

## Assess The Level Of Depression Among Oral Submucous Fibrosis (OSMF) Patients

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Original Article

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### Abstract

**Introduction:** In several countries, including India, Pakistan, Malaysia, China, Canada, South Africa, Sri Lanka, and other South East Asian countries, the usage of areca nut in its different forms is very widespread and has contributed to the production of a rare generalized fibrosis of the oral tissues called oral submucous fibrosis (OSF). Oral submucous fibrosis (OSMF) can lead to psychiatric morbidity. **Aim:** Assess the level of depression among oral submucous fibrosis (OSMF) patients. **Materials and Methods:** It was descriptive research design, carried out at IPD and OPD patients of Acharya Vinoba Bhave Rural Hospital, Sawangi (M), Wardha, Both males and females with the confirmed diagnosis of oral submucous fibrosis (OSMF) were sample. Total 100 patients were recruited for the present study by purposive sampling techniques. Beck Depression inventory used for assessing the depression level. The sample characteristics and level of depression were described by frequency, percentage and unpaired 't' test and one way ANNOVA were used to find out the association between the level of depression score of Oral Submucous Fibrosis (OSMF) patients with their demographic variables. **Results:** The study result revealed that majority of participants (27%) were in 31-40 years of age group, 54% were Hindus, 64% were from rural areas, 59% belonged to joint family, 41% had monthly income of between 5001-10000 Rs, 71% were married, 34% of the OSMF patients were laborer, 29% had habit of chewing betel nut and tobacco and when assess their depression level it was found that 8% of the OSMF patients had mild depression, 91% had moderate depression and only 1% had severe depression. **Conclusion:** Oral submucous fibrosis (OSMF) patients suffered from depression so health professionals have to focus on their mental health.

**Key Word:** Melancholia, Juxta-epithelial fibrosis, Client

### Introduction

The disease is found mainly in Asian countries and the incidence is elevated in India.<sup>1</sup> In 1952 Schwartz first documented Oral submucous fibrosis OSMF when studying on Kenya's five Indian women, who he named "Atrophica Idiopathica (Tropica) Mucosae Oris." Soon after in 1953, Joshi has given the name for this disease is Oral submucous fibrosis (OSMF) on the basis of histological nature of this disease. In 1956 Paymaster first introduced its precancerous capacity. Rao indicated that

OSMF is a diffuse collagen disease condition in 1962.<sup>2</sup> Different form of areca nut used is very popular in various Asian countries and caused growth of a unique oral tissues fibrosis called oral submucous fibrosis (OSF). Different form of areca nut used specially seen in India, Pakistan, Malaysia, China, Canada, South Africa, Sri Lanka, and other South East Asian countries. It has also been found occurring in Europe and North America. Oral submucous fibrosis (OSMF or OSF) is a persistent, dynamic, pre-cancerous oral cavity caused by inflammatory juxta-epithelial reaction and progressive submucous propria lamina and deeper connective tissues fibrosis. When the disease advances, Stiff jaws will be present and due to that patient has difficulty to open mouth. It is mostly caused by chewing tobacco-like areca nut or betel quid and it leads to oral cancers. It has a broad effect on the younger age group because they have this bad habit of chewing tobacco-like areca nut or betel quid more so it is the additional concern of health care professionals to prevent this disease.<sup>3</sup>

The incidence rate of submucous fibrosis (OSMF) in India has increased over the past few years from 0.03 per cent to 6.42 per cent. It's a disease that's growing over the long term. The malignant prevalence of OSMF transformation over a 17-year period into squamous cell carcinoma is as high as 7.6%.<sup>3</sup> Oral submucous fibrosis (OSMF) and psychiatric co-morbidity were identified and higher levels of Oral submucous fibrosis (OSMF) were stated to be correlated with higher psychiatric morbidity. The interrelation between persistent physical illness and psychological morbidity is well established.<sup>4</sup>

From the preceding study work, it can be noticed that there is need for performing a research work in the Indian context. Considering this ambiguities, the key goals of this research were to determine the degree of depression in patients with Oral submucous fibrosis (OSMF).

