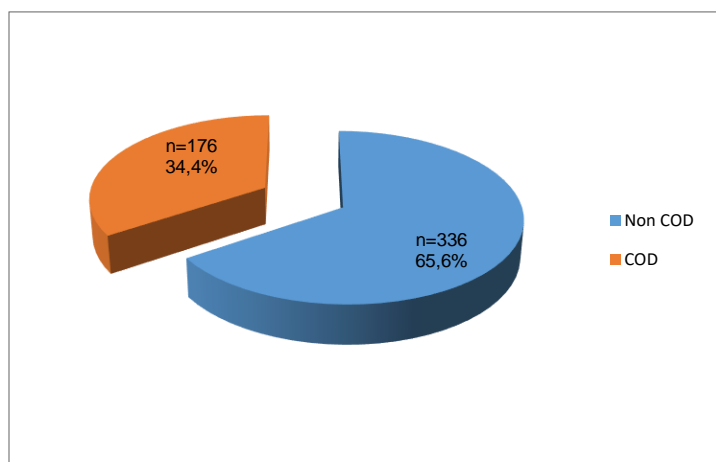
The study had obtained prior approval from the appropriate authorities, including the Oral and Maxillofacial Surgery Department, Faculty of Dental Medicine, University of Kinshasa, Kinshasa, Democratic Republic of the Congo, and the BDOM, as indicated by the reference letter number 032/CE-FMD/UNIKIN/CD. It was conducted in strict adherence to the principles of the Declaration of Helsinki. Individuals who underwent screening received subsidized treatment from the research team. No conflicts of interest were reported during this study.

**RESULTS**

*Prevalence of dental cellulitis in the communities of Kinshasa*

The prevalence of COD is shown in **Figure 1**. This shows that the prevalence of COD among people with oral pathologies in the communities of Kinshasa was 34.4%.

**Figure 1:**  
Prevalence of dental cellulitis in the communities of Kinshasa



(Legend: COD, Cellulitis of dental origin; APBD, Other oral pathologies)

**Table 2:**  
Socio-demographic characteristics of people suffering from COD and other oral pathologies (APBD)

	Whole group n=512	APBD n=336	COD n=176	P
<b>AGE GROUPS (years)</b>	43.3±21.1	41.9±20.7	40.0±20.8	0.328
<20	88(17.2)	55(16.4)	33(18.8)	
20-29	82(16.0)	56(16.7)	26(14.8)	
30-39	82(16.0)	51(15.2)	31(17.6)	
40-49	60(11.7)	36(10.7)	24(13.6)	
50-59	72(14.1)	46(14.3)	26(14.8)	
≥60	128(25.0)	92(27.4)	36(20.5)	
<b>SEX</b>				0.260

Male	204(39.8)	130(38.7)	74(42.0)	
Female	308(60.2)	206(61.3)	102(58.0)	
<b>MARITAL STATUS</b>				0.965
Married	203(39.6)	134(39.9)	69(39.2)	
Single	245(47.9)	161(47.9)	84(47.7)	
Divorced/widowed	64(12.5)	41(12.2)	23(13.1)	
<b>EDUCATION LEVEL</b>				0.548
Primary	128(25.0)	89(26.5)	39(22.2)	
Secondary	236(46.1)	151(44.9)	85(48.3)	
University	148(28.9)	96(28.6)	52(29.5)	
<b>OCCUPATION</b>				0.460
Liberal	204(39.8)	135(40.2)	69(39.2)	
Civil servant	80(15.6)	51(15.2)	29(16.5)	
No occupation	95(18.6)	68(20.2)	27(15.3)	
Student/pupil	133(26.0)	82(24.4)	51(29.0)	
<b>RELIGION</b>				0.333
Catholic	337(65.8)	215(64.0)	122(69.3)	
Protestante	77(15.0)	56(16.7)	21(11.9)	
Revival Church	61(11.9)	38(11.3)	23(13.1)	
Kimbanguiste	37(7.3)	27(8.0)	10(5.7)	
<b>NSE</b>				<0.001
Low	333(65.0)	203(60.4)	130(73.9)	
Medium	155(30.3)	110(32.7)	45(25.6)	
High	24(4.7)	23(6.8)	1(0.6)	
<b>DISTRICT</b>				0.189
Mont-Amba	188(36.7)	113(33.6)	75(42.6)	
Funa	33(6.3)	21(6.3)	11(6.3)	
Lukunga	110(21.5)	73(21.7)	37(21.0)	
Tshangu	182(35.5)	129(38.4)	53(30.1)	

**Table 2** shows the socio-demographic characteristics of patients suffering from COD and other oral pathologies (APBD). It shows that a significant difference was observed between people with COD and APBD, where COD was frequently found in people with low NSE.

