RESEARCH ARTICLE

Association of cheek-biting and depression

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Abstract

Objective: To determine the association between cheek-biting and depression in patients visiting dental clinics for routine check-up.

Methods: The case-control study was conducted at Ameen Medical and Dental Centre, Karachi, from July 2016 to January 2017, and comprised patients coming for routine dental check-up with complaint of pain and burning in oral cavity. The subjects were divided into two equal groups of cases with cheek-biting and controls without cheek-biting. Data was collected with the help of a self-administered questionnaire and depression was assessed using the Patient Health Questionnaire-9scale. Those with score>19 were labelled as depressed. Data was analysed using Stata11.

Results: There were 70 subjects in two groups of 35(50%) cases and as many controls. The mean age for the cases was 32.86±12.68 years and for the controls it was 34.23±14.47 years. Among the cases, there were 23(65.7%) females and there were 19(54.3%) among the control. Multivariate logistic regression showed depression was significantly associated with cheek-biting ($p<0.05$).

Conclusion: Depression and cheek-biting were found to be significantly associated.

Keywords: Cheek-biting, Depression, Parafunction, Dental visits. (JPMA 69: 49; 2019)

Introduction

Morsicatiobuccarum, also known as cheek-biting, is a condition characterised by chronic irritation or injury to the buccal mucosa, caused by repetitive chewing, biting or nibbling.[1] These lesions are often observed in people who are under stress or with psychogenic background.[2] Biting of oral mucosa is seen in 750 per million persons.[3] In a Mexican dental school clinic of 23,785 patients, cheek-biting lesions were found to be the fifth most common oral mucosal finding with a prevalence of 21.7 cases per 1000 patients.[4]

Depression is a potential risk factor for impaired oral health status. Studies[5,6] suggested depression as a risk for temporomandibular joint dysfunction (TMD) by influencing the association between pain and motor activity; and there is evidence that TMD and pain might have a negative effect on chewing ability. TMD in children and adolescents is prevalent with pain as a common component, and has a co-morbidity with psychosocial problems such as stress, depression, anxiety as well as somatic complaints.[7]

In TMD cases cheek-biting was the second most common para-function affecting 15% of the patients and depression was prevalent in 57% of the patients.[8]

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The prevalence of cheek-biting is more in children and females.[1] In a study the prevalence of cheek-biting among 314 children was 60.51%, but headaches showed statistical significance with cheek-biting ($p<0.05$).[9] A case report of a10-year-old boy showed history of cheek-biting was associated with major depressive disorder.[1] In another study conducted in Saudi Arabia, headache was prevalent in 33% patients, and among the oral parafunctions, cheek-biting was the most prevalent 41%.[10]

There is no local data available in this regards. The current study was planned to explore the association between cheek-biting and depression.

Subjects and Methods

The case-control study was conducted at Ameen Medical and Dental Centre, Karachi, from July 2016 to January 2017, and comprised patients of either gender aged 16-65 years coming for routine dental check-up with complaint of pain and burning in oral cavity. Approval was obtained from the institutional ethics board. Sample size was calculated using OpenEpi online sample size calculator,[11] taking prevalence of buccal mucosa(cheek-biting) among general population as 49.1%[12] and prevalence of cheek-biting among psychiatric patients as 3%.[13] Power of test was set at 90%. The calculated sample size was 21 cases and 21 controls. Subjects were enrolled using non-probability consecutive sampling technique. Written informed consent was taken from all the subjects who

were divided into two equal groups of cases and controls. Cases were patients presenting with ulcer on the buccal mucosa, specifically on the 1st, 2nd and 3rd molar region either unilateral or bilateral assessed clinically. Controls were patients presenting without ulcer on the buccal mucosa. Patients with obesity, pregnancy, previous dental treatment, those taking pan/gutka and with history of smoking or alcohol intake were excluded from both the groups.

Depression was assessed using the Patient Health Questionnaire-9 (PHQ-9) scale. Those with score>19 were labelled as depressed. The Urdu version of the questionnaire[14] was used for patients who could not understand English language. Data was recorded in a pre-designed proforma.

STATA version 11 was used for data analysis. Quantitative variables were presented as mean and standard deviation (SD). Qualitative variables were presented as frequency and percentage. Univariate analysis followed by multivariate analysis were performed. Initial univariate logistic regression models included each variable as potential explanatory variable with cases and controls. These variables were age, gender, marital status ('married' and 'unmarried'), educational status ('educated' and 'uneducated'), occupation ('students' versus 'independent' and 'housewives'), family structure ('joint' and 'nuclear') and socioeconomic status ('low' versus 'middle' and 'high'). Depression was taken as a risk factor for exposure associated with cases and controls and odd ratios (ORs) were calculated. The variables associated with cases/controls in univariate logistic regression models with $p<0.25$ were included in a single multivariate logistic regression model. OR >1 was considered significant.

