

## Prevalence and predictors of severe pain among patients with orofacial pain in a Nigerian Tertiary health facility

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### Abstract

**Background:** Although several studies on the pattern of oro-facial pain have been reported, none have been reported on the prevalence and risk factors of severe oro-facial pain. This study aims to determine the prevalence and predictors of severe oro-facial pain among patients in a Nigerian tertiary hospital.

**Methodology:** The prospective cross-sectional study was conducted at the Department of Oral Diagnosis of a Nigerian tertiary hospital from January to December 2023 on all consecutive patients who presented to the centre with orofacial pains. The data collected were age, gender, occupation, level of education and marital status. Other data collected were ethnicity, smoking, alcohol intake, location of pain, causes of pain, and pain severity. Both descriptive and inferential statistics were performed. All data were analysed with SPSS version 26 (IBM Corp, Armonk, NY, US). A p-value less than 0.05 was considered significant.

**Results:** The age range was 17-85 years with a mean age of  $36.6 \pm 16.7$  years. Almost two-thirds (64.1%) of the patients were females. Most (46.1%) of the patients were skilled workers. Almost half (48%) of the recruited patients were single. The prevalence of severe pain among patients with orofacial pain was 45.3%. There was no relationship between sociodemographic factors and the prevalence of severe orofacial pain except the ethnicity of the patients ( $p = 0.012$ ). There was no association between clinical factors and severe orofacial pain ( $p > 0.05$ ).

**Conclusion:** The prevalence of severe pain among patients with orofacial pain was relatively high and this severity was only influenced by their ethnicity. It is therefore recommended that a high index of attention is given to orofacial pain patients and a reduction of waiting time for the same individuals.

**Keywords:** Severe Orofacial pain; Prevalence; Predictors; Nigerian.

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## Introduction.

Orofacial pain is a combination of facial and oral pain<sup>1</sup>. Facial pain occurs in the area under the orbito-meatal line, above the neck, and in front of the ear, while oral pain occurs around the oral cavity.<sup>2</sup> Oral pains might arise from the tongue, oral mucosa, maxillary bone, and mandibular bone and it might also be dental in origin.<sup>3</sup> Dental pains can arise from the tooth itself or its supporting structures and can be acute or chronic with different characteristics.<sup>1</sup> While the majority of the causes of orofacial pain are known, few may be unknown or idiopathic. It is very important to identify and diagnose the cause. Orofacial pain is one of the most common reasons, a patient seeks dental care services and its impact on quality of life can be devastating.<sup>4-8</sup> Severe orofacial pain can lead to depression and affect the daily activities of the sufferers.<sup>9</sup> Dental pain has been shown to influence patients in different ways<sup>9, 10</sup>. The most common influences are: consulting a dentist or doctor; avoiding certain foods; taking medications and disrupting sleep.<sup>11</sup> There are several behavioural influences; including reduced social contacts and inability to work.<sup>1</sup> Patients' responses to pain have also been shown to vary and depend on several factors like sex, age, and previous pain experience.<sup>12</sup> Some of these responses may include care-seeking and self-drug therapy.<sup>10-13</sup> Persistent orofacial pain had been associated with females, older age, psychological distress, widespread body pain, and taking medication for orofacial pain at baseline<sup>1,8,14</sup>

Although several studies<sup>15-23</sup> on the pattern of oro-facial pain have been reported, none have been reported on the prevalence and risk factors of severe oro-facial pain. Therefore, this study aims to determine the prevalence and predictors of severe oro-facial pain among patients in a Nigerian tertiary hospital.