## **MATERIALS AND METHODS**

This descriptive study was conducted within a period of 3 weeks from 5<sup>th</sup> February to 25<sup>th</sup> February 2018 was approved by institutional ethics committee of Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India. (IEC Approval no: DMIMS[DU]/IEC/2018-18/6706 dated 03/10/2018). The sample size of 100 patients was considered who gave written informed consent for participating in the study. 100 Oral submucous fibrosis (OSMF) patients were selected based on the calculation.

$$n = Z^2 \frac{SD^2}{d^2}$$

Where,  $z$ =standard normal variate, which is 1.96 at 5% type 1 error,  $SD$ =standard deviation of knowledge score,  $d$ =absolute error or precision. On the basis of the previous study,  $p$ -values are considered significant below 5%, hence, 1.96 is used in formula. Considering 95% Confidence Interval (CI) and 20% allowable error, the sample size was calculated to include 92 respondents. However, the researcher decided to include 100 college going students (data collection phase was completed within one month only to avoid sample mortality). Purposive sampling method was used. Patients who were diagnosed as having Oral submucous fibrosis (OSMF) and who are available during the period of data collection, who are willing to participate and who are able to read and write Marathi were included in the study. Those who were already exposed to this type of study in last 1 year, who are not on treatment of depression disorders and steroid were excluded from the study. Tools for data collection were socio demographic variables like age, gender, residence, type of family, family income per month, marital status, occupation and history of addiction and investigator used Beck's Depression Inventory (BDI) for assessing the depression of Oral Submucous Fibrosis (OSMF) patients. Beck's Depression Inventory (BDI) Marathi contains 21 items on a 4-point scale from 0 is symptom absent, 1 is mild, 2 is moderate and 3 is severe symptoms. Scoring is achieved by adding the highest ratings for all 21 items. The minimum score is 0 and maximum score is 63. Level of depression categorized into Mild, Moderate and Severe with score level 0-30%, 31-70% 71-100% respectively. Participants has given 30

min for solving the scale. Around 4-5 Oral Submucous Fibrosis (OSMF) patients were assessed per day or as and when the patients were available.

Statistical analysis was done SPSS version 22.0. For this study, collected data were arranged in tabular form. The data analyzed are described in tables and graphs. Variation in the Socio demographic variables and assessment of depression analyzed by descriptive statistics like Mean, standard deviation and percentage. Associate the level of depression score of Oral Submucous Fibrosis (OSMF) patients with their demographic variables drawn by inferential statistics like unpaired t test and One way ANOVA .

**Result s:**

**1. Sociodemographic characteristics of Oral Submucous Fibrosis (OSMF) patients**

A sample size was 100 oral sub mucous fibrosis (OSMF) patients. Majority of 27% were in 31-40 years of age, 74% were males, 54% were Hindus, 64% were from rural areas, 59% were from joint family, 41% had 5001-10000 Rs. monthly family income, 71% were married, 34% were laborer and 29% were consuming betel nut and tobacco. [Table/Fig-1].

**[Table/Fig-1]: Demographic characteristics of the patients (N=100)**

Sr. No.	Demographic Variables	No. of OSMF patients	Percentage (%)
<b>1</b>	<b>Age(yrs)</b>		
	≤20 yrs	9	9
	21-30 yrs	25	25
	31-40 yrs	27	27
	41-50 yrs	22	22
>50 yrs	17	17	
<b>2</b>	<b>Gender</b>		
	Male	74	74
	Female	26	26
<b>3</b>	<b>Religion</b>		
	Hindu	54	54
	Muslim	10	10
	Christian	5	5
	Buddhist	29	29
	Others	2	2
<b>4</b>	<b>Area of residence</b>		
	Urban	36	36
	Rural	64	64
<b>5</b>	<b>Type of family</b>		
	Nuclear	15	15
	Joint	59	59
	Separated	21	21
	Extended	5	5
<b>6</b>	<b>Family income per month</b>		
	<5000 Rs	18	18
	5000-10000 Rs	41	41

	10001-15000 Rs	25	25
	>15000 Rs	16	16
<b>7</b>	<b>Marital Status</b>		
	Unmarried	24	24
	Married	71	71
	Divorced	5	5
	Separated	0	0
	Widowed	0	0
<b>8</b>	<b>Occupation</b>		
	Labourer	34	34
	Farmer	29	29
	Govt. Service	17	17
	Private Service	14	14
	Self Employed	6	6
<b>9</b>	<b>History of addiction</b>		
	Tobacco	18	19
	Betel Nut	19	19
	Pan Masala	14	14
	Betel nut and tobacco	29	29
	Betel nut and Cigarette	9	9
	All above habits	9	9
	No any habit	2	2

## 2. Assessment of level of depression among oral submucous fibrosis (OSMF) patients

This indicated that 8 %, 91% and 1% of patient with OSMF had mild, Moderate and Severe level of depression respectively. Minimum to maximum score for depression ranged from 6, to 47. The mean value for depression was  $30.05 \pm 7.44$  and the mean level for depression was  $47.69 \pm 11.81$ . [Table/Fig-2].

