The Professional Medical Journal
www.theprofesional.com

DOI: 10.17957/TPMJ/17.4053

ORIGINAL PROF-4053

ORAL SUBMUCOUS FIBROSIS;

ORAL HEALTH IMPACT PROFILE OF PATIENTS AND ITS CORRELATION WITH ITS CLINICAL GRADING

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Article received on:
15/05/2017
Accepted for publication:
05/09/2017
Received after proof reading:
03/11/2017

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Abstract… Objectives: To assess the impacts of oral sub mucous fibrosis (OSMF) on patients through Oral Health Impact Profile, its correlation with clinical grading, and influence of OHIP-14 on the patients willingness to quit habit. **Study Design:** A Cross sectional, Hospital based study. **Setting:** Isra university Hospital, Hyderabad. **Period:** Six months. **Materials and Methods:** A sample of 48 subjects was selected non-probability purposive sampling according to inclusion and exclusion criteria. Data was collected on a proforma. Informed consent was taken from participants. Clinical diagnosis of OSMF was based upon clinical symptoms. **Results:** Male population predominated over female. Oral health of OSF patients as evaluated in present study, revealed overall bad oral health of study subjects. One or the other complaints of OHIP-14 were present in patients and they complained mainly about difficulties in word pronunciation, bad taste, mouth ache, uncomfortable eating, psychological discomfort etc. Pindborg staging shows most patients fall in stage II 27 (56.2%), followed by stage I and II as 13 (27.0%) and 8 (16.6%) respectively. **Conclusion:** Over all very bad oral hygiene was observed in most of study population as determined by oral health impact profile-14 questionnaire in patients of oral submucosal fibrosis. OHIP-14 showed positive correlation with Pindborg clinical grading. OHIP-14 may help in improving oral hygiene of disease population in our community.

Key words: OHIP-14, Oral submucous fibrosis, Quality of Life (QoL).

Article Citation: Shahid H, Qadri M, Hassan S. Oral submucous fibrosis; Oral health impact profile of patients and its correlation with its clinical grading. Professional Med J 2017;24(11):1719-1726. **DOI:**10.17957/TPMJ/17.4053

INTRODUCTION

Oral cavity is involved in many functions such as speaking, chewing, taste perception and swallowing (1). Therefore any pathological change in oral mucosa would affect these functions and result in impaired quality of life (QOL).[1,2]

One such pathological disease is Oral Submucous Fibrosis (OSF), a chronic disease of insidious onset with a prevalence rate of 3.2% in south East Asian countries.[3] It is characterized by mouth opening difficulty. OSF carries a significant risk of oral cancers with the malignancy potential rate of 7.6 %.[4] OSF is a chronic progressive disorder; the patients are intolerant to spicy food.[4] The rigidity of lip, tongue and palate occurs, which in turn causes limitation of tongue movement and mouth opening.[5] The hallmark of OSMF is pathological fibrosis of submucous tissue which affects most of the oral cavity, oro-pharynx and upper 1/3 of esophagus.[5]

Chewing of areca nut is a proven agent for OSF and is proved to be carcinogenic.[6] Currently, prevalence of areca nut chewing is as high as 27.06% which has been reported from Indore, India.[6] A number of etiologic agents have been marked ranging from gene factors to auto-immune reactions; however one of the directly linked etiologic agent is the areca nut/betel nut use.[6] World estimates of betel nut consumption show a prevalence of 20% of population chewing areca nut.[7] Patients present with significant oral cavity complaints, such as mouth burning, oral discomfort and difficult chewing.[7] Chronic cases carry risk of developing oral malignancies originating from oral squamous epithelia.[7]

Currently OSF patients are managed symptomatically and not much importance is

given to the grade wise impacts of OSF on the patient's QOL.[8] In order to assess these grade wise impacts subjective measurement scale may be used.[8]

Scales using subjective oral health are nowadays widely used for the problem in oral health research.[9] The Oral Health Impact Profile (OHIP-14) Questionnaires is one of single item and self-rated for oral health is widely used in dentistry, it marks the masticatory morbidity and psychological factors such as eating and sleeping problems, pain, burning and concerns of oral odors in the social meetings.[9]

