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Assessment of Oral Health-Related Quality of Life in Patients with Oral Lichen Planus

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Name of Author:
Aneela Shabbir[1], Durr-e-Sadaf[2], Muhammad Muzamil[3], Muhammad Mohsin Kamal[4], Varda Jalil[5], Neeta Kumari[6]

Affiliation: *[1]Assistant Professor, Department of Periodontology, Institute of Dentistry, CMH Lahore Medical Collage, Lahore, Pakistan*
[2]Assistant Professor Oral Medicine, Army Medical College Rawalpindi, Pakistan
[3]Department of Oral and Maxillofacial Surgery, Altamash Institute of Dental Medicine, Karachi, Pakistan
[4]Medical Superintendent/ Assistant Professor, Department Community Dentistry, Fatima Memorial College of Dentistry, Lahore, Pakistan
[5]Associate Professor, Department of Oral Pathology, FMH College of Medicine and Dentistry, Lahore, Pakistan
[6]FCPS Oral and Maxillofacial Surgery, Senior Registrar and Head of Oral Medicine and Diagnosis Department, Fatima Jinnah Dental College Hospital, Karachi, Pakistan

Corresponding Author:
Dr. Durr-e-Sadaf,
Email: *durr_e_sadaf@hotmail.com*

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Abstract: Background: Oral Lichen Planus (OLP) is a long-term inflammatory disease that impacts the oral mucosa and usually results in pain, discomfort, and functional restriction. It has a chronic course that may severely affect Oral Health-Relevant Quality of Life (OHRQoL). ***Objective:*** To assess OHRQoL in patients with OLP using a validated questionnaire-based approach. ***Methodology*:** This cross-sectional descriptive research was carried out at for one year. Non-probability consecutive sampling was used to select 100 patients with a diagnosis of OLP based on clinical and/or histopathological diagnosis. The structured questionnaire was used to collect data with demographic information and the OHIP-14 tool. SPSS version 25 was used to perform statistical analysis with a significance level of $p \leq 0.05$. ***Results*:** The mean age of participants was 44.8 ± 12.3 years, with a female predominance (62%). The average OHIP-14 was 28.6 ± 9.4, which gives a moderate to severe quality of life impairment. Erosive OLP was significantly higher in OHIP scores than other types ($p < 0.001$). Poor OHRQoL was significantly related to female gender ($p = 0.021$), presence of symptoms ($p < 0.001$), burning sensation ($p < 0.001$), and longer disease duration ($p = 0.012$). ***Conclusion:*** OLP significantly compromises OHRQoL, particularly in symptomatic and severe cases. There is a need to apply a holistic, patient-focused approach to management to enhance overall well-being among affected individuals.

Keywords: Oral Lichen Planus, Oral Health-Related Quality of Life, OHIP-14, Oral mucosal diseases, Quality of life

INTRODUCTION

Oral Lichen Planus (OLP) is a persistent, immune-complex-mediated inflammatory disease, which mainly affects the mucosa of the mouth and is regarded as a fairly common condition in the dental field.[1] It is defined by T-cell-mediated autoimmune responses against basal epithelial cells, leading to epithelial degeneration and subepithelial lymphocytic infiltration.[2] Clinically, OLP is of many forms,

reticular, erosive, atrophic, plaque-like, papular, and bullous, where the former is the most common and often goes unnoticed, and the latter is often accompanied by pain and discomfort.[3] OLP is a crucial disease that needs to be monitored over a long period due to its chronicity and malignant transformation.[4]

Globally, the prevalence of OLP is estimated to range between 0.5% and 2.2% of the general population, with a higher predilection for middle-aged and elderly individuals, particularly females.[5] According to epidemiological studies, the prevalence may be geographically different, with a small difference in prevalence found in South Asian populations. Moreover, around 1-2% of cases of OLP can be malignantly transformed into oral squamous cell carcinoma, which is important clinically.[4] In Pakistan, there is limited large-scale epidemiological data, but, based on hospital-based research, OLP is a common oral mucosal lesion in dental outpatient clinics and is a major cause of patient morbidity.

