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Interrelationship of oral health, nutrition and psychological status in oral submucous fibrosis: A cross-sectional study

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Abstract:
Oral submucous fibrosis (OSMF) can impair oral function, nutrition and psychological well-being, yet these domains are seldom evaluated together. Therefore, it is of interest to assess the oral health-related quality of life (OHRQoL), nutritional status and psychological status in 352 clinically diagnosed OSMF patients aged 18-70 years using OHIP-14, the Mini Nutritional Assessment and Beck's Depression Inventory. Higher OHIP-14 scores were observed in 38.35% of participants, 38.9% were at risk of malnutrition and 4.8% were malnourished, while 29.2% and 9.6% showed mild and borderline depressive symptoms, respectively. Higher OSMF grades were associated with poorer OHRQoL, greater nutritional risk and more depressive symptoms, although correlations with disease severity were weak and statistically nonsignificant. Thus, data support integrated oral-health care, nutritional assessment, psychological support and habit cessation in patients with OSMF.

Keywords: Oral submucous fibrosis (OSMF), oral health-related quality of life (OHRQoL), nutrition, depression, beck depression inventory, mini nutritional assessment

Background:
Oral submucous fibrosis (OSMF) is a chronic, progressive, potentially malignant disorder that predominantly affects populations in South and Southeast Asia and is characterized by mucosal fibrosis, blanching, burning sensation, depapillation, restrict edmouth opening and impaired oral function **[1, 2].** Areca-nut use, including commercially prepared products such as gutkha and pan masala, is the principal established exposure, often occurring with tobacco and alcohol use **[3-5].** Progressive trismus and mucosal rigidity can impair mastication, swallowing and speech, thereby restricting dietary intake and adversely affecting daily activities and oral health-related quality of life (OHRQoL)**.** OSMF may also be accompanied by psychological distress related to chronic symptoms, functional limitation and concern about malignant transformation **[6].** OHRQoL captures the functional, psychological and social impact of oral disease, while nutritional screening and psychological assessment provide complementary information relevant to comprehensive care **[7, 8].** Therefore, it is of interest to assess the oral health-related quality of life, nutritional status and psychological status together and to examine their relationship with OSMF severity using validated instruments.

Materials and Methods:
Study design and ethical approval:
This cross-sectional observational study was conducted among patients diagnosed with oral submucous fibrosis (OSMF) after obtaining ethical clearance from the Institutional Human Research Ethics Committee (GU/HREC/EC/2023/2344). The study was carried out over a period of six months, from September 1, 2023, to February 28, 2024. Written informed consent was obtained from all participants prior to their inclusion in the study, in accordance with the Declaration of Helsinki.

Study population and sample size:
The study included 352 patients clinically diagnosed with oral submucous fibrosis, aged 18 years and above, of either gender. The sample size was calculated to be 352 participants with a study power of 80%. All eligible patients who fulfilled the inclusion and exclusion criteria during the study period were enrolled. Patients were recruited both prospectively and retrospectively. Prospectively, patients reporting to the outpatient departments of the institution and those identified during outreach programs between September 2023 and February 2024 were enrolled. Retrospectively, patients diagnosed with OSMF within the previous two years were identified from institutional medical records. These patients were contacted telephonically using available contact details and were invited to participate in the study. Transportation was facilitated to ensure participation.

Inclusion and exclusion criteria:
Patients aged 18 years and above, of either gender, who were clinically diagnosed with oral submucous fibrosis of any grade and had a history of areca nut and/or tobacco consumption

were included in the study. Only those individuals who were willing to participate and provided written informed consent were enrolled. Patients with debilitating systemic diseases, the presence of other oral potentially malignant disorders or oral lesions, a history of diagnosed psychiatric illness and those who had previously undergone surgery for oral cancer, cleft lip and palate, or related conditions were excluded from the study.

Sampling method:
A non-probability convenience sampling method combined with snowball sampling technique was employed to recruit study participants. Patients attending the outpatient departments and outreach programs were initially enrolled and additional participants were recruited through referrals from previously enrolled patients.

Examiner calibration and training:
Prior to the commencement of the study, the examiner was trained, standardized and calibrated in the Department of Oral Medicine under the supervision of two subject experts—one from Oral Medicine and Radiology and the other from Public Health Dentistry. Calibration involved clinical examination of 10 subjects for training, followed by assessment of 20 subjects using standardized diagnostic criteria, with a minimum interval of 30 minutes between examinations. This process ensured consistency and reliability in clinical assessment and data recording.