## Methodology

Following ethical permission (ADM/E 22/A/VOL. 7/14831687), a prospective cross-sectional study was conducted at the Department of Oral Diagnosis of a Nigerian tertiary hospital from January to December 2023. The study recruited all consecutive patients who presented to the centre with orofacial pains. Those patients without orofacial pain were excluded. Also, those who did not give consent to participate in the study were excluded. A sample size of 231 was calculated using a previous study<sup>20</sup> on orofacial pain prevalence of 18.5% and a Cochran formula<sup>24</sup> ( $n = Z^2 p(1-p)/e^2$ ). To adjust for attrition, a total of 256 patients were recruited. The data collected were age, gender, occupation, level of education and marital status. Other data collected were ethnicity, smoking, alcohol intake, location of pain and causes of pain. The severity of pain was determined with a 10cm Visual Analogue Scale. The pain score was categorised. Scores of 1-3, 4-6 and 7-10 were categorised as mild, moderate, and severe respectively. Both descriptive and inferential statistics were performed. In descriptive statistics, the categorical data were presented as frequency and percentages while the continuous data were summarised as range, means and standard deviation. In the inferential statistics, the Chi-square test was used to evaluate the association between the clinical-sociodemographic characteristics and the prevalence of severe orofacial pain. All data were analysed with SPSS version 26 (IBM Corp, Armonk, NY,US). A p-value less than 0.05 was considered significant.

## Results

A total number of 256 orofacial patients were studied. The age range was 17-85 years with a mean age of  $36.6 \pm 16.7$  years.

**Table 1: Sociodemographic characteristics of patients with orofacial pain (n=256)**

<b>Variables</b>	<b>Frequency(n)</b>	<b>Percent (%)</b>
<b>Age</b>		
≤37	99	38.7
>37	157	61.3
<b>Sex</b>		
Male	92	35.9
Female	164	64.1
<b>Occupation</b>		
Skilled	118	46.1
Semi-skilled	30	11.7
Unskilled	22	8.6
Dependent	86	33.6
<b>Marital status</b>		
Single	123	48
Married	122	47.7
Divorced	4	1.6
Widowed	7	2.7
<b>Level of education</b>		
None	7	2.7
Primary	15	5.9
Secondary	68	26.6
Tertiary	166	64.8
<b>Ethnicity</b>		
Hausa	5	2.0
Yoruba	18	7.0
Ibos	29	11.3
Others	204	79.7

Smoking		
Yes	10	3.9
No	246	96.1
Alcohol intake		
Yes	58	22.7
No	198	77.3

Table 1 shows the sociodemographic characteristics of the patients with orofacial pain. Almost two-thirds (64.1%) of the patients were females. More than half (61.3%) of them were older than 37 years. Most (46.1%) of the patients were skilled workers which was followed by defendants (33.6%). Almost half (48%) of the recruited patients were single, and this was closely followed by the married ones (47.7). The majority (64%) of the patients in this study had tertiary education. Patients with ethnic groups other than the major ethnic groups in Nigeria were the majority (70.7%) in the study. Almost all (96.1%) of the patients do not smoke just as most (77.3%) of them do not take alcohol.

**Table 2: Clinical characteristics of patients with severe orofacial pain**

Variables	Frequency (n)	Percent (%)
Causes of pain		
Unknown	76	29.2
Known	180	70.3
Location of pain		
Upper jaw	91	35.5
Lower jaw	165	64.5
Severe pain		
Yes	116	45.3
No	140	54.7

Table 2 shows the clinical characteristics of orofacial pain among the study patients. The majority (70.3%) of the study patients were able to ascertain the cause of their orofacial pain. Most patients (64.5%) had pain in the lower jaws than in the upper jaws. The prevalence of severe pain among patients with orofacial pain was 45.3%.

**Table 3: The influence of sociodemographic factors on orofacial pain severity (n=256)**

Variables	Severe pain		Chi value	P-value
	Yes (n=116)	No (n=140)		
Age(years)				
≤37	74(63.8)	83(59.3)	0.54	0.46
>37	42(36.2)	57(40.7)		
Sex				
Male	43(37.1)	49(35.0)	0.12	0.73
Female	73(62.9)	91(65.0)		
Occupation				
Skilled	41(35.3)	54(38.6)	0.63	0.89
Semi-skilled	11(9.5)	14(10.0)		
Unskilled	9(7.8)	8(5.7)		
Dependent	55(47.4)	64(45.7)		
Marital status				
Single	56(48.3)	67(47.9)	1.07	0.79
Married	55(47.4)	67(47.9)		
Divorced	1(0.9)	3(2.1)		
Widowed	4(3.4)	3(2.1)		
Level of education				
None	2(1.7)	5(3.6)	3.62	0.46
Primary	8(6.9)	6(4.3)		
Secondary	31(26.7)	35(25.0)		
Tertiary	69(59.5)	91(65.0)		
Ethnicity				