In addition to its clinical implications, OLP has a significant effect on the everyday functioning and psychosocial well-being of patients.[6] Symptoms like burning, pain in the mouth, sensitivity to spicy food, and inability to take care of the mouth can seriously affect the quality of life.[7] Moreover, due to the oral lesions' appearance and chronic, relapsing character of the disease, anxiety, stress, and diminished social interactions are common. The notion of Oral Health-Related Quality of Life (OHRQoL) has become more and more significant in recent years, and it is necessary to pay attention to not only clinical outcomes but also to the subjective experiences of patients.[8] Tools based on validated questionnaires, like OHIP (Oral Health Impact Profile), are common methods of measuring the functional, psychological, and social aspects of oral health.[9]

Although OHRQoL is increasingly being recognized in oral disease, local data are comparatively limited to determine the quality of life in patients with OLP, especially in developing nations such as Pakistan. The physical nature of the lesions is the major focus of most clinical assessments, which do not sufficiently consider the larger psychosocial impact of the patient. It is necessary to understand how OLP may influence everyday life in order to manage patients with maximum effectiveness and to develop individualized treatment approaches.

Considering the chronic nature of OLP, its symptomatic load, and the possible effect on psychological and social well-being, there is a significant interest in determining its effect on the quality of life of patients with the help of standardized instruments. The assessment of OHRQoL will also be important in OLP patients, not only to understand the concealed cost of the disease but also to enable clinicians to be more holistic and patient-centered in their approach to management. Moreover, the production of local evidence will aid in better clinical decision-making and healthcare planning. The current research was designed to evaluate Oral Health-Related Quality of Life in patients with Oral Lichen Planus with the help of a validated questionnaire-based method.

METHODOLOGY

This study was a cross-sectional questionnaire-based study, conducted as a descriptive study to determine the level of Oral Health-Related Quality of Life among patients diagnosed with Oral Lichen Planus. The research was conducted in the Department of Oral Medicine during one year. A cross-sectional design was chosen because it allowed assessing the clinical condition and its effect on the quality of life of patients at the same time, through a validated questionnaire (OHIP-14), as established in earlier publications.

The sample size was determined using the openEpi software with a presupposed prevalence of 1.01% as described in the literature, with a 95% confidence level and a margin of error of 5%, the resulting minimum sample size is about 16 participants.[10] Nevertheless, given that the study is based on questionnaires and to enhance statistical power and external validity, the sample size was further expanded to 100 patients, which is in agreement with previously conducted studies that used sample sizes of 70 to 110 individuals. A non-probability consecutive sampling was used, and all patients eligible and attending the study period were included until the necessary sample size was met.

The study included patients who met the following criteria: patients aged 18-70 years old of either gender, diagnosed with Oral Lichen Planus either clinically or histopathologically, and willing to participate in the study by giving informed consent. The patients who could comprehend and answer the questionnaire (both by themselves and with help) were enrolled to guarantee proper measurement of Oral Health-Related Quality of Life. Patients were not included in the case if they had other oral mucosal diseases that might confound the quality of life evaluation, including leukoplakia, oral candidiasis, and aphthous ulcers. People who have systemic conditions known to have a considerable impact on oral health or pain perception (e.g., uncontrolled diabetes mellitus, autoimmune disorders other than OLP, or immunocompromised states) were ruled out as well. Moreover, patients who are actively receiving treatment for OLP (including corticosteroids or immunosuppressive therapy) were excluded to prevent bias caused by treatment. Pregnant and lactating females were not included because of the possible hormonal effects on disease perception and symptoms. The study also excluded patients who were unwilling to respond or gave partial answers to

the questionnaire.

The structured and pre-validated questionnaire was used in the data collection process, comprising two parts: demographic and evaluation of Oral Health-Related Quality of Life by means of the OHIP-14 instrument.[11] Outpatient departments were used to recruit patients who met the inclusion criteria. Written informed consent was received by all participants after the purpose of the study was explained to them. The questionnaire was self-administered or interviewer-administered in instances where the patients were in need of help. The principal investigator recorded clinical findings to make them uniform.