Method of data collection:
Data were collected using a predesigned and validated questionnaire, which comprised five components:

Demographic and habit profile:
This section recorded demographic details including age, gender, education, occupation, income, place of residence, height, weight, medical history and deleterious habits such as areca nut, tobacco and alcohol consumption **[9].**

Oral health–related quality of life:
Oral health–related quality of life was assessed using the Oral Health Impact Profile-14 (OHIP-14), a validated instrument consisting of 14 items across seven domains: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. Responses were recorded on a 5-point Likert scale ranging from 0 ("never") to 4 ("very often"). The total score ranged from 0 to 56, with higher scores indicating poorer oral health–related quality of life **[9, 10]**.

Nutritional assessment:
Nutritional status was evaluated using the screening section of the Mini Nutritional Assessment (MNA®). This tool incorporates anthropometric measurements and questions related to dietary intake, weight loss, mobility, psychological stress and neuropsychological problems. Scores were interpreted according to standard guidelines, categorizing patients as normal, at risk of malnutrition, or malnourished **[11]**.

Psychological assessment:
Psychological status was assessed using Beck's Depression Inventory (BDI), a 21-item self-report questionnaire with each item scored from 0 to 3. Total scores were interpreted as per standard cut-off values, with higher scores indicating increasing severity of depressive symptoms **[12]**. The questionnaire was administered in English and clinicians assisted participants in understanding the questions to ensure accurate responses.

Clinical examination of OSMF:
A Type IV (screening) oral examination was performed under adequate illumination using mouth mirrors and disposable gloves. OSMF was clinically graded based on inter-incisal mouth opening and clinical features according to the classification described by Kerr *et al.* **[13]**.

Reliability and pilot testing:
A pilot study was conducted on 25 patients who met the inclusion and exclusion criteria to assess the feasibility and reliability of the questionnaire. Test–retest reliability was evaluated by administering the questionnaire on two separate occasions. Internal consistency of the questionnaire was assessed using Cronbach's alpha, which yielded a value of 0.92, indicating excellent reliability.

Statistical analysis:
Data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version 20.0. Descriptive statistics were used to summarize demographic variables and clinical characteristics. Associations between categorical variables were assessed using Chi-square test and Fisher's exact test, as appropriate. Pearson's correlation coefficient was used to evaluate the relationship between OSMF severity and scores of OHIP-14, Mini Nutritional Assessment and Beck's Depression Inventory. A p-value of <0.05 was considered statistically significant.

Results:
The present study included 352 patients clinically diagnosed with oral submucous fibrosis (OSMF), aged between 18 and 70 years. All participants reported a history of areca nut and tobacco consumption. The demographic distribution of the study population is presented in **Table 1**. Among the participants, 47% belonged to the 18–30-year age group, followed by 27% in the 31–45 year group and 25.1% above 45 years of age. A marked male predominance was observed, with males comprising 89.6% of the study population, resulting in a male-to-female ratio of approximately 9.3:1. The majority of patients were married (67.3%) and belonged to the labour or wage-worker category (64.5%). Most participants reported a monthly income between ₹11,000 and ₹25,000 (36.6%), had primary-level education (50.1%) and resided in urban areas (54.8%). Clinically, most patients were diagnosed with Grade II OSMF, followed by

Grade I and Grade III cases. No patients with Grade IV or Grade V OSMF were included in the study. Assessment of oral health–related quality of life using the OHIP-14 questionnaire revealed that 135 participants (38.35%) had higher OHIP-14 scores, indicating poorer oral health–related quality of life, while 217 participants (61.64%) demonstrated lower scores, reflecting better oral health–related quality of life **(Table 5)**. The distribution of responses to individual OHIP-14 items is detailed in **Table 4**. Higher OHIP-14 scores were more frequently observed among patients with higher grades of OSMF and this association was found to be statistically significant **(Table 2)**. Based on the Mini Nutritional Assessment (MNA), 197 participants (55.5%) were categorized as having normal nutritional status. A total of 138 participants (38.9%) were identified as being at risk of malnutrition, while 17 participants (4.8%) were classified as malnourished **(Table 7)**. The responses to individual MNA screening items are summarized in **Table 6**. An increase in nutritional risk was observed with increasing severity of OSMF and the association between OSMF grading and MNA scores was statistically significant **(Table 2)**. Psychological assessment using Beck's Depression Inventory showed that 215 participants (61%) had scores within the normal range. Mild depressive symptoms were observed in 103 participants (29.2%), while 34 participants (9.6%) exhibited borderline depressive symptoms. None of the participants fell into the moderate, severe, or extreme depression categories **(Table 8)**. Higher BDI scores were more commonly noted among patients with higher grades of OSMF and the association between OSMF severity and depressive symptoms was statistically significant **(Table 2).** Analysis of deleterious habits revealed that gutkha chewing was the most common habit among participants, followed by chewing tobacco. The severity of OSMF was higher among patients with multiple habits, particularly those who reported a combination of chewing habits and alcohol consumption **(Table 3)**. Pearson correlation analysis demonstrated a weak positive correlation between OSMF severity and OHIP-14 scores (r = 0.288), Mini Nutritional Assessment scores (r = 0.0948) and Beck's Depression Inventory scores (r = 0.259). However, these correlations did not reach statistical significance **(Table 9)**.