[Table/Fig-2]: Assessment with level of depression (N=100)

Level of Depression	Score Range	Level of Depression Score	
		Frequency	Percentage
Mild	0-30%	8	8
Moderate	31-70%	91	91
Severe	71-100%	1	1
Minimum score		6	
Maximum score		47	
Mean depression score		$30.05 \pm 7.44$	
Mean % depression Score		$47.69 \pm 11.81$	

### 3. Association of level of depression score among oral submucous fibrosis (OSMF) patients in relation to demographic variables

The results revealed no relation with their demographic variables with the rates of depression score in patients with Oral Submucous Fibrosis (OSMF). [Table/Fig-3]

[Table/Fig-3]: Association of depression among OSMF patients in relation to demographic variables (N=100)

Sr. No.	Demographic variables	No. of OSMF patients	Mean depression score	F-value	p-value
1	<b>Age (yrs)</b>				
	≤20 yrs	9	30.33±4.55	0.08	0.98 NS,p>0.05
	21-30 yrs	25	29.44±7.30		
	31-40 yrs	27	29.85±8.28		
	41-50 yrs	22	30.59±6.27		
	>50 yrs	17	30.41±9.37		
2	<b>Gender</b>	<b>t – value</b>			
	Male	74	29.95±6.89	0.20	0.83 NS,p>0.05
	Female	26	30.30±8.96		
3	<b>Religion</b>				
	Hindu	54	29.68±7.03	1.25	0.29 NS,p>0.05
	Muslim	10	28.30±12.38		
	Christian	5	36±3.46		
	Buddhist	29	29.93±6.12		
	Others	2	35.50±10.60		
4	<b>Area of residence</b>	<b>t – value</b>			
	Urban	36	30.25±7.92	0.20	0.84 NS,p>0.05
	Rural	64	29.93±7.22		
5	<b>Type of family</b>				
	Nuclear	15	30.80±5.63	2.07	0.10 NS,p>0.05
	Joint	59	30.74±7.77		
	Separated	21	26.71±7.62		
	Extended	5	33.60±3.13		
6	<b>Monthly family income(Rs)</b>				
	<5000 Rs	18	31.44±6.25	1.02	0.38 NS,p>0.05
	5000-10000 Rs	41	30.95±6.82		
	10001-15000 Rs	25	28.80±7.52		
	>15000 Rs	16	28±9.77		
7	<b>Marital Status</b>				
	Unmarried	24	28.37±6.41	0.84	0.43 NS, p>0.05
	Married	71	30.50±7.85		

	Divorced	5	31.60±5.54		
	Separated	0	0±0		
	Widowed	0	0±0		
<b>8</b>	<b>Occupation</b>				
	Labourer	34	31.23±5.99	0.53	0.70 NS, p>0.05
	Farmer	29	28.62±7.81		
	Government Service	17	30.41±6.29		
	Private Service	14	30.28±9.18		
	Self Employed	6	28.66±12.16		
<b>9</b>	<b>History of addiction</b>				
	Tobacco	18	30.38±8.29	0.48	0.87 NS, p>0.05
	Betel Nut	19	32.31±7.31		
	Pan Masala	14	28.50±5.24		
	Betel nut and tobacco	29	29.48±6.90		
	Betel nut and Cigarette	9	29±9.78		
	All above habits	9	30.44±9.27		
	No any habit	2	27.50±6.36		

## Discussion

Present study, observed that 8 % of patients with OSMF had mild depression rates, 91 percent had moderate depression levels and just 1 percent had severe depression levels. Similar type of study performed Uttar Pradesh, India to determine the extent of anxiety, stress, and serum cortisol in patients with oral submucosal fibrosis (OSMF). 105 patients were recruited for study which was grouped into 3 equal categories i.e. Class 1 – those with areca nut chewing habits with OSMF, Group 2 – those with areca nut chewing habits without OSMF, and Group 3 – all without areca nut chewing habits and without OSMF. Hamilton Anxiety Rating Scale and Hamilton Depression Rating Scale, respectively used to test anxiety and depression, were both concurrently assessed at the Serum cortisol level. They used Paired t-test, Chi-square test, and variance analysis. Result revealed that patients (47.62%) were considered to be in the 25–32 year age. (91.4%) were males and (8.6%) were females. In OSMF-C patients, the mean serum cortisol level was found to be higher followed by those with OSMF-D. It was established that an important correlation existed between OSMF, Depression and serum cortisol.<sup>5</sup>