**Table 3:**  
Determining causes of COD

Determining causes of COD	Frequency n=176	Percentage
<b>Decisive dental causes</b>	152	86,4
Dental caries and complications	140	79,6
Dental trauma	12	6,8
<b>Determining peri-dental causes</b>	24	13,6
Periodontal infections	22	12,5
Eruption accidents	02	1,1

**Table 3** shows the main causes of COD.

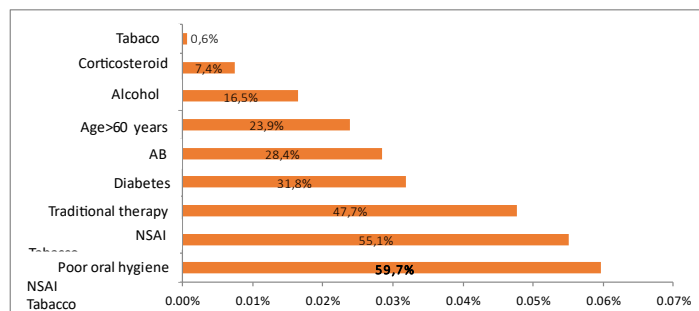


**Table 3** shows that the main causes of COD were dental (86.4%) and the most common cause were dental caries and its complications (79.6%).

*Causes of dental cellulitis*

The most common causes of COD are shown in **Figure 2**, which shows that poor oral hygiene (59.7%), self-medication with NSAIDs (55.1%), and traditional therapy (47.7%) were the most common.

**Figure 2:**  
Causes of COD



**Table 4:**  
Socio-demographic characteristics associated with COD

Variables	Univariate analysis		Multivariate analysis	
	P	OR (IC95%)	P	ORa (IC95%)
<b>Socio-demographic</b>				
<b>SEX</b>				
Male		1		1
Female	0.462	1.15 (0.79-1.67)	0.576	1.12 (0.75-1.66)
<b>AGE GROUPS</b>				
<20 years		1		1
20-29 years	0.170	1.50 (0.84-2.68)	0.500	1.48 (0.47-4.67)
30-39 years	0.629	1.16 (0.63-2.13)	0.837	1.10 (0.44-2.79)
40-49 years	0.165	1.52 (0.84-2.74)	0.321	1.45 (0.70-3.03)
50-59 years	0.121	1.67 (0.87-3.18)	0.155	1.72 (0.81-3.64)
≥60 years	0.333	1.35 (0.73-2.50)	0.548	1.23 (0.62-2.43)
<b>MARITAL STATUS</b>				
Married		1		1
Single	0.948	1.01 (0.68-1.50)	0.698	0.89 (0.49-1.61)
Divorced/widowed	0.775	1.09 (0.61-1.96)	0.226	1.54 (0.77-3.08)
<b>EDUCATION LEVEL</b>				
University		1		1
Secondary	0.411	0.81 (0.49-1.34)	0.313	1.29 (0.79-2.13)
Primary	0.861	1.04 (0.68-1.60)	0.157	1.55 (0.85-2.83)
<b>OCCUPATION</b>				
Student/pupil		1		1
No occupation	0.699	1.11 (0.65-1.91)	0.965	1.01 (0.55-1.84)
Civil servant	0.352	0.78 (0.46-1.32)	0.283	0.72 (0.39-1.31)
Liberal	0.397	1.22 (0.77-1.92)	0.527	1.28 (0.59-2.78)
<b>RELIGION</b>				
Catholic		1		1
Protestant	0.270	1.53 (0.72-3.27)	0.202	1.67 (0.76-3.68)
Revival Church	0.978	1.01 (0.42-2.45)	0.882	1.07 (0.43-2.66)

Kimbanguist	0.280	1.63 (0.67-3.99)	0.212	1.81 (0.71-4.62)
<b>NSE</b>				
High		1		1
Medium	0.411	0.81 (0.49-1.34)	0.313	1.29 (0.79-2.13)
Low	0.009	14.73 (1.97-19.38)	0.008	15.78 (2.03-122.51)
<b>Constant</b>	-	-	0.000	0.016