Impact of oral health on quality of life (QoL) may be practiced as routine part of oral health evaluations, as clinical findings may alone be insufficient to evaluate the health status of dental patients.[10] The Oral health-related quality of life (OHRQoL) indicators have been used clinically in longitudinal and cross sectional studies. Among many other questionnaires, the OHIP-14 in spite of being very concise yields promising results and is much reliable.[10]

The OHIP-14 and oral health related quality (OHRQoL) of life have been measured using different scales during past thirty years.[11] They have been instrumented with great success for evaluating various aspects of perceived oral health in composite scores and have become standard of measuring oral health diseases and dental interventions.[11] The OHIP-14 is used to judge as an outcome measure because of two reasons firstly; a validity and measurement property are well described and is frequently used, and secondly previous methodology has already highlighted its importance in persons with congenital absence of teeth.[11]

Much interest has been observed in recent years regarding oral health related quality of life (OHRQoL) in the elderly as many studies have been conducted.[12] The OHRQoL broadly shows the information from epidemiological studies over and beyond clinical symptomatology.[12] Clinical indicators are indispensable in assessing oral health, however, comprehensive assessments of oral health should include patient's self-reports on oral health.[12,13]

The incidence of OSF is very high, and an effective medical and surgical treatment is yet lacking related to the problem, therefore it is advisable to diagnose the problem at an early stage.[14] Public health awareness programs, interventional studies and a change in habits may overcome problems at the community level.[14]

To date very few studies have been documented but there is absence of qualitative research work on psychosocial complications associated with OSF. Patient's perception is important in the treatment planning and early diagnosis of OSF grades on time in the clinical outcome. Thus there is a need for measurement of quality of life of patients so as to define the impact on their social and psychological well-being which the dentist often fails to realize.

Rationale of the study

As OSF disease is precancerous and a major social problem. The dentists are diagnosing the cases but not treating them grade wise, as option of treatment differs from grade 1 to grade 3. This study is going to evaluate the impacts of OSF disease grade wise by a given proforma OHIP-14, and will highlight the importance of this proforma so that it becomes a routine tool for early diagnosis of OSF before it turns into malignancy and hence will improve the quality of life.

Material and methods

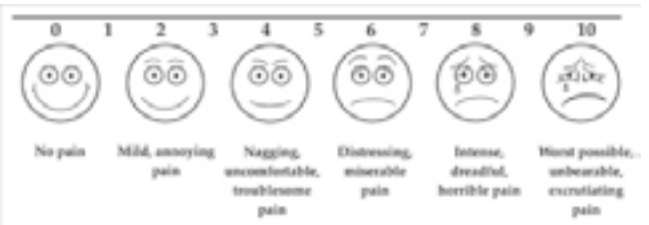
Our study is a cross sectional study of the general population N= 48, out of which 37 (77.08%) were males and 11 (22.9%) were females respectively. Patients visiting the Dental OPD of Isra dental college, Isra University from 1st July to 31st December 2016 were recruited. Patients coming to the OPD of Isra Dental College are generally both from rural and urban areas as Hyderabad is a small city and adjoining cities don't have tertiary based hospitals in their localities. Patients with clinically diagnosed oral submucous fibrosis of all ages of both genders were included into this non-probability purposive sampling study. Patients having psychological disorders or who

were unable to give proper response for OHIP-14 proforma questionnaire were excluded from this study along with patients having acute oral pain and restricted mouth opening due to either pericoronitis or TMJ disorders.