The data were entered and analyzed by SPSS 25. Data was summarized using descriptive statistics. Continuous variables, i.e., age and OHIP-14 scores, were presented as mean ± standard deviation (SD), median, and range, whereas categorical variables, i.e., gender, residence, education level, and clinical characteristics of Oral Lichen Planus were represented as frequencies and percentages. The Shapiro-Wilk test was used to determine the normality of continuous data. Depending on the data distribution, relevant statistical testing was done. To compare two independent groups, the independent t-test was applied. To compare more than two groups, one-way ANOVA was used. The Chi-square test was used to assess associations between categorical variables. Stratification was done to eliminate possible effect modifiers like age, gender, and clinical characteristics. The strength of associations was evaluated, and a p-value of ≤ 0.05 was considered statistically significant.

RESULTS

A total of 100 patients diagnosed with Oral Lichen Planus were included in the study. The average age of the participants was 44.8 ± 12.3 years, with most of the participants in the 41-50 years of age bracket, and the next age group was 31-40 years. There was a predominance of females, and the majority of the participants were urban-based. The highest percentage was at the secondary level of education (Table 1).

In terms of clinical features, the most prevalent clinical manifestations were the reticular type of OLP and the erosive and atrophic type. The duration of the disease was more than 12 months in most patients, indicating that the disease was chronic in nature. The most common site was the buccal mucosa, and most of the patients were symptomatic, especially with burning sensation (Table 2).

Oral Health-Related Quality of Life assessment with the OHIP-14 tool showed that the mean scores were 28.6 ± 9.4, reflecting a moderate to severe effect on quality of life. Physical pain and psychological discomfort were significantly impacted, and social disability and handicap were relatively low-scoring (Table 3). According to the severity grading, the majority of patients were rated as moderate and severe, and fewer patients were rated as mild or very severe affected (Table 4).

The statistical analysis revealed a significant difference in OHIP scores between females and males ($p = 0.021$). Quality of life was also significantly correlated with education level, with lower education being correlated with the higher OHIP score ($p = 0.034$), but residence was not significantly correlated. Erosive OLP was the worst in quality of life impairment, and then, atrophic forms ($p < 0.001$). The presence of symptoms, particularly burning sensation, was strongly associated with higher OHIP scores ($p < 0.001$). Also, increasing quality of life was strongly linked to longer disease duration ($p = 0.012$) (Table 5).

Stratification analysis also revealed that the scores of OHIP were increasing with age, showing that the older patients were more impaired ($p = 0.028$). The same trends were found between the gender, clinical type, symptom status, and the duration of the disease, confirming their substantial influence on the quality of life (Table 6).

Table 1: Demographic and Socioeconomic Characteristics of Participants (n = 100)

Variable	Category	n (%)
Age Group (years)	18–30	18 (18.0)
	31–40	22 (22.0)
	41–50	24 (24.0)
	51–60	20 (20.0)
	61–70	16 (16.0)
Mean Age (years)	—	44.8 ± 12.3
Gender	Male	38 (38.0)
	Female	62 (62.0)
Residence	Urban	64 (64.0)
	Rural	36 (36.0)
Education Level	Illiterate	20 (20.0)
	Primary	26 (26.0)

	Secondary	30 (30.0)
	Higher	24 (24.0)

Table 2: Clinical Characteristics of Oral Lichen Planus (n = 100)

Variable	Category	n (%)
Type of OLP	Reticular	42 (42.0)
	Erosive	34 (34.0)
	Atrophic	16 (16.0)
	Plaque-like	8 (8.0)
Duration of Disease	< 6 months	28 (28.0)
	6–12 months	34 (34.0)
	> 12 months	38 (38.0)
Site of Lesion	Buccal mucosa	58 (58.0)
	Tongue	18 (18.0)
	Gingiva	14 (14.0)
	Multiple sites	10 (10.0)
Symptoms	Present	72 (72.0)
	Absent	28 (28.0)
Burning Sensation	Present	68 (68.0)
	Absent	32 (32.0)

