

# The Prevalence of Stress & Anxiety Among Patients Having Habit of Cheek Biting



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**OBJECTIVE:** To determine the prevalence of stress and anxiety among patients with cheek biting visiting dental clinic for routine checkups.

**STUDY DESIGN:** Cross-sectional study

**PLACE AND DURATION OF STUDY:** Ameen medical and dental center, Karachi from July 2016 to Feb 2018.

**METHODOLOGY:** Total of 101 patients were included in the study by using non-probability consecutive sampling technique after taking written informed consent from the participants. Patients coming to OPD for routine dental check up with complain of pain and burning in oral cavity were enrolled in the study. The data was analyzed by using Stata version 23.

**RESULTS:** Total 101 patients were enrolled in the study, stress was observed in 37(36.6%) & anxiety was observed in 34(33.7%). In univariate analysis, stress & anxiety showed significant relation with history of psychiatric illness in family and family history of DM ( $p \leq 0.05$ ).

**CONCLUSION:** We found stress and anxiety were prevalent among patients with habit of cheek-biting. History of psychiatric illness and diabetes mellitus played significant role and showed statistical relation with stress and anxiety ( $p \leq 0.05$ ).

**KEY WORDS:** Cheek biting, stress, anxiety, depression, para function, dental visits.

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## INTRODUCTION

**M**orsicatio buccarum which is also known as cheek biting is a condition characterized by chronic irritation or injury to the buccal mucosa, caused by repetitive chewing, biting or nibbling.<sup>1</sup> It is a harmless condition for most of the people who accidentally bite their cheeks, but it can become a harmful condition for those who developed a habit of biting of their cheeks.

The common causes of morsicatio buccarum are misalignment of wisdom teeth, temporomandibular joint disorder, jaw closure problem and ill fitting dentures. On the other hand morsicatio buccarum are often observed in

people who are under stress, anxiety or with psychogenic background.<sup>2</sup> Biting of oral mucosa is seen in 750 per million persons. In a Mexican dental school clinic of 23,785 patients, cheek-biting lesions were found to be fifth most common oral mucosal finding with a prevalence of 21.7 cases per 1000 patients.<sup>1</sup>

The prevalence of cheek biting is more in children and females.<sup>1</sup> In a study conducted by A. P Vandas et al. the prevalence of cheek biting was reported as 60.51%; whereas headaches showed statistical significance with cheek biting ( $P$ -value $<0.05$ ) among children.<sup>3</sup> A case report on 10 year old boy with history of biting of cheeks associated with major depressive disorder.<sup>1</sup> In an another study conducted at Saudi Arabia headache was observed as 33% among the oral parafunctions and cheek biting was the most prevalent 41%.<sup>4</sup>

Anxiety & stress are potential risk factors for impaired oral health status.<sup>5</sup> The rationale for initiating this study was scarce data available on this topic although, it is a common

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phenomenon but it never gets the attention of the dentists. The main purpose of this study was to assess the prevalence of stress and anxiety among patients having habit of cheek biting in Pakistani population.

## METHODOLOGY

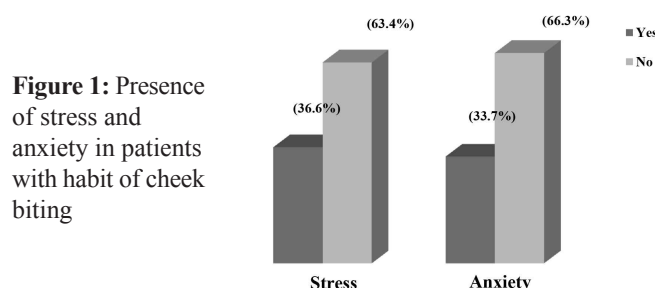
It was a cross-sectional study conducted at Ameen Medical and Dental Center, Karachi from July 2016 to Jul 2017. After taking approval from hospital MD total of 101 patients were included in the study using non-probability consecutive sampling technique. Sample size of 101 was estimated using Open Epi online sample size calculator by taking statistics for anxiety disorder as 30.6%<sup>6</sup> among facial pain disorder & margin of error as 9% at 95% confidence level. All the patients of age 16-65 years of either gender coming to OPD for routine dental check-up with complain of pain and burning in oral cavity were included in the study. Cheek biting was assessed clinically, injury to the buccal mucosa was labelled as positive. Patients with obesity, pregnancy, previous dental treatment specially proctitis or taking pan/gutka and with history of smoking or alcohol intake were excluded from the study.

Inform consent was taken from the participants. Perceived stress scale (PSS) was used to assess stress. The patient with score >20 was labeled as stressed. Hamilton Anxiety Rating Scale (HAM-A) was used to assess anxiety. The patient with score >20 was labeled as anxiety positive. We used a translated version of questionnaire for patients who cannot understand the language. All information was recorded in a pre-designed proforma by the researcher.

Data was analyzed using STATA version 11.1. Quantitative variables were presented as mean and standard deviation. Qualitative variables were presented as frequency and percentage. Chi-sq test was applied and p-value  $\leq 0.05$  was taken as significant.