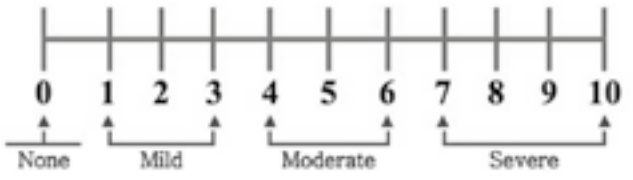
A questionnaire composed of their bio-data which included gender, age, name as well as area of living, presenting complain history of presenting complain, the examination and the past treatment done. Importance was given on gender, age, and complain of the precancerous lesion. These questions helped to evaluate their own understanding and knowledge regarding oral submucous fibrosis. All the data after compilation was analyzed and the results were put together. SPSS version 22 was used to analyze the data. The purpose was to find out the measurement of quality of life of patients so as to define the impact on their social and psychological well-being which the dentist often fails to realize. Written consent form was obtained from the patient and they were then categorized into different grades of Oral submucous fibrosis, clinical examination was undertaken following five diagnostic clinical steps.

Clinical diagnosis was based upon symptom of:

1. Burning sensation in the mouth, upon consumption of spicy and hot foods, and recorded by VISUAL ANALOGUE SCALE (VAS). Scoring from 0 – 10 based upon patient's facial expression. Scores are then categorized into grades from mild to severe respectively.



GRADES ACCORDING TO VAS SCORE:



2. White fibrous bands to be examined by inspection and palpation of buccal oral mucosa with stiffness and blanching.
   GRADE 1 – Facial areas only.
   GRADE 2 – Facial and buccal areas
   GRADE 3 _ Facial, buccal and labial areas.

3. Level of limitation in mouth opening was examined by VARNIER CALIPER (VC) for interincisal distance measurements in millimeters. Starting from mesioincisal edge of right maxillary central incisor to mesioincisal edge right mandibullary central incisor. If either of the teeth were missing then their left side counterpart was used for measurement
   GRADE 1 –mouth opening - 20-30 mm.
   GRADE 2 – mouth opening -10-20 mm.
   GRADE 3 – mouth opening - 0-10 mm.

4. Cheek flexibility (CF) was measured as the distance, in millimeters, from the maxillary incisal midline to the cheek retractor during retraction. Normal cheek flexibility as observed in males was 35-45 mm and 30-40 mm in females.
   - Grade 1: 30 mm and above
   - Grade 2: 20-30 mm.
   - Grade 3: less than 20 mm

5. Tongue protrusion was assessed from normal mesioincisal angle of lower central incisor to the tip of tongue when maximally extended with mouth wide open. Normal ranges: 05-06 in males and 4.5-5.5 in females:
   - GRADE 1: 3-4 cm.
   - GRADE 2: 2-3 cm.
   - GRADE 3: 1-2 cm.

After confirmation of clinical grades of OSF, psychosocial impacts on patients were recorded using OHIP-14 questionnaire (annexure-2) and were calculated according to OHIP-14 score by the "simple count method" (OHIP-SC) in which total score was calculated by summing the number of impacts reported as never-0, seldom-1, sometimes-2, often-3, always-4 respectively. The total OHIP-14 score and the subscale scores constituted measures of the 'severity' of adverse impacts caused by OSF. After completion of

questionnaire OSF patients were categorized into mild impact if OHIP-14 scores 20-30 score, moderate impact 30-40 score, and severe impact 40-50 score. Each patient was then referred to the department of oral medicine for necessary therapeutic protocol.

RESULTS

The present cross sectional, observational and hospital based study was conducted on patients suffering from OSF as evaluated through OHIP-14. A score of 14 points as questionnaire was prepared under 7 domains. Age distribution of study subjects are shown in Figure-1. Age category 20-29 years was most frequent followed by 30-39 years and 10-19 years respectively. In Graph 2: male population predominated over female. Frequency of male to female subjects was 37 (77.08%) and 11 (22.9%) respectively. Table-I shows the findings of OHIP-14 questionnaire. Most frequent complaints of OSF were in the Likert scale range of sometime and often. The 14 groups in 7 domains shows frequency of different findings. It was seen that complaints with maximum frequency was seen in the uncomfortable eating group of frequency of physical pain where 23 (47.9%) complained of uncomfortable eating (N=48), similarly complain of unsatisfactory diet 23 (47.9%) in the physical disability was seen also. Patients also complained that they felt life less satisfying 18 (37.5%), and meal interruptions 18 (37.5%). Table-II shows the OHIP-14 score of OSF clinical grades. Table-III shows the mean OHIP-14 domain score of OSF clinical grades. Table-IV shows the total mean OHIP-14 scores of OSF clinical grades. T-test is applied and the p-value for grades 1, 2 and 3 shows high significance.