Table 1: Demographic details of participants and inferential analysis

Demographic Details	Numbers (Percentage)	OHI-P		MNA			BECKS			OSMF GRADE		
		H	L	N	B	M	N	B	M	I	II	III
Age (Years)												
[1] 18-30	167 (47%)	82	85	89	70	08	107	44	16	44	79	44
		(23.3)	(24.1)	(25.2)	(19.8)	(2.2)	(30.3)	(12.5)	(4.5)	(12.5)	(22.4)	(12.5)
[2] 31-45	96 (27%)	29	67	63	33	00	45	42	09	27	60	09
		(8.2)	(10.5)	(17.8)	(9.3)	(0)	(12.7)	(11.9)	(2.5)	(7.6)	(17)	(2.55)
[3] >45	89 (25.1%)	24	65	45	35	09	63	17	09	09	62	18
		(6.8)	(18.4)	(12.7)	(9.9)	(2.5)	(17.9)	(4.8)	(2.5)	(2.5)	(17.6)	(5.1)
X^2 Value		16.2208		13.637			14.949			22.887		
P- Value		0.0003*		0.007*			0.005*			0.001*		
Sex												
[1] Male	318 (89.6%)	128	190	188	113	17	197	87	34	80	176	62
		(36.6)	(53.9)	(53.4)	(32.1)	(4.8)	(55.9)	(24.7)	(9.6)	(22.7)	(50)	(17.6)
[2] Female	34 (9.4%)	07	27	09	25	00	18	16	00	00	25	09
		(1.9)	(7.6)	(2.5)	(7.1)	(0)	(5.1)	(4.5)	(0)	(0)	(7.1)	(2.5)
X^2 Value		5.023		17.446			8.206			15.278		
P- Value		0.025*		0.0001*			0.014*			0.0001*		
Marital Status												
[1] Married	239 (67.3%)	69	170	144	78	17	153	60	26	71	132	36
		(19.6)	(48.2)	(40.9)	(22.1)	(4.8)	(43.4)	(17)	(7.3)	(20.1)	(37.5)	(10.2)
[2] Unmarried	113 (31.8%)	66	47	53	60	00	62	43	08	09	69	35
		(18.7)	(13.3)	(15)	(17)	(0)	(17.6)	(12.2)	(2.2)	(2.5)	(19.6)	(9.9)
X^2 Value		28.31		20.353			6.377			28.005		
P- Value		0.0001*		0.0001*			0.042*			0.0001*		
Occupation												
[1] Labour/Wage worker	229 (64.5%)	102	127	117	95	17	125	78	26	26	140	63
		(28.9)	(36)									
[2] Professional	80 (22.5%)	17	63	62	18	00	63	17	00	27	53	00
		(4.8)	(17.8)	(17.8)	(5.1)	(0)	(17.8)	(4.8)	(0)	(7.6)	(15)	(0)
[3] Semi-Professional	43 (12%)	16	27	25	18	00	27	08	08	27	08	08
		(4.5)	(7.6)	(7.1)	(5.1)	(0)	(7.6)	(2.2)	(2.2)	(7.6)	(2.2)	(2.2)
X^2 Value		13.63		28.194			26.41			90.35		
P- Value		0.001*		0.0001*			0.0001*			0.000*		
Income												
[1] <10k	124 (34.9%)	54	70	63	61	00	89	35	00	09	79	36
		(15.3)	(19.8)	(17.8)	(17.3)	(0)	(25.2)	(9.9)	(0)	(2.5)	(22.4)	(10.2)
[2] 11k-25k	130 (36.6%)	42	88	54	59	17	45	51	34	26	78	26
		(11.9)	(25)	(15.3)	(16.7)	(4.8)	(12.7)	(14.4)	(9.6)	(7.3)	(22.1)	(7.3)
[3] 26k-50k	89 (25.1%)	38	51	71	18	00	72	17	00	45	35	09
		(10.7)	(14.4)	(20.1)	(5.1)	(0)	(20.4)	(4.8)	(0)	(12.7)	(9.9)	(2.5)
[4] >50k	9 (2.5%)	01	08	09	00	00	09	00	00	00	09	00
		(0.2)	(2.3)	(2.5)	(0)	(0)	(2.5)	(0)	(0)	(0)	(2.5)	(0)