Table 3: Mean OHIP-14 Scores of the study participants

Variable	Mean ± SD
Total OHIP-14 Score	28.6 ± 9.4
Functional Limitation	5.2 ± 2.1
Physical Pain	7.8 ± 2.5
Psychological Discomfort	6.4 ± 2.3
Physical Disability	4.1 ± 1.8
Psychological Disability	3.2 ± 1.6
Social Disability	1.3 ± 0.9
Handicap	0.6 ± 0.5

Table 4: Severity of Impact on OHRQoL (Based on OHIP-14 Score)

Score Range	Interpretation	n (%)
0–14	Mild Impact	14 (14.0)
15–28	Moderate Impact	40 (40.0)
29–42	Severe Impact	34 (34.0)
43–56	Very Severe Impact	12 (12.0)

Table 5: Association of OHIP-14 Scores with Demographic and Clinical Variables

Variable	Category	Mean ± SD	p-value
Gender	Male	25.9 ± 8.7	0.021*
	Female	30.3 ± 9.6	
Residence	Urban	27.4 ± 9.1	0.118
	Rural	30.5 ± 9.8	
Education	Low	31.2 ± 9.5	0.034*
	High	26.1 ± 8.8	
Type of OLP	Reticular	22.4 ± 6.5	<0.001*
	Erosive	34.8 ± 8.2	
	Atrophic	31.2 ± 7.9	
	Plaque-like	24.1 ± 6.8	
Symptoms	Present	32.6 ± 8.7	<0.001*
	Absent	20.4 ± 6.3	

Burning Sensation	Present	33.1 ± 8.5	<0.001*
	Absent	21.8 ± 7.2	
Disease Duration	<6 months	24.2 ± 7.9	0.012*
	6–12 months	28.9 ± 8.6	
	>12 months	32.5 ± 9.8	
Statistically significant ($p \leq 0.05$)			

Table 6: Stratification of OHIP-14 Scores by Multiple Variables

Variable	Category	Mean ± SD	p-value
Age Group (years)	18–30	24.6 ± 7.8	
	31–40	27.9 ± 8.9	
	41–50	29.8 ± 9.2	
	51–60	31.4 ± 9.7	
	61–70	33.2 ± 10.1	0.028*
Gender	Male	25.9 ± 8.7	
	Female	30.3 ± 9.6	0.021*
Type of OLP	Reticular	22.4 ± 6.5	
	Erosive	34.8 ± 8.2	
	Atrophic	31.2 ± 7.9	
	Plaque-like	24.1 ± 6.8	<0.001*
Symptoms	Present	32.6 ± 8.7	
	Absent	20.4 ± 6.3	<0.001*
Burning Sensation	Present	33.1 ± 8.5	
	Absent	21.8 ± 7.2	<0.001*
Residence	Urban	27.4 ± 9.1	
	Rural	30.5 ± 9.8	0.118
Disease Duration	<6 months	24.2 ± 7.9	
	6–12 months	28.9 ± 8.6	
	>12 months	32.5 ± 9.8	0.012*
Statistically significant ($p \leq 0.05$)			

DISCUSSION

In the current research, the Oral Health-Related Quality of Life (OHRQoL) was measured in patients with Oral Lichen Planus with the OHIP-14 questionnaire and showed that it had a moderate to severe effect on the quality of life, with a mean OHIP score of 28.6 ± 9.4. The results are aligned with the current literature, which emphasizes the great impact of OLP on the physical, psychological, and social health of patients.

The similar study by Maryam Alsadat Hashemipour et al. (2024) also found that OLP has a significant impact on OHRQoL on various domains, especially physical pain and psychological discomfort.[12] This is consistent with our results, wherein the greatest domain scores were found in physical pain (7.8 ± 2.5) and psychological discomfort (6.4 ± 2.3), suggesting that the symptomatic burden is at the center stage of diminishing the quality of life.

In agreement with our results, a 2022 study by Zahra Saberi et al. found that patients with erosive/ulcerative OLP had significantly higher OHIP scores compared to other forms.[13] In our research, it was established that the erosive type had the highest mean OHIP score (34.8 ± 8.2) then atrophic forms, and disease severity directly correlates with worse OHRQoL.