Table-V shows the distribution of clinical grades of OSF patients, which shows most patients fall in stage II 21 (43.7%), followed by stage III and I as 16 (33.3%) and 11 (22.9%) respectively. The association of OHIP-14 with OSF grades is shown in Table-VI. As the maximum number of patients were in Grade 2 as shown in Table-V, so overall moderate impact on patient's QOL was seen. One or the other complaints of OHIP-14 were present in patients and they complained, difficulties in word pronunciation, bad taste, oral pain, uncomfortable eating, psychological discomfort, physical disability like unsatisfactory dietary habits and meal interruption because of oral pain, psychological disability, social problems like irritability and job difficulty, and handicaps like feeling life less worth and total oral dysfunctioning like near total difficulty in chewing bolus of solid foods. This clearly shows that there is a compromise in their daily activity due to the disease.

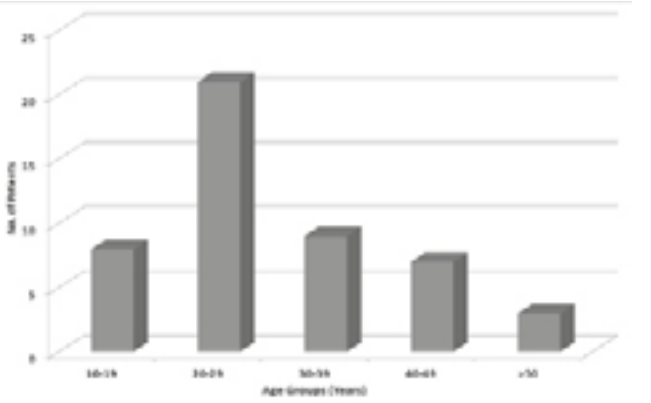


Figure-1. Age distribution of study population

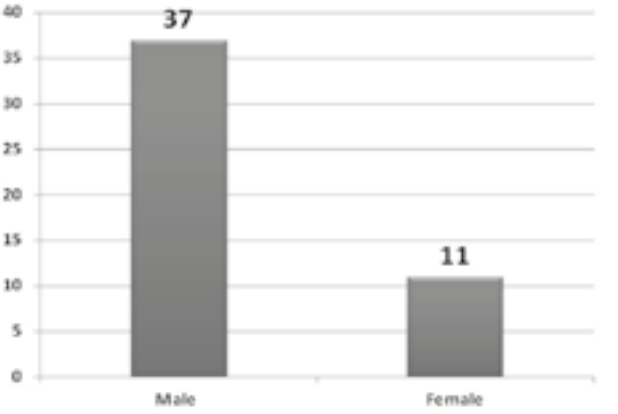


Figure-2. Gender wise distribution of study population

DISCUSSION

The present study is an original research conducted at Department of Dentistry of Isra University Hyderabad. The study intended to evaluate oral health impact profile (OHIP) in patients suffering from oral submucosal fibrosis (OSF) and its co-relation with clinical grading- the Pindborg grading system.