One of the study conducted to identify the relationship between oral submucous fibrosis (OSF) and psychiatric morbidity. Participants were split into three groups: Group 1- Areca Nut Chewing Habits with OSF (n=50); Group 2- Areca Nut Chewing Habits Without OSF (n=50), Group 3- Areca Habits With Dental Issues Except OSF (n=50). The Mini International Neuropsychiatric Assessment measured psychiatric morbidity, and the addiction to areca items was also tested. It found that 16 (32%) Group 1 patients have psychological morbidity when contrasted with 01 (2%) in Group 2 and 02 (4%) in Group 3 (P<0.001). Furthermore, psychiatric morbidity in patients with advanced OSF stages was considerably higher. Patients in Groups 1 and 2, 49 (98 percent) and 47 (94 percent) had dependency on areca products, respectively. This research outcome indicated the association of OSF patients and severe psychological morbidity.<sup>6</sup>

One of the study done in central jail, Bhopal, Madhya Pradesh, India for identifying the mucosal lesions among psychiatric jail patients. In this analysis, pre-diagnosed psychiatric patients were selected as a group living in central prison, Bhopal. Oral health assessment performed by the oral health evaluation proforma of the WHO, 1997 along with a questionnaire of 18 elements. It showed that 244 participants were examined in total, which consisted of 122 psychiatric patients and 122 non-psychiatric patients. In all psychiatric patients, about 57.4% of patients had depression, 14.8% had psychotic disorders (like schizophrenia) and 12.3% had anxiety disorder. A total of 77 per cent of sample subjects, composed of 87.7% psychiatric patients and 66.4% non psychiatric patients, had a habit of tobacco consumption (smokeless or smoking). Overall incidence of participants with oral mucosal lesions was 85 (34.8 percent), composed of 39.3 percent psychiatric patients and 30.3 percent non psychiatric patients. It was summarized that common oral mucosal lesions present in a psychiatric patient. The most severe forms of oral mucosal lesions have been found in leukoplakia and oral submucous fibrosis.<sup>7</sup>

A number of studies in this region were reviewed which have direct and indirect effect on acquirement or progression of level of depression with oral submucous fibrosis<sup>8,9,10</sup>. Gondivkar et al assessed the impact on life and quality of life among patients with oral submucous fibrosis<sup>11,12,13</sup>. Pal et al had studied about recognition of major depressive disorders and its correlates among adult male patients in primary care<sup>14</sup>. In studies on Global burden of disease also, related aspects were reported<sup>15,16</sup>.

### **Limitation**

As the study's sample size was low, its results cannot be generalized. The research is confined to individuals with submucous fibrosis and who were eligible during the data collection time. The study was conducted just to the city of Wardha.

### **Conclusion**

There is strong association with significant psychiatric co-morbidity among patients suffering from oral submucosal fibrosis (OSMF). Psychiatric treatment is necessary to mitigate psychological co-morbidity of oral submucosal fibrosis (OSMF) patients and health practitioners ought to concentrate on their emotional wellbeing.

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**Ethical Clearance:** Approved from Ethical Institutional Committee (IEC) of Datta Meghe Institute of Medical Sciences (Deemed to be University) Sawangi (Meghe), Wardha.