X^2 Value		6.96	61.638	95.968	61.738	
P- Value		0.073	0.0001*	0.0001*	0.0001*	
Education						
[1] Primary	178 (50.1%)	79 99	99 70 09	107 53 18	18 124 36	
		(22.4)(28.1)	(28.1)(19.8)(2.5)	(30.4)(15)(5.1)	(5.1)(35.2)(10.2)	
[2] Higher Secondary	78 (22.1%)	23 55	36 34 08	54 18 08	44 25 09	
		(6.5)(15.6)	(10.2)(9.6)(2.3)	(15.3)(5.1)(2.3)	(12.5)(7.1)(2.5)	
[3] Bachelor	79 (22.3%)	26 53	45 34 00	45 26 08	09 44 26	
		(7.3)(15)	(12.7)(9.6)(0)	(12.7)(7.3)(2.3)	(2.5)(12.5)(7.3)	
[4] Professional	17 (4.8%)	09 08	17 00 00	09 08 00	09 08 00	
		(2.5)(2.3)	(4.8) (0) (0)	(2.5)(2.3) (0)	(2.5)(2.3) (0)	
X^2 Value		7.759	25.964	6.886	80.993	
P- Value		0.051	0.0001*	0.315	0.0001*	
Residence						
[1] Urban	197 (54.8%)	71 126	143 52 00	144 43 08	45 106 44	
		(20.1)(35.7)	(40.6)(14.7) (0)	(40.9)(12.2)(2.3)	(12.5)(30.1)(12.4)	
[2] Rural	155 (44.2%)	64 93	54 86 17	71 60 26	35 95 27	
		(18.2)(26.4)	(14.9)(24.4)(4.8)	(20.1)(17) (7.3)	(9.9)(26.9)(7.6)	
X^2 Value		0.826	66.087	33.613	1.828	
P- Value		0.363	0.0001*	0.0001*	0.406	

(H: High, L: Low, N: Normal, B: Borderline, M: Mild, Malnutrition)

Table 2: Distribution of oral submucous fibrosis with score of mini nutritional assessment/ with beck's depression inventory

OSMF	OHI-P		MINI			BECKS		
	H	L	N	B	M	N	B	M
Grade I	17	63	63	09	08	72	00	08
Grade II	77	124	98	94	09	116	67	18
Grade III	41	30	36	35	00	27	36	08
CHI SQUARE	21.192		42.797			70.123		
	0.000*		0.000*			0.000*		

Table 3: Distribution of OSMF patient and their habits

GRADE	NO. OF PATIENTS	Areca nut	Gutkha	Chewing tobacco	smoking	Habit +Alcohol	Any other	More than two habit
GRADE-1	80 (22.5%)	16 (4.5%)	62 (17.6%)	22 (6.2%)	21 (6%)	11 (3.1%)	0 (0%)	5 (1.4%)
GRADE-2	201 (56.6%)	38 (10.7%)	156 (44.3%)	62 (17.6%)	53 (15%)	34 (9.6%)	9 (2.5%)	61 (17.3%)
GRADE-3	71 (20.0%)	21 (6%)	62 (17.6%)	51 (14.4%)	32 (9%)	39 (11%)	2 (0.5%)	55 (15.6%)
GRADE-4	-	-	-	-	-	-	-	-
GRADE-5	-	-	-	-	-	-	-	-