n=48	Groups	Never	Seldom	Sometimes	Often	Always
Frequency of Functional limitation	Word Pronunciation Difficulty	8 (16.6%)	8 (16.6%)	16 (33.3%)	8 (16.6%)	8 (16.6%)
	Sense of taste worse	7 (14.5%)	9 (18.7%)	9 (18.7%)	13 (27.0%)	10 (20.8%)
Frequency of Physical Pain	Painful Mouth Ache	2 (4.16%)	8 (16.6%)	21 (43.7%)	14(29.1%)	3 (6.25%)
	Uncomfortable Eating	3 (6.25%)	7 (14.5%)	23 (47.9%)	13 (27.08%)	2 (4.16%)
Frequency of Psychological Discomfort	Self-conscious	6 (12.5%)	12 (25%)	11 (22.9%)	9 (18.7%)	10 (20.8%)
	Felt tense	9 (18.7%)	5 (10.4%)	14 (29.1%)	13 (27.0%)	7 (14.5%)
Frequency of Physical Disability	Unsatisfactory Diet	3 (6.25%)	7 (14.5%)	23 (47.9%)	13 (27.0%)	2 (4.16%)
	Meal Interruption	4 (8.3%)	6 (12.5%)	18 (37.5%)	17 (35.4%)	3 (6.25%)
Frequency of Psychological Disability	Difficulty to relax	7 (14.5%)	18 (37.5%)	12 (25%)	7 (14.5%)	4 (8.3%)
	Embarrassed	22 (45.8%)	5 (10.4%)	13 (27.0%)	5 (10.4%)	3 (6.25%)
Frequency of Social Disability	Irritability to other	7 (14.5%)	6 (12.5%)	18 (37.5%)	17 (35.4%)	3 (6.25%)
	Job Difficulty	11 (22.9%)	5 (10.4%)	12 (25%)	11 (22.9%)	9 (18.7%)
Frequency of Handicaps	Felt Life less satisfying	7 (14.5%)	18 (37.5%)	12 (25%)	7 (14.5%)	4 (8.3%)
	Totally Unable to function	22 (45.8%)	5 (10.4%)	13 (27.0%)	5 (10.4%)	3 (6.25%)

Table-I. Findings of OHIP-14

OHIP-14 Domains	Grade 1 n=11	Grade 2 n=21	Grade 3 n=16
Functional Limitation	18	32	48
Physical Pain	20	40	36
Psychological Discomfort	16	38	34
Physical Disability	12	41	32
Psychological Disability	14	38	28
Social Disability	10	28	30
Handicap	10	30	20
Total	100	247	228

Table-II. Ohip-14 scores of osf clinical grades

OHIP-14 Domain	Grade 1 n=11	Grade 2 n=21	Grade 3 n=16	P-Value
	Mean+sd	Mean+sd	Mean+sd	
Functional Limitation	1.6364+0.5045	1.6667+1.1972	3.000+1.4142	0.0448
Physical Pain	1.7273+0.6467	2.1429+0.9103	2.2500+1.4376	0.0064
Psychologial Discomfort	1.4545+0.5222	1.8095+1.0779	2.1250+1.2042	0.0121
Physical Disability	1.0909+0.7006	1.9524+1.0713	1.9375+1.2366	0.0299
Psychological Disability	1.2727+0.7862	1.8095+1.1233	1.7500+0.9309	0.0116
Social Disability	0.9091+0.7006	1.3333+1.0646	1.8750+1.3102	0.0419
Handicap	1.0909+0.7006	1.4286+1.1212	1.1250+0.8851	0.0064

Table-III. Mean OHIP-14 domain scores of OSF clinical grades

OSF Grades	Mean+sd	t-test	Df	P-Value
Grade 1	1.3117+0.1031	10.93	6	1.0001
Grade 2	1.7247+0.0880	15.68	6	0.0001
Grade 3	2.0089+0.2188	9.15	6	0.0001

Table-IV. Total mean OHIP-14 scores of OSF clinical grades

Clinical Grades	No. of PT.	Chi Square value	P-Value
Grade 1	11 (22.9%)	96.0	0.0001
Grade 2	22 (43.7%)		
Grade 3	16 (33.3%)		

Table-V. Distribution of clinical grades of OSF patients

OSF Clinical Grades	OHIP-14 Score	Health Impacts
Grade I	20-30	Mild
Grade II	30-40	Moderate
Grade III	40-50	Severe

Table-VI. Association of OSF grades and OHIP-14 score

Present study used OHIP-14 in OSF patients as an organ of collecting the data in an organized way to make the results homogenous at any place. As the aim of present study was to evaluate clinical grading in OSF and the influence of administration of OHIP-14, so the possible factors were identified and included in study protocol.