## References

1. Schwartz J. Atrophia Idiopathica Mucosae Oris. London: Demonstrated at the 11th Int Dent Congress; 1952.
2. Joshi SG. Fibrosis of the palate and pillars. *Indian J Otolaryngol.* 1953. 4:1:
3. Arakeri G, Brennan PA. Oral submucous fibrosis: an overview of the aetiology, pathogenesis, classification, and principles of management. *British Journal of Oral and Maxillofacial Surgery.* 2012 Oct 26. doi:pil: S0266-4356(12)00525-
4. Raja JV, Rai P, Kumar NC, Khan M, Chandrashekar H. Psychiatric morbidity among patients with oral submucous fibrosis: A controlled study. *Oral Health Dent Manag.* 2013;12:85–94. [PubMed].
5. Shubhra Kanodia, Vishal Prakash Giri, Om Prakash Giri, M. Parvathi Devi, and Y. Garima. Assessment of anxiety, depression, and serum cortisol level in oral submucous fibrosis patients: A controlled clinical trial. *European Journal of Dentistry.* 2017 Jul-Sep; 11(3): 293–298.
6. Raja JV1, Rai P, Kumar NC, Khan M, Chandrasekhar H. Psychiatric morbidity among patients with oral submucous fibrosis: a controlled study. *Oral Health Dent Manag.* 2013 Jun;12(2):85-94. PUBMED.US National Library of Medicine National Institutes of Health.
7. Nilesh Arjun Torwane, Hongal Sudhir, RN Sahu, Vrinda Saxena ect. Assessment of oral mucosal lesions among psychiatric inmates residing in central jail, Bhopal, Madhya Pradesh, India: A cross-sectional survey. Year : 2014, Volume : 56, Issue : 3 , Page : 265-270
8. Gadbail, A.R., M.S. Chaudhary, S.C. Sarode, S.M. Gondivkar, L. Belekar, M.P. Mankar-Gadbail, R. Dande, S.A. Tekade, M.B. Yuwanati, and S. Patil. “Ki67, CD105 and  $\alpha$ -Smooth Muscle Actin Expression in Disease Progression Model of Oral Submucous Fibrosis.” *Journal of Investigative and Clinical Dentistry* 10, no. 4 (2019): e12443. <https://doi.org/10.1111/jicd.12443>.
9. Hande, A., M. Chaudhary, M. Gawande, A. Gadbail, P. Zade, S. Bajaj, S. Patil, and S. Tekade. “Oral Submucous Fibrosis: An Enigmatic Morpho-Insight.” *Journal of Cancer Research and Therapeutics* 15, no. 3 (2019): 463–69. [https://doi.org/10.4103/jcrt.JCRT\\_522\\_17](https://doi.org/10.4103/jcrt.JCRT_522_17).
10. Panchbhai, A. “Effect of Oral Submucous Fibrosis on Jaw Dimensions.” *Turkish Journal of Orthodontics* 32, no. 2 (2019): 105–9. <https://doi.org/10.5152/TurkJOrthod.2019.18061>.
11. Gondivkar, S.M., R.R. Bhowate, A.R. Gadbail, R.S. Gondivkar, S.C. Sarode, G.S. Sarode, and S. Patil. “Impact of Oral Submucous Fibrosis on Oral Health-Related Quality of Life: A Condition-Specific OHRQoL-OSF Instrument Analysis.” *Oral Diseases* 24, no. 8 (2018): 1442–48. <https://doi.org/10.1111/odi.12921>.
12. Gondivkar, S.M., R.R. Bhowate, A.R. Gadbail, S.C. Sarode, R.S. Gondivkar, M. Yuwanati, and S. Patil. “Quality of Life-Related ‘Patient-Reported Outcome Measures’ in Oral Submucous Fibrosis Patients.” *Journal of Contemporary Dental Practice* 19, no. 3 (2018): 331–38. <https://doi.org/10.5005/JP-JOURNALS-10024-2262>.
13. Gondivkar, Shailesh M., Rahul R. Bhowate, Amol R. Gadbail, Rima S. Gondivkar, and Sachin C. Sarode. “Impact of Socioeconomic Inequalities on Quality of Life in Oral Submucous Fibrosis Patients.” *FUTURE ONCOLOGY* 15, no. 8 (March 2019): 875–84. <https://doi.org/10.2217/fon-2018-0645>.
14. Pal, Sutanaya, Rajat M. Oswal, and Ganpat K. Vankar. “Recognition of Major Depressive Disorder and Its Correlates among Adult Male Patients in Primary Care.” *ARCHIVES OF PSYCHIATRY AND PSYCHOTHERAPY* 20, no. 3 (September 2018): 55–62. <https://doi.org/10.12740/APP/89963>.
15. Vos, Theo, Stephen S Lim, Cristiana Abbafati, Kaja M Abbas, Mohammad Abbasi, Mitra Abbasifard, Mohsen Abbasi-Kangevari, et al. “Global Burden of 369 Diseases and Injuries in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease



- Study 2019.” *The Lancet* 396, no. 10258 (October 2020): 1204–22.  
[https://doi.org/10.1016/S0140-6736\(20\)30925-9](https://doi.org/10.1016/S0140-6736(20)30925-9).
16. Wang, Haidong, Kaja M Abbas, Mitra Abbasifard, Mohsen Abbasi-Kangevari, Hedayat Abbastabar, Foad Abd-Allah, Ahmed Abdelalim, et al. “Global Age-Sex-Specific Fertility, Mortality, Healthy Life Expectancy (HALE), and Population Estimates in 204 Countries and Territories, 1950–2019: A Comprehensive Demographic Analysis for the Global Burden of Disease Study 2019.” *The Lancet* 396, no. 10258 (October 2020): 1160–1203.  
[https://doi.org/10.1016/S0140-6736\(20\)30977-6](https://doi.org/10.1016/S0140-6736(20)30977-6).