**Table 4** shows the socio-demographic characteristics (%) associated with CODs.

Odds Ratio (ORa) is used to measure the strength of association between two variables in epidemiological or statistical studies. The results of this study indicate that low socioeconomic status (ORa 15.78, CI [2.03-122.51], P=0.008) was the only sociodemographic factor associated with the occurrence of COD (Chronic Orofacial Diseases). In other words, patients with a low socioeconomic level were 16 times more likely to develop COD. Additionally, this work also revealed that MHBD (ORa 2.03, CI [1.06-3.89], P=0.033), self-medication with antibiotics (ORa 9.23, CI [3.37-19.65], P<0.001), and NSAIDs (Non-Steroidal Anti-Inflammatory Drugs) (ORa 9.86, CI [2.70-12.51], P<0.001), diabetes (ORa 7.12, CI [2.05-10.26], P<0.001), alcohol exposure (ORa 4.22, CI [1.75-7.19], P=0.011), and traditional medicine (ORa 8.19, CI [3.63-12.54], P<0.001) were independently associated with the occurrence of COD. These results inform us that patients who chose self-medication with NSAIDs had a 10-fold higher risk of developing COD, those who practiced self-medication with antibiotics had a 9-fold higher risk of developing COD, patients who opted for traditional medicine had an 8-fold higher risk of developing COD, patients with a history of diabetes had a 7-fold higher risk of developing COD, patients exposed to alcohol had a 4-fold higher risk of developing COD, and patients with poor oral hygiene had only a 2-fold higher risk of developing COD.

**Table 5:**  
Causes associated with the occurrence of dental cellulitis

Variables	Univariate analysis			Multivariate analysis		
	B	P	OR (IC95%)	B	P	OR (IC95%)
<b>MHBD</b>						
No			1			1
Yes	1.352	<0.001	3.86 (2.63-5.68)	0.708	0.033	2.03 (1.06-3.89)
<b>Diabetes</b>						
No			1			1
Yes	3.947	<0.001	5.80 (1.59-8.59)	3.300	<0.001	7.12 (2.05-10.26)

<b>Alcohol</b>							
No			1				1
Yes	3.4 95	<0.0 01	3.95 (1.76- 9.88)	2.41 7	0.011	4.22 (1.75- 7.19)	
<b>AB</b>							
No			1				1
Yes	4.1 94	<0.0 01	6.27 (2.89- 12.40)	2.95 7	<0.001	9.23 (3.37- 19.65)	
<b>AINS</b>							
No			1				1
Yes	4.6 24	<0.0 01	5.91 (2.63- 9.35)	3.68 5	<0.001	9.86 (2.70- 12.51)	
<b>CORTIC OïD</b>							
No			1				1
Yes	2.5 89	<0.0 01	3.32 (1.97- 5.97)	0.97 3	0.437	2.64 (0.23- 3.83)	
<b>TRADIT HERAPY</b>							
No			1				1
Yes	4.1 02	<0.0 01	6.44 (2.38- 11.53)	3.33 9	<0.001	8.19 (3.63- 12.54)	
<b>Constant</b>	-	-	-	-	0.785	0.001	
				8.20 3			

**Table 5** shows the Causes associated with the occurrence of dental cellulitis.

**Table 5** shows that MHBD (ORa 2.03, CI [1.06-3.89], P= 0.033), self-medication with ABs (ORa 9.23, CI [3.37-19.65], P <0.001), and NSAIDs (ORa 9.86, CI [2.70-12.51], P <0.001), diabetes (ORa 7.12, CI [2, 05-10.26], P <0.001), exposure to alcohol (ORa 4.22, CI [1.75-7.19], P = 0.011), and traditherapy (ORa 8.19, CI [3.63-12.54], P <0.001), were the factors independently associated with the occurrence of COD.

## DISCUSSION

The objective of this study was to assess the prevalence of dental cellulitis in the communities of Kinshasa and identify factors for improving its management. Our findings demonstrate that COD is among the most common oral pathologies in community settings in Kinshasa, which differs from hospital-based studies, confirming that community prevalence varies from hospital-based prevalence. Thus, it represents a significant public health concern. However, comparing our results with other studies is challenging due to methodological and contextual differences. Nevertheless, our results affirm that COD is a global issue, with persistently high prevalence in developing countries (Illé et al., 2018). In comparison with

a study conducted by [Bobe et al. \(2019\)](#), which reported a hospital-based prevalence of 12.5%, our prevalence is higher, indicating that a considerable number of individuals still do not seek medical care. This may be attributed to financial constraints, limiting their access to medical services.

