

# Oral lichen planus and stress: An appraisal

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## Abstract

**Introduction:** Oral lichen planus (OLP) is a chronic inflammatory disease characterized by bilateral white striations or plaques on the buccal mucosa, tongue or gingiva that has a multifactorial etiology, where the psychogenic factors seem to play an important role. **Purpose:** The aim of this study was to determine the existing relation between the OLP and psychological alterations of the patient, such as stress, anxiety, and depression. **Materials and Methods:** Hospital anxiety and depression scale was applied for psychometric analysis. **Results:** The study indicates a definitive relationship between a stressful life event and onset and progression of OLP. **Conclusion:** Stress management and bereavement counseling should be a part of management protocol of OLP.

**Keywords:** Anxiety, hospital anxiety and depression scale, lichen planus, psychosomatic, stress

## Introduction

Lichen planus is a common dermatological disorder, which may affect the skin and oral mucosa. The condition was described for the first time by Erasmus Wilson in 1869 who characterized the patients as anxious, high strung, and sensitive with a tendency to worry excessively and with periods of undue emotional stress.<sup>[1]</sup>

Oral lichen planus is a chronic inflammatory disease characterized by bilateral white striations or plaques on the buccal mucosa, tongue or gingival [Figures 1 and 2]. It is found commonly in adults (50-55 years of age) and predominantly affects women usually by a 1.4:1 ratio over men.<sup>[2]</sup> OLP has varied clinical presentations, with the reticular, erosive, and atrophic types being the most commonly reported.<sup>[3]</sup> In the last few years, significant advances have been made in understanding the mechanisms involved in the pathogenesis of the disease. OLP has been reported to be associated with different medical conditions such as diabetes, hepatitis C infection, and liver disease.<sup>[2,3]</sup>

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Although, the condition is often referred to as stress associated ulcerations of the oral mucosa and research to date hints on a psychosomatic component in the etiology and progression of OLP, very little documentation has been presented to substantiate this widely held assumption.<sup>[1,4-8]</sup> Recent studies using instruments to assess the stress in these patients have resulted in conflicting reports [Table 1].

In spite of a few anecdotal documentations, it is still contentious as the field of research is complex and its integration in the domain of oral biology and medicine is still at its initial stages.

According to World Health Organization, health is defined as a complete physical, mental, and social well-being and not merely the absence of disease and infirmity. An inference of this definition may be the proposal that there is a need to consider multiple factors in the appraisal of health outcomes.<sup>[8]</sup>

The study was designed with the rationale to establish an association between stress and OLP and investigate psychological factors in a group of patients with OLP using validated psychometric tests.

## Materials and Methods

The sample comprised of 49 patients who were seen in the Department of Oral and Maxillofacial Pathology between August 2009 and September 2011 and who had been diagnosed with OLP. OLP diagnosis was made through a composite of accepted clinical and histopathological criterion. Only patients with firm clinical and histological diagnosis of OLP were considered. Lichenoid reactions and OLP with dysplastic features were excluded from the present study.

Detailed information about the age, sex, family, and social history, history of medication, and history of stress was obtained. Discomfort was evaluated according to self-reported pain estimates and graded as none/slight/moderate/severe.

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**Table 1: Studies evaluating stress in oral lichen planus patients**

Author/year	Subjects	Questionnaire	Results
Allen <i>et al.</i> (1986)	48	Social readjustment scale	No significant difference between cases and controls
Hampf <i>et al.</i> (1987)	56	Cornell medical index	OLP patients statistically more mentally disturbed than controls
McLeod (1992)	30	GHQ28	No significant difference between cases and controls
McCartan (1995)	50	HAD Cartell 16PF	Anxiety raised in 50%
Koray <i>et al.</i>	40	Spielberger's state-Trait anxiety inventory	State and trait anxiety levels in OLP group were significantly higher than in the control group
Soto Araya (2004) <i>et al.</i>	9	Test of recent experience scale HAD	Positive correlation
Chaudhary (2004) <i>et al.</i>	150	General Health Questionnaire-version 28 and the HAD scale	The OLP patients had significantly higher stress anxiety and depression levels than the negative controls when measured by GHQ and HAD scale, respectively
Ivanovski (2005) <i>et al.</i>	85	Psychological Minnesota Multiphasic Personality Inventory (MMPI)-202 test	A characteristic MMPI profile was noted in the OLP groups with high internalization ratio index value
Pourshahidi (2011) <i>et al.</i>	99	General Health Questionnaire- version 12 and the Perceived Stress Scale (PSS)	A significantly higher level of stress was found in the OLP patients (both erosive and reticular form) than the control group
Our study	49	HAD scale	A definitive relationship between a stressful life event and onset and progression of OLP

OLP: Oral lichen planus, HAD: Hospital anxiety and depression, GHQ: General health questionnaire

Controls included a total of 49 age and sex matched patients who attended the outpatient clinic of Department of Oral Medicine for routine dental check-up. None of them had any history of disease or metabolic disorder.