Table 4: Responses of the OHIS-14 quality of life questioners

S.No	Questions	Very Often	Fairly Often	Occasionally	Hardly Ever	Never	Don't Know
1	Have you had trouble pronouncing any words because of the problem with your teeth or mouth?	0	17	27	123	185	0
2	Have you felt that your sense of taste has worsened because of a problem with your teeth or mouth?	9	35	71	158	79	0
3	Have you had painful aching in your mouth?	9	80	133	95	35	0
4	Have you found it uncomfortable to eat any foods because of problems with your teeth or mouth?	0	27	52	176	88	9
5	Have you been self-conscious because of your teeth or mouth?	9	43	62	86	134	18
6	Have you felt tense because of problems with your teeth or mouth?	0	27	60	86	152	27
7	Has your diet been unsatisfactory because of problems with your teeth or mouth?	0	8	53	114	159	18
8	Have you had to interrupt meals because of problems with your teeth or mouth?	0	0	54	97	201	0
9	Have you found it difficult to relax because of problems with your teeth or mouth?	0	9	35	123	185	0
10	Have you been a bit embarrassed because of problems with your teeth or mouth?	26	42	88	79	117	0
11	Have you been a bit irritable with other people because of problems with your teeth or mouth?	0	26	97	103	126	0
12	Have you had difficulty doing your usual jobs because of problems with your teeth or mouth?	0	18	52	131	152	9
13	Have you felt that life in general was less satisfying because of problems with your teeth or mouth?	0	27	53	137	135	0
14	Have you been totally unable to function because of problems with your teeth or mouth?	0	18	71	110	153	0

Table 5: OHI-P 14 score interpretation

	OHI-P 14 SCORE	Number of participants	Interpretation
High	9-14	135 (38.35%)	Higher score indicate lower oral health related quality of life
Low	0-8	217 (61.64%)	Lower score indicate higher oral health related quality of life

Table 6: Responses of mini nutritional assessment (NESTLE 2009)

MNA		0	1	2	3
A.	**Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?**	105 (29.6%)	247 (69.6%)	0	0
B.	**Weight loss during the last 3 months.**	26 (7.3%)	26 (7.3%)	140 (39.1%)	160 (45.1%)
C.	**Mobility**	9 (2.5%)	343 (97.5%)	0	0
D.	**Has suffered psychological stress or acute disease in the past 3 months ?**	0	352 (100%)	0	0
E.	**Neuropsychological problems**	0	352 (100%)	0	0

Table 7: Interpretation of MNA scale

Score	Percentage	No. Of pt.	Criteria
12-14	55.5%	197	Normal
8-11	38.9%	138	Risk of malnutrition
0-7	4.8%	17	Malnourished

Table 8: Interpretation of beck's depression inventory

Score	Percentage	No. Of pt.	Criteria
1-10	61%	215	Normal
11-16	29.2%	103	Mild
17-20	9.6%	34	Borderline
21-30	0	0	Moderate
31-40	0	0	Severe
40 and above	0	0	Extreme

Table 9: Pearson correlation coefficient of oral submucous fibrosis with score of ohip-14 / mini nutritional assessment/ with beck's depression inventory

	R value	P value
OSMF with ohis-14	0.288 Weak positive relation	0.262
OSMF with mini nutritional assessment	0.0948 Weak positive relation	0.876
OSMF with beck's Depression inventory	0.259 Weak positive relation	0.247

Discussion:

Oral submucous fibrosis (OSMF) is a chronic, progressive and potentially malignant disorder that has been described in ancient Indian literature by Sushruta (2500–3000 BC) as Vidari. The condition was later termed atrophicaidiopathica mucosae oris by Schwartz in 1952 and comprehensively characterized by Pindborg and Sirsat in 1966 as an insidious disease affecting the oral cavity and sometimes the pharynx **[14]**. Clinically, OSMF is characterized by blanching and fibrosis of the oral mucosa, burning sensation, depopulation of the tongue, reduced mouth opening and compromised oral function **[15, 16]**. The present cross-sectional study was undertaken to assess oral health–related quality of life, nutritional status and psychological status in patients with OSMF and to evaluate the relationship between these domains. A total of 352 patients were included to provide a comprehensive understanding of the burden of illness associated with OSMF. Consistent with previous studies, a marked male predominance was observed, with a male-to-female ratio of approximately 9.3:1 **[17, 18]**. The majority of affected individuals were young adults between 18 and 30 years of age, belonged to the labour class, had lower educational attainment and reported lower income levels. These findings reflect the widespread availability, affordability and aggressive marketing of areca nut products such as gutkha and pan masala, particularly among socioeconomically disadvantaged populations **[18]**. In the present study, most patients were diagnosed with Grade II OSMF, with disease severity being higher among individuals reporting multiple deleterious habits, especially gutkha consumption in combination with tobacco and alcohol. Similar observations have been reported in previous epidemiological and clinical studies, which indicate that gutkha users tend to develop OSMF earlier and with greater severity compared to users of traditional areca nut preparations **[15, 18]**. The synergistic effect of areca nut, tobacco and alcohol is believed to accelerate fibrosis and disease progression. Assessment of oral health–related quality of life using the OHIP-14 revealed that 38.35% of participants had higher scores, indicating compromised OHRQoL. Functional limitation, physical pain and psychological discomfort were among the most affected domains. These findings are in agreement with earlier studies by Tadakamadla *et al.* and Chaudhry *et al.* and Lawal *et al.* which reported a significant deterioration in quality of life among patients with oral potentially malignant disorders, including OSMF **[6–8]**. Restricted mouth opening, burning sensation, difficulty in chewing and swallowing and aesthetic concerns