## RESULTS

Total of 101 participants were enrolled in the study, out of which 58(57.4%) were females and 43(42.6%) were males. The mean age was calculated as 34.73years  $\pm 12.98$



**Figure 1:** Presence of stress and anxiety in patients with habit of cheek biting

SD. Most of the participants were from adult age group 68.3%. Out of 101, 52.5% were graduate, 17(16.8%) were from secondary education, 16(15.8%) were from primary

**Table 1:** Socio-demographic characteristics of study variables

Demographic Characteristics (n=101)	N	%
Age in yrs.(Mean $\pm$ SD)	34.73 $\pm$ 12.98	
Youngs(15-24yrs)	29	28.7
Adults(25-64yrs)	69	68.3
Seniors(65yr and above)	3	3.0
<b>Gender</b>		
Male	43	42.6
Female	58	57.4
<b>Educational level</b>		
None	5	5.0
Primary	16	15.8
Secondary	17	16.8
Graduate	53	52.5
Post Graduate	10	9.9
<b>Monthly household income(Rps)</b>		
<15,000	18	17.8
15,000-35,000	61	60.4
>35,000	22	21.8
<b>Marital Status</b>		
Single/Never Married	42	41.6
Divorced/widowed/separated	13	12.9
Married	46	45.5
<b>Job Status</b>		
Unemployed	31	30.7
Housewives	19	18.8
Retired	2	2.0
Employed	49	48.5
<b>Family Status</b>		
Joint	62	61.4
Nuclear	39	38.6
<b>Psychiatric illness in family</b>		
Yes	10	9.9
No	91	90.1
<b>Diabetes in family</b>		
Yes	23	22.8
No	78	77.2
<b>Leisure-time physical activity level</b>		
Active	66	65.3
Inactive	35	34.7

education, 10(9.9%) were post graduate and only 5(5%) were illiterate. Majority of the patients were from middle income level 60.4%, 45.5% were married, 48.5% were employed, 61.4% were from joint family, 90.1% were without history of psychiatric illness, 77.2% had family history of DM & 65.3% of the participants were physically active. (Table 1)

As depicted in Figure 1, out of 101 participants, stress was observed in only 37(36.6%) & anxiety was observed in only 34(33.7%).

In univariate analysis, stress showed significant difference with psychiatric illness ( $p=0.003$ ) and with family history of DM ( $p=0.001$ ) whereas anxiety was only statistical significant with family history of DM ( $p=0.033$ ). (Table 2)

**Table 2:** Stratification of effect modifiers for stress and Anxiety

Variables	Stress		P-value	Anxiety		P-value
	Yes(n=37)	No(n=64)		Yes(n=37)	No(n=64)	
<b>Age Groups</b>						
Youngs(15-24 years)	7(18.9%)	22(34.4%)	0.243	10(29.4%)	19(28.4%)	0.994
ADULTS(25-64 years)	29(78.4%)	40(62.5%)		23(67.6%)	46(68.7%)	
Seniors(=>65years)	1(2.7%)	2(3.1%)		1(2.9%)	2(3.0%)	
<b>Gender</b>						
Male	13(35.1%)	30(46.9%)	0.25	12(35.3%)	31(46.3%)	0.292
Female	24(64.9%)	34(53.1%)		22(64.7%)	36(53.7%)	
<b>Educational level</b>						
None	0	5(7.8%)	0.429	2(5.9%)	3(4.5%)	0.764
Primary	7(18.9%)	10(15.6%)		5(14.7%)	11(16.4%)	
Secondary	19(51.4%)	10(15.6%)		8(23.5%)	9(13.4%)	
Graduate	19(51.4%)	34(53.1%)		16(47.1%)	37(55.2%)	
Post Graduate	5(13.5%)	5(7.8%)		3(8.8%)	7(10.4%)	
<b>Monthly household income(Rps)</b>						
<15,000	6(16.2%)	12(18.8%)	0.494	8(23.5%)	10(14.9%)	0.565
15,000-35,000	25(67.6%)	36(56.3%)		19(55.9%)	42(62.7%)	
>35,000	6(16.2%)	16(25%)		7(20.6%)	15(22.4%)	
<b>Marital Status</b>						
Single/Never married	14(37.8%)	28(43.8%)	0.663	16(47.1%)	26(38.8%)	0.729
Divorced/widowed/separated	4(10.8%)	9(14.1%)		4(11.8%)	9(13.4%)	
Married	19(51.4%)	27(42.2%)		14(41.2%)	32(47.8%)	
<b>Job Status</b>						
Unemployed	11(29.7%)	20(31.3%)	0.92	13(38.2%)	18(26.9%)	0.616
Housewives	8(21.6%)	11(17.2%)		6(17.6%)	13(19.4%)	
Retired	1(2.7%)	1(1.6%)		1(2.9%)	1(1.5%)	
Employed	17(45.9%)	32(50%)		14(41.2%)	35(52.2%)	
<b>Family Status</b>						
Joint	22(59.5%)	40(62.5%)	0.762	18(52.9%)	44(65.7%)	0.436
Nuclear	15(40.5%)	24(37.5%)		16(47.1%)	23(34.3%)	
<b>Psychiatric illness in family</b>						
Yes	8(21.6%)	2(3.1%)	0.003	4(11.8%)	6(9%)	0.052
No	29(78.4%)	62(96.9%)		30(88.2%)	61(91%)	
<b>Diabetes in family</b>						
Yes	18(48.6%)	5(7.8%)	0.001	12(35.3%)	11(16.4%)	0.033
No	19(51.4%)	59(92.2%)		22(64.7%)	56(83.6%)	
<b>Leisure-time physical activity level</b>						
Active	25(67.6%)	41(64.1%)	0.721	26(76.5%)	40(59.7%)	0.094
Inactive	12(32.4%)	23(35.9%)		8(23.5%)	27(40.3%)	