All the patients including controls underwent psychometric analysis. Permission from the hospital ethics committee and informed written consent were obtained from all the subjects.

### Psychometric test

Hospital anxiety and depression (HAD) scale was applied [Table 2]. This scale was developed by Snaith and Zigmond and was designed for assessment of anxiety and depression in hospital outpatients in an adult population. It is a sensitive screening tool comprising of a quick and simple questionnaire. The total number of questions were 14 out of which 7 (even questions; scores in blue) reflecting anxiety and the other 7 (odd questions; scores in red) reflecting depression.

Each question is rated from 0 to 3, with higher scores indicating greater anxiety or depression. The maximum score on either subscale is 21, with scores of 8-10 representative of "borderline" psychological morbidity and scores of 11 or more indicative of a significant "case" of depression or anxiety. The questionnaire was self-administered. The Punjabi version of HAD scale was used for non-English speaking patients to participate in the present study. Total time given to each patient was 2-5 min.

Before administration of the scale, certain points were kept in mind. They were assured about the benign nature of the lesion. The test was applied only after one follow-up visit had taken place (in order to acquaint them with the environment).

### Statistics

As the data from HAD scale was not normally distributed, statistical analysis was carried out using Kruskal-Wallis test. Probability value  $P < 0.05$  were regarded as statistically significant.

### Results

#### Demographic profile

Out of the 49 patients there were 23 males (46.9%) and 26 females (53.6%). Buccal mucosa was the most common site. The mean age was 56.2 years and range was 35-67 years. Stressful life event was noted in 31 (63.2%) of the subjects at the time of OLP onset. No stressful life event was noted in 18 (36.73%) of the subjects at the time of OLP onset. 63% of the patients perceived stress with onset and waxing/waning of the OLP lesions. Mean HAD anxiety score was 8.0 (standard deviation [SD] 4.14) [Table 3]. Mean HAD depression score was 3.5 (SD 3.27) [Table 4]. Stress related general disease states such as hypertension, diabetes, headaches, acidity problems, and a combination of these disease states are observed in Figure 3. When asked about major life-style change that occurred before onset of OLP the subjects had experience considerable life stress, loss of job, and loved ones, relationship, and health stress [Figure 4].

### Discussion

OLP affects 1-2% of the adult population and is the most common non-infectious oral mucosal disease.<sup>[1]</sup> It affects women more than men (1.4:1) and occurs predominantly in adults over 40. Lesions are typically bilateral and often

**Table 2: Hospital anxiety and depression scale**

<b>I feel tense or wound up</b>	<b>I feel as if I am slowed down</b>
3 Most of the time	3 Nearly all the time
2 A lot of the time	2 Very often
1 Time to time	1 sometimes
0 Not at all	0 Not at all
<b>I still enjoy the things I used to enjoy</b>	<b>I get a sort of frightened feeling like butterflies in the stomach</b>
0 Definitely as much	0 Not at all
1 Not quite so much	1 Occasionally
2 Only a little	2 Quite often
3 Hardly at all	3 Very often
<b>I get a sort of frightened feeling as if something awful is about to happen</b>	<b>I have lost interest in my appearance</b>
3 Very definitely and quite badly	3 Definitely
2 Yes, but not too badly	2 I don't take so much care as I should
1 A little, but it doesn't worry me	1 I may not take quite as much care
0 Not at all	0 I take just as much care as ever
<b>I can laugh and see the funny side of things</b>	<b>I feel restless as if I have to be on the move</b>
0 as much as I always could	3 Very much indeed
1 Not quite as much now	2 Quite a lot
2 Definitely not so much now	1 Not very much
3 Not at all	0 Not at all
<b>Worrying thoughts go through my mind</b>	<b>I look forward with enjoyment to things</b>
3 A great deal of the time	0 As much as ever I did
2 A lot of the time	1 Rather less than I used to
1 From time to time but not too often	2 Definitely less than I used to
0 Only occasionally	3 Hardly at all
<b>I feel cheerful</b>	<b>I get sudden feelings of panic</b>
3 Not at all	3 Very often indeed
2 Not often	2 Quite often
1 Sometimes	1 Not very often
0 Most of the time	0 Not at all
<b>I can sit at ease and feel relaxed</b>	<b>I can enjoy a good book or radio or TV programme</b>
0 Definitely	0 Often
1 Usually	1 Sometimes
2 Not often	2 Not often
3 Not at all	3 Very seldom