Hausa	1(0.9)	4(2.9)	10.92	0.012
Yoruba	2(1.7)	16(11.4)		
Ibos	13(11.2)	16(11.4)		
Others	100(86.2)	104(79.7)		
Smoking				
Yes	4(3.4)	6(4.3)	0.12	0.73
No	112(96.6)	134(95.7)		
Alcohol intake				
Yes	24 (20.7)	34(24.3)	0.47	0.49
No	92(79.3)	106(75.7)		

Table 3 shows the influence of the socio-demographic factors on orofacial pain severity. There was no relationship between sociodemographic factors and the prevalence of severe orofacial pain except the ethnicity of the patients. There were more severe orofacial pains in patients in the ethnic groups in Edo state compared to the major ethnic groups in Nigeria ( $p= 0.012$ ).

**Table 4: The influence of clinical characteristics on severe orofacial pain**

Variables	Severe pain		Chi value	P-value
	Yes	No		
Causes of pain				
Unknown	30(25.9)	46(32.9)	1.49	0.22
Known	86(74.1)	94(67.1)		
Location of pain				
Upper jaw	43(37.1)	48(34.3)	0.21	0.64
Lower jaw	73(62.9)	92(65.7)		

Table 4 shows the influence of the clinical characteristics on severe orofacial pain. There was no association between clinical factors and severe orofacial pain ( $p>0.05$ )

## **Discussion**

Identification of patients with orofacial pains is exclusively important in a hospital with high traffic of patients and where short waiting time is precluded. This study determined the prevalence and risk factors of severe orofacial pain in a hospital setting. Severe orofacial pain can be a public burden as it significantly affects daily activities<sup>21</sup>.

Though orofacial pain can affect any age group, patients greater than 37 years were more affected and this is comparable to a previous study<sup>19</sup> but inconsistent with the mean age in the studies by Omitola and Arigbede<sup>1</sup> and MacFarlane et al<sup>23</sup> where orofacial pain was frequently reported by younger adults. As observed in the current study, more females were affected as similarly reported in previous studies<sup>12,14</sup>. This finding could be due to the better health-seeking behaviour reported among women<sup>7</sup>. Gender and age were not associated with the prevalence of severe orofacial in this study.

The prevalence of severe pain in this study was 45.3% which is higher than that reported by MacFarlane et al<sup>23</sup>. This variation in findings could be related to differences in the sample size of patients studied. In this study, ethnicity was found to affect the prevalence of severe orofacial pain. This finding could not be compared due to the lack of previous studies on this topic. The significant relationship between ethnicity and severe orofacial pain could be attributable to the sociocultural differences in the study samples.

The cause of pain in the orofacial region can be odontogenic and non-odontogenic in origin. The cause of pain and location of pain were the clinical factors studied and none of them was found to influence the prevalence of orofacial pain. The probable reason for the absence of association could be related to the dynamic complexity of orofacial pain and its subjective nature. More so, no previous study for comparison of this finding

This study has few limitations and therefore the findings should be interpreted with caution. First, the severity of pain was evaluated with VAS without considering detailed characteristics of pain. Secondly, since this study is a single-centre study, and most samples were from ethnic groups in the Edo state, a future multinational study is recommended. Lastly, a study with a larger sample size is recommended.

## **Conclusion**

The prevalence of severe pain among patients with orofacial pain was relatively high and this severity was only influenced by their ethnicity. It is therefore recommended that a high index of attention is given to orofacial pain patients and a reduction of waiting time for the same individuals.

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## **Conflict Of Interest**

The authors declare no conflict of interest related to the study.

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