The peak age for the presentation of OSMF cases were 20-29 years (21 cases) followed by 30-39 years (9 cases) and 10-19 years (8 cases), a similar report from India stated that 21-30 is most common age group.[15] The Study of Pindborg JJ was in contrast to this study in which maximum age group was 40-49 years.[16] The reasons for increased consumption by youngsters include ease of availability at school canteens, confectionary shops and from friends. These products are cheap, colorfully packaged, often sweetened and conveniently carried thus increasing their attraction. In addition, there is no age restriction on sale. Males outnumbered females. Males were 37 and females were 11 with the ratio of 3.4:1. Males were dominated because it was noted that they used guthka and similar products more because of easy availability, whereas females being more conscious about their health and esthetics, possibly were more reluctant to use them. This could be one of the reasons responsible for a high male to female ratio.

The maximum frequency was in Grade II as 21 (47.9%), followed by Grade III as 16 (33.3%) and Grade I as 11 (22.9%) respectively. The maximum frequency in grade II revealed that the result is consistent with the study by Syeda Ara but contrary to study by Maqsood A in which grade III was common.[17,18]

As the severity of OSF increases from grade 1 to grade 3 there is a progressive inability to open the mouth associated with varying degrees of restriction in tongue movements. In the current study statistically significant association was found between increasing severity of OSMF with decrease in mouth opening. This is in accordance with the findings of Mervyn Husain et al in Karachi.[19] And this might be due to the fact that the majority of our patients were reported for treatment only after the onset of restricted mouth opening. The impact of OSF on patient's QOL was recorded through OHIP-14 score which was influenced by pain, functional limitation, social and emotional status and patients support towards treatment and habit control. This result is consistent with the studies by Tabolli et al[20] and Saimadhavi et al.[21] Present study is contrary to studies by Caglayan et al[22], which reported severe impact. While mild impact was reported by Locker D[23] on OHIP-14 score.

Over all moderate impact on oral health status of study subjects were evaluated in this study. One or the other complaints of OHIP-14 were present in patients and they complained. Difficulties in word pronunciation, bad taste, oral pain, uncomfortable eating, psychological discomfort, physical disability like unsatisfactory dietary habits and meal interruption because of oral pain, psychological disability, social problem like irritability and job difficulties, and handicaps like feeling life less worth and total oral dysfunctioning like near total difficulty in chewing bolus of solid foods.

This study emphasized the need for oral health awareness campaigns among the general population to change habits. To reinforce the message susceptible populations also should be aware of OSMF's high risk of malignant transformation and poor prognosis leading to a painful death in majority of the cases.

Oral health-related quality of life measures emerged out of the development of socio-dental indicators to capture non-clinical aspects of oral health that broadened the focus of oral epidemiological research. The OHRQoL is affected in OSF patients and can be improved

after cessation of deleterious areca habit and professional treatment regime.[24-26]

Oro-pharyngeal cancer is associated with increased consumption of tobacco and areca nut both of which are major risk factors for significantly increasing the comprehensive burden of cancer.[27] The International Agency for Research on Cancer recently confirmed the carcinogenic potential of smokeless tobacco.[28] In 2006, the WHO released an action plan calling for a combination of policy, public awareness campaigns, and community outreach to control the practice.[28] With an increase in the rate of oral cancer around the globe, reduction of tobacco is essential for public health safety. If OSF if treated at an early stage then the degree of malignant transformation can be reduced thereby reducing the cancer burden and improving the overall quality of life.[28]

CONCLUSION

In conclusion, results of the present study showed that patients had grade-2 (moderate) impact of life. This research discloses that OHIP-14 ought to be routinely administered in clinical settings. Assessment through OHIP-14 to address the impacts on patient's QOL must be further studied and evaluated.

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2	Munaza Qadri	Data collection, Data analysis	
3	Sadia Hassan	Literature search / review	