**Table 3: Hospital anxiety and depression anxiety categories**

Category	OLP (%)	Controls (%)
Normal	18 (36.73)	36 (73.46)
Borderline	19 (38.77)	9 (18.36)
Morbid	12 (24.8)	4 (8.16)

Mean HAD anxiety score was 8.0 (SD 4.14); HAD: Hospital anxiety and depression; OLP: Oral lichen planus; SD: Standard deviation

**Table 4: Hospital anxiety and depression categories**

Category	OLP (%)	Controls (%)
Normal	44 (89.7)	46 (93.87)
Borderline	3 (6.1)	2 (4.08)
Morbid	2 (4.08)	1 (2.04)

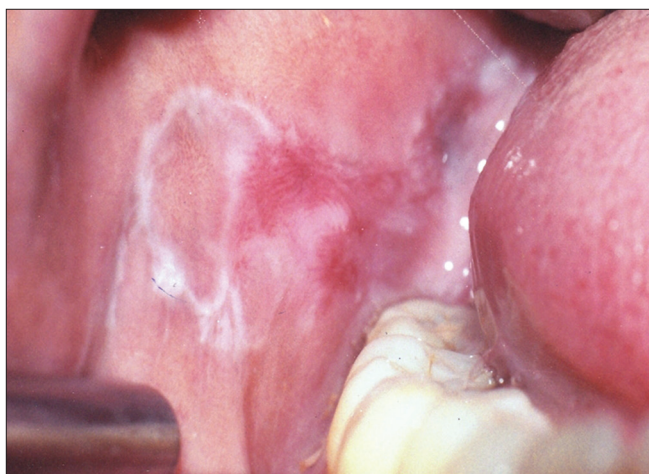
Mean HAD depression score was 3.5 (SD 3.27); HAD: Hospital anxiety and depression; OLP: Oral lichen planus; SD: Standard deviation

two-third of OLP patients report oral discomfort. Most cases of symptomatic OLP are associated with atrophic (erythematous) or erosive (ulcerative) lesions. Symptoms vary from mucosal sensitivity to continuous debilitating pain.<sup>[9]</sup> OLP lesions usually persist for many years with periods of exacerbation and quiescence. During the periods of exacerbation, erythema or ulceration increases with increased pain and sensitivity which decreases during periods of quiescence. Patients are often unaware of quiescent OLP that presents typically as faint white striations, papules or plaques. Exacerbation of OLP has been linked to periods of psychological stress and anxiety.<sup>[10]</sup>

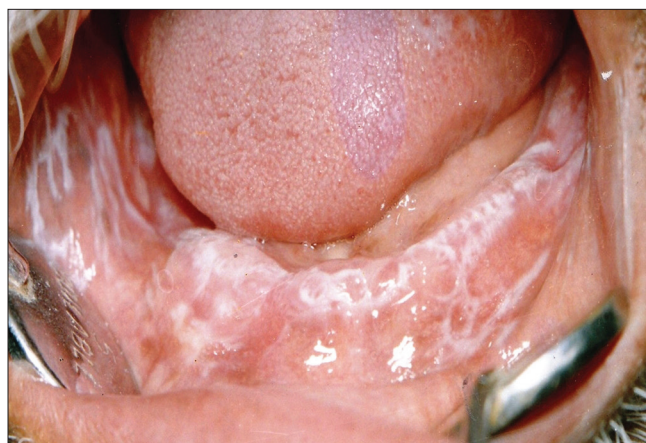
Stress can be defined as the biological reaction to any adverse internal/external stimulus, physical, mental or emotional, that tends to disturb the organisms homeostasis. Inadequate compensating reactions may lead to disorder. In the recent years, the injurious effects of stress have received attention.<sup>[8,11]</sup> Stress has shown to manifest as fatigue, gastrointestinal symptoms, tachycardia anxiety and cynicism.<sup>[12]</sup>