Results

There were 70 subjects in two groups of 35(50%) cases and as many controls. The mean age for the cases was 32.86 ±12.68 years and for the controls it was 34.23±14.47 years. Among the cases, there were 23(65.7%) females and there were 19(54.3%) among the controls, Besides, 20(57.1%) cases and 21(60%) controls were married; 33(94.3%) cases and 30(85.7%) controls were educated; 25(71.4%) cases and 20(57.1%) controls belonged to joint family; and 20(57.1%) cases and 17(48.6%) controls were from the middle socioeconomic class. Univariate logistic regression showed 15(42.8%) cases and 5(14.2%) controls were depressed (Table-1).

Multivariate logistic regression showed depression was significantly associated with cheek-biting (OR:4.52; 95%

Table-1: Univariate logistic regression analysis (n=70).

Variable	Cases	Controls	OR (95% C.I)	P-value
Age Groups (Mean±SD)	32.86 ±12.68	34.23±14.47	0.99(0.95-1.02)	0.67
Gender				
Male	12 (34.3%)	16 (45.7%)	1	
Female	23 (65.7%)	19 (54.3%)	1.61(0.61-4.32)	0.33
Marital Status				
Married	20 (57.1%)	21 (60%)	1	
Unmarried	15 (42.9%)	14 (40%)	1.12(0.43-2.91)	0.8
Educational Status				
Educated	33 (94.3%)	30 (85.7%)	1	
Uneducated	2 (5.7%)	5 (14.3%)	0.36(0.06-2.01)	0.24
Occupation				
Student	11 (31.4%)	11 (31.4%)	1	
Independent	19 (54.3%)	12 (34.3%)	1.58(0.52-4.77)	0.415
Housewife	5 (14.3%)	12 (34.3%)	0.41(0.10-1.58)	0.199
Family Structure				
Joint	25 (71.4%)	20 (57.1%)	1	
Nuclear	10 (28.6%)	15 (42.9%)	0.53(0.19-1.43)	0.215
Socioeconomic Status				
Low	7 (20%)	12 (34.3%)	1	
Middle	20 (57.1%)	17 (48.6%)	2.01(0.64-6.27)	0.226
High	8 (22.9%)	6 (17.1%)	2.28(0.55-9.36)	0.251
Depression				
No	20(57.2%)	30(85.8%)	1	
Yes	15(42.8%)	5(14.2%)	4.5(1.41-14.34)	0.011

Table-2: Multivariate logistic regression analysis (n=70).

Variables	O.R(95% C.I)	P-value
Depression		
No	1	
Yes	4.52(1.34-15.15)	0.015
Educational Status		
Educated	1	
Uneducated	0.32(0.04-2.32)	0.264
Family Structure		
Joint	1	
Nuclear	0.51(0.12-1.56)	0.242
Socio Economic Status		
Low	1	
Middle	1.54(0.45-5.26)	0.484
High	1.55(0.32-7.45)	0.582

confidence interval [CI]:1.34-15.15) (Table-2).

Discussion

Oral mucosal lesions are a multi-factorial disease. Therefore, recognising the risk factors that promote this condition plays an important role in its management and prevention. Psychological stressors and depression may propagate its progression.[15] The aim of the current study was to determine association between cheek-biting and depression in patients visiting dental clinics for routine check-ups. It found a strong association between cheek-biting and depressions, predominantly in females (60%) compared to males (40%). A case report of a 10-year-old boy who presented with multiple ulcerations over lower lip, showed the diagnosis of Major Depressive Disorder which was treated with anti-depressants and his condition improved.[1] Another study showed 82% of TMD patients had anxiety and 57% had depression.[7] A research conducted on patients with temporomandibular disorders also showed 82% females as 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.[16] 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.[17]

In the current study, the ratio of educated patients with depression-related cheek-biting was 90% compared to uneducated patients which was only 10%. The ratio of stress-related cheek-biting among students, independents and housewives was 31.4%, 44.3%, 24.3% respectively. In a similar study, 58% students with TMD identified themselves as stressed.[17] 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 emphasised the fact that students are more exposed to social, emotional, physical and family problems.[17]

With regard to marital status, it is indicated that 58.6% married patients are more prone to cheek-biting while only 41.4% unmarried were affected. Family system plays an important role in the contribution of stress-related cheek-biting which is 64.3% while no family system is 35.7%. Other studies state that women who are widowed or married but living separately present more with oral problems compared to men.[18] Socioeconomic status may be an influencing factor in this regard as individuals with low socioeconomic status 27.1%, middle class 52.9%, upper class 20% presented with cheek-biting. Social life of a person, as such, may be a stressor and can lead to oral problems.

The current study excluded individuals with pregnancy and obesity because both the conditions have significant effects on the periodontal soft tissue. It enabled the study to control any bias.

Prospective multi-centre studies must be conducted with large data sets, including patients of young age to the elderly. Other oral conditions like TMD, oral ulcers, lip-biting linked with stress can be added along with systemic conditions to draw up guidelines for a therapeutic approach to oral mutilation.

Conclusion

Depression and cheek-biting were found to be significantly associated. Psychological issues that may arise out of depression of everyday life Cheek-biting can cause cancerous growth over that region due to constant oral tissue mutilation. Early precaution in the cases of cheek-biting can increase the chances of survival.

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