contribute substantially to reduced daily functioning and social interaction. Nutritional assessment using the Mini Nutritional Assessment showed that 38.9% of patients were at risk of malnutrition and 4.8% were malnourished. The progressive reduction in mouth opening, mucosal rigidity, pain and intolerance to spicy food often lead to altered dietary patterns, reduced food intake and subsequent nutritional deficiencies. Similar associations between OSMF and compromised nutritional status have been reported in earlier studies, although literature specifically evaluating nutrition in OSMF patient's remains limited **[19]**. Poor nutritional status may further aggravate systemic health, predisposing affected individuals to metabolic, gastrointestinal and cardiovascular comorbidities. Psychological evaluation using Beck's Depression Inventory revealed that a substantial proportion of patients experienced borderline to mild depressive symptoms. Although none of the participants exhibited moderate or severe depression, the presence of psychological distress is clinically relevant. Fear of malignant transformation, chronic pain, functional impairment and social stigma associated with OSMF are likely contributors to psychological morbidity **[6]**. The present study showed a weak positive correlation between OSMF severity and depressive symptoms, indicating that psychological distress may increase with disease progression, although the association did not reach statistical significance. Correlation analysis revealed weak positive relationships between OSMF severity and oral health–related quality of life, nutritional status and psychological status. While these correlations were not statistically significant, the observed trends suggest an inter-relationship between oral health and general health domains in patients with OSMF. Similar observations have been reported in previous studies assessing quality of life in oral potentially malignant disorders **[6–8]**. The lack of strong statistical correlation may be attributed to the cross-sectional study design, variability in individual coping mechanisms and the subjective nature of self-reported assessment tools. The findings of the present study emphasize that OSMF is not merely a localized oral condition but a disease with significant functional, nutritional and psychological consequences. Management strategies for OSMF often focus on habit cessation and improvement of mouth opening; however, nutritional rehabilitation and psychological counseling are frequently overlooked. A multidisciplinary approach involving oral physicians, oral surgeons, nutritionists and mental health professionals is essential for comprehensive patient care. Early diagnosis and intervention by primary healthcare providers are crucial given the progressive nature of the disease and its malignant potential **[19]**. Recent cross-sectional work assessing oral health status across grades of oral submucous fibrosis supports evaluating clinical stage alongside patient-reported oral health outcomes; however, the present study additionally considered nutrition and depressive symptoms. **[20]**

Conclusion:

OSMF was associated with impaired OHRQoL, nutritional risk and mild-to-borderline depressive symptoms in substantial proportions of participants. Although correlations with disease severity were weak and statistically nonsignificant, categorical analyses showed worsening health-domain scores at higher OSMF grades. Multidisciplinary management should integrate oral care, nutritional assessment, psychological support and habit cessation.

Limitations:

The present study has certain limitations that should be considered while interpreting the findings. The cross-sectional study design restricts the ability to establish causal relationships between oral submucous fibrosis and the assessed oral, nutritional and psychological health domains. The use of non-probability convenience and snowball sampling methods may limit the generalizability of the results to the wider population. Data on nutritional and psychological status were obtained using self-reported questionnaires, which may be subject to recall bias and reporting bias. Additionally, the duration, frequency and cumulative exposure of deleterious habits such as areca nut and tobacco consumption were not evaluated, which could have provided further insight into disease severity and progression. Objective biochemical or dietary assessments of nutritional status were not performed. Furthermore, patients with oral submucous fibrosis of unknown etiology were excluded, which may limit the applicability of the findings to all OSMF populations.

Conflict of interest: None

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