## DISCUSSION

Oral mucosal lesions are a multi factorial disease. Therefore, recognizing the risk factors promoting this condition plays an important role in its management and prevention. It was found that psychological stressors and depression may propagate its progression.<sup>7</sup> The aim of this study was to determine the frequency of stress and anxiety among patients with habit of cheek biting visiting dental clinic for routine checkups. We found about 36.6% patients were stressed and anxiety was present in 33.7% patients. A case report on a 10-year-old boy who presented with multiple ulcerations over lower lip, diagnosed as a case of Major Depressive disorder was treated with anti-depressant and his condition improved.<sup>1</sup> In another study, depression and anxiety were evaluated, the results showed 82% of TMD had anxiety and 57% had depression. In the present study most of the patients were from adults age group among them 78.4% had stress and 67.6% had anxiety.

In the present study, majority of the patients were females 57.4%, among them 64.9% had stress and 64.7% anxiety. A research conducted on patients with temporomandibular disorders showed similar results i.e. 82% females were affected. According to the study, this could be due to the fact that women seek medical help early or due to psychological and hormonal factors pertaining to females.<sup>5</sup> A survey at Polish university gave similar results showing significant number of women presenting with temporomandibular disorders and increased psycho emotional activity and stress. The research concluded that people with emotional burden or easily excitable personalities suffered more from oral para functions.<sup>7</sup>

In the presented study, the ratio of graduated patients with stress & anxiety related cheek biting was high as compared to secondary, primary, post graduate and uneducated. The percentage of stress related cheek biting among employed, unemployed, house wives was found to be 45.9%, 29.7%, 21.6% respectively, the percentage of anxiety related cheek biting among employed, unemployed, house wives was found to be 41.2%, 38.2% & 17.6% respectively. In a similar study 58% student or unemployed people with TMD identified themselves as stressed. Common stressors could be low income, peer pressure, large number of duties, uncertain future or living away from family in a new environment. They also emphasized the fact students are more exposed to social emotional physical and family problem.<sup>7</sup>

Socioeconomic status may be an influencing factor in this regard i.e. individual with low socioeconomic status 17.8%, middle class 60.4% & upper class 21.8% presented with cheek biting. As majority of the patients were from

middle level income they had high stress and anxiety level as 67.6% and 55.9%. According to this data we can conclude social life of a person may play as a stressor and can lead to oral problems.

With regard to marital status, it is indicated that 45.5% married patients are more prone to cheek biting while only 41.6% unmarried were affected, out of which stress was observed in 51.4% of married and 37.8% unmarried patients whereas anxiety was prevalent among 47.8% of married and 38.8% of unmarried patients. Family system plays an important role in the contribution of stress related cheek biting. In our study majority of patients belong from joint family system 61.4%, out of which is 59.5% had stress while 52.9% had anxiety. Other studies states that women who are widowed or married but living separately present more with oral problems as compared to men.<sup>8</sup>

In the present study we have also observed the role of history of psychiatric illness & diabetes mellitus in family among patients with habit of cheek biting as 9.9% and 22.8%. Among patients with history of psychiatric illness in family stress was present in 21.6% and anxiety was present in 11.8%, whereas among patients with history of DM in family stress was observed in 48.6% and anxiety was observed in 35.5%. In the present study, about 65.3% participants do physical activity in their leisure hours while 34.7% were physically in-active. Among physically in-active patients stress was prevalent in 32.4% and anxiety was prevalent in 23.5%.

Furthermore, perspective studies must be conducted with a large data collected from multiple hospitals, including patients of young age to elderly should be taken into account. Other oral conditions like TMD, oral ulcers, lip biting linked with stress, anxiety and depression can be added along with systemic conditions to draw up guidelines for the therapeutic approach to oral mutilation.

## CONCLUSION

We found stress and anxiety were prevalent among patients with habit of cheek-biting. History of psychiatric illness and diabetes mellitus played significant role and showed statistical relation with stress and anxiety ( $p \leq 0.05$ ).

## CONFLICT OF INTEREST

None declared.

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