Moreover, a comparative study carried out in 2023 assessing OLP and other oral potentially malignant disorders found that the quality of life in OLP patients was significantly impaired, especially in the pain and functional limitation domains.[14] This correlates with our results, as functional limitation and physical disability were also important contributors to total OHIP.

These observations are further supported by a systematic review and meta-analysis (2021), which concluded that OLP patients tend to have moderate OHRQoL impairment, with higher OHIP-14 scores than normal people.[10] In that analysis, the average score (~15.2) was less than our study, which can be explained by the variation in population specifics, severity of the disease, and access to healthcare.

In our study, there was a female prevalence (62%), which is in line with the results reported by Linda Daume et al. (2021), who also reported a greater

prevalence of OLP in females.[15] Also, we found that female participants had significantly higher OHIP scores than males ($p = 0.021$), which implied that females perceived a higher disease burden. This could be attributed to the heightened perception of pain, hormonal effects, or psychosocial factors.

Our findings also revealed that symptomatic patients and those with burning sensations had significantly higher OHIP scores ($p < 0.001$), which is in line with the 2024 study by Hashemipour et al., where clinical symptoms such as pain and discomfort were strongly associated with poorer quality of life.[12] This highlights the role of symptom management in enhancing patient outcomes.

Another important variable in our analysis was the duration of the disease, whereby long disease duration (>12 months) had a poorer OHRQoL ($p = 0.012$). The same trends have been indicated in recent literature, wherein the chronicity of OLP is a contributing factor to psychological distress, frustration, and decreased coping ability over time.[16, 17]

Our study was stratified by age, indicating a progressive rise in OHIP scores with increasing age, which is also established by other studies on the topic, which show that older patients are more likely to have functional limitations and comorbidities, and therefore, the deterioration of their quality of life. Surprisingly, education level was also significantly associated with OHRQoL in our research ($p = 0.034$), with lower education being correlated with worse results.[18] It can indicate that there is less awareness, late-seeking behavior in healthcare, and access to less treatment, especially in underdeveloped nations. Though not always mentioned in all studies, parallel results have been observed in population-based studies. In general, the results of this research are highly correlated with various studies and all of them show that OLP greatly affects OHRQoL, especially in symptomatic and severe conditions.[19, 20] Nevertheless, the increased OHIP scores that we have measured in our research indicate the possible increased burden of disease in our community, possibly because of late diagnosis, poor access to specialized services, and sociocultural influences.

There are a number of limitations to this study, which one must take into account when interpreting. First, the cross-sectional nature of the study restricts the capacity to provide causal relationships among Oral Lichen Planus and Oral Health-Related Quality of Life as data were measured at one time. Secondly, the research was carried out in one tertiary care facility, so it may be hard to apply the findings to the rest of the population, especially the rural or underserved populations.

Moreover, the selection bias could be caused by the non-probability consecutive sampling method because only patients who reported to the hospital during the time of research were used. The use of self-reported data with the OHIP-14 questionnaire can also be open to response bias, recall bias, and variation in the individual perception. Moreover, possible confounding variables, including psychological condition, socioeconomic status, diet, and treatment history, were not investigated thoroughly, which can affect the quality of life outcomes. Finally, the relatively small sample size, which is similar to similar studies, might restrain the statistical power of subgroup analyses.

CONCLUSION

The current study identifies that Oral Lichen Planus has a significant, multidimensional effect on the life of patients, which severely affects Oral Health-Related Quality of Life. The results indicate that most patients have moderate to severe quality of life decline, and physical pain, psychological discomfort, and functional limitations are the most impacted areas. Notably, disease severity (especially erosive forms), the presence of symptoms, a longer duration of the disease, and female gender were significantly linked to worse OHRQoL, as well as requiring specific clinical consideration. These findings highlight the fact that the burden of Oral Lichen Planus goes beyond the clinical picture in question, impacting emotional health, everyday activities, and social life. A comprehensive, patient-centered care is thus vital in the treatment of OLP, not only in the control of the lesions but also in the alleviation of symptoms, psychological help, and quality of life. It is suggested that future multicenter, longitudinal studies with increased sample sizes be undertaken to further understand these associations and to come up with comprehensive management strategies that are patient-based.

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