Our study revealed similar socio-demographic profiles between individuals with COD and other oral pathologies in terms of age, sex, education level, religion, and place of residence. However, a significant difference was observed, with COD being more prevalent in individuals with low socioeconomic status (low SES) (73.9%, p<0.001). These findings align with studies by [Bissa et al. \(2019\)](#) in Togo (87.2%), [Mohammed et al. \(2014\)](#) in Morocco (65%), and [Lkadi et al. \(2011\)](#) in Morocco (60%). This correlation may be explained by the role of low socioeconomic status in the development of COD; limited financial resources hinder access to proper dental care, leading people to resort to self-medication and traditional remedies to manage these infections. The primary causes of COD were dental in origin (86.4%), with dental caries and its complications ranking highest (80.0%). These findings are consistent with the findings of [Zahra et al. \(2021\)](#) in Morocco (52%), [El Abed et al. \(2019\)](#) in Tunisia (98%), [Ghamman et al. \(2019\)](#) in Tunisia (52.95%), and [Safia et al.](#) in Morocco (84.6%) ([Haitami et al., 2016](#)). This predominance can be attributed to dental caries being the most encountered oral pathology ([WHO, 2014](#)). Neglected or poorly treated dental caries can progress to periapical infections, potentially leading to COD ([Njifou Njimah et al., 2014](#)).

Several factors contribute to the development of COD, including poor oral hygiene (59.7%), self-medication with NSAIDs (55.1%), traditional remedies (47.7%), diabetes mellitus (31.8%), inadequate antibiotic use (28.4%), and alcohol exposure (16.5%). These results are consistent with existing literature ([Bobe et al., 2019](#); [Bissa et al., 2019](#)), which frequently cite these factors about COD. Poor oral hygiene may result from ignorance and neglect of oral care, as well as improper brushing techniques. NSAIDs, when used as monotherapy, can potentially increase the virulence and proliferation of pathogens ([Bennani-Baïti et al., 2015](#)). However, [Nicot et al. \(2013\)](#) reported that NSAIDs use did not influence COD occurrence. As a result of this

discrepancy, it is recommended to combine antibiotic treatment with NSAIDs treatment in COD management.

Diabetes can lead to microcirculatory changes that reduce blood flow and granulocyte mobilization (Nicot et al., 2013), making diabetics more susceptible to infections. Traditional remedies are believed to delay medical consultations and sometimes worsen infections, complicating treatment. Alcohol exposure is thought to compromise immune defenses by causing neutrophil dysfunction and complement deficiency, thereby facilitating COD development (Nicot et al., 2013). In our study, low SES (ORa 15.78, CI [2.03-122.51], P=0.008) was the sole sociodemographic factor independently associated with COD occurrence in Kinshasa communities with oral pathologies. Factors independently associated with COD occurrence were poor oral hygiene (ORa 2.03, CI [1.06-3.89], P= 0.033), self-medication with antibiotics (ORa 9.23, CI [3.37-19.65], P <0.001), NSAIDs (ORa 9.86, CI [2.70-12.51], P <0.001), diabetes (ORa 7.12, CI [2.05-10.26], P <0.001), alcohol exposure (ORa 4.22, CI [1.14 - 23], P = 0.011), and traditional remedies (ORa 8.19, CI [3.63-12.54], P <0.001). These findings are consistent with existing literature (El Abed et al., 2019; Anne Kennel et al., 2004; Amadou Niang et al., 2011).

This is the first study of dental cellulitis in Kinshasa carried out outside the hospital environment. It was able to determine the prevalence of this condition in Kinshasa, the Democratic Republic of the Congo. Furthermore, it helps to identify the main reasons why patients with cellulitis seek medical attention late. From the point of view of public health, this study will be a database to help policymakers better adapt strategies to combat oral health in general and particularly dental cellulitis.

#### Limitations of the work

The present study was unable to establish causal relationships and did not analyse bacterial ecology. Further studies are required.

#### Strengths of the work

This study is the first to have looked at COD in communities in Kinshasa, considering epidemiological aspects and identifying associated factors.

## CONCLUSION

CODs are prevalent within the communities of Kinshasa. The typical epidemiological profile indicates that young adult females with low socio-economic status are most affected, and carious complications are a significant contributing factor. Additionally, low socioeconomic level (NSE), poor oral hygiene practices (MHBD), non-steroidal anti-inflammatory drug use (NSAIDs), antibiotic (AB) use, diabetes, alcohol exposure, and traditional therapy are all associated factors contributing to their occurrence.

#### List of abbreviations:

- i. COD: Dental cellulitis
- ii. BDOM: Office for Medical Works
- iii. CEVB: grassroots ecclesial communities
- iv. PSPBD: individuals with oral and dental pathologies
- v. RECO: Community Health Workers
- vi. SES: Socioeconomic status
- vii. NSAIDs: non-steroidal anti-inflammatory drugs
- viii. NSE: socioeconomic level
- ix. MHBD: poor oral hygiene
- x. SEMA: SEKELE MALOBO
- xi. DRC: Democratic Republic of the Congo.

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