This study was conducted to ascertain an association between stress and OLP lesions. The results of this study suggest a high level of anxiety in patients with OLP as compared to the controls. Around 63.2% of patients suffered from borderline or morbid anxiety. The results are in accordance with McCartan *et al.*, (1995), Vallejo *et al.*, (2001),<sup>[5]</sup> Soto Araya *et al.*, (2004)<sup>[1]</sup> and not in accordance with Allen *et al.*, (1986)<sup>[9]</sup> and Rodstrom (2001).<sup>[6]</sup> In the present study, HAD Scale was used for identifying and quantifying the two most common forms of psychological disturbances in patients, namely anxiety and depression.<sup>[13]</sup> This scale was developed by Snaith and Zigmond for assessment of anxiety and depression in hospital outpatients in an adult population. It is a sensitive screening tool comprising of a quick and simple questionnaire. The results with these questionnaires confirmed the presence of anxiety and depression in the OLP patients. The strengths of the scale

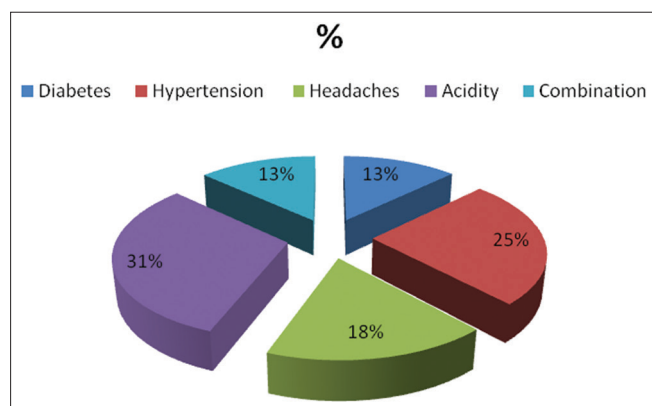
appear as a mixture of clinical subtypes.<sup>[2,3]</sup> In his original description of cutaneous and OLP; Wilson described anxiety, hysteria, and depression as etiological factors. Approximately,



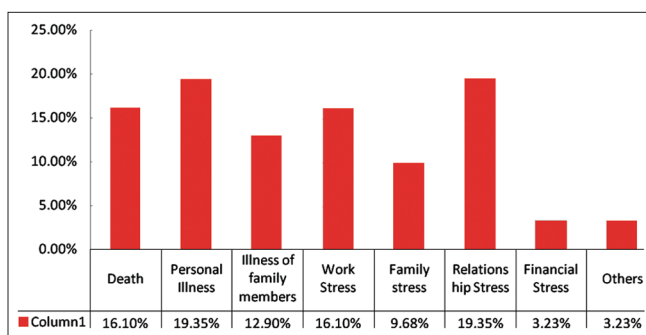
**Figure 1:** Reticular and erosive oral lichen planus on the buccal mucosa



**Figure 2:** Extensive reticular oral lichen planus lesions



**Figure 3:** Stress related general disease states in oral lichen planus patients



**Figure 4:** Relationship of stressful life event and oral lichen planus

include brevity and widely accepted use. It is simple to use and is self-administered. It is less focused on somatic symptoms and focuses on two aspects of emotional disorder which are clinically considered to be most relevant, i.e., anxiety and depression.<sup>[13]</sup> However, this test has certain limitations, which include that it is only valid for screening purposes and definitive diagnosis must rest on the process of clinical examination. Caution must be exercised in illiterate and patients with ill vision who are ashamed of their defect. In these cases, wording of items and possible responses should be attempted. The Punjabi version of HAD scale was used for non-English speaking patients to participate in the present study.<sup>[14]</sup>

However, our study had certain pitfalls. Chronic discomfort that can affect patients with OLP can be itself being a stress factor. The psychological questionnaire relied a lot on subjective analysis of stress. Objective stress analysis was not performed. Interventional study to judge whether stress management results in waning of OLP lesions is still underway.

Vocalization and the process of bringing out into the consciousness the troubling issues and realization that

a caring individual is lending a concerned ear can often alleviate the patient's concerns, tensions, anxiety, and stress.<sup>[2]</sup> We can improve the quality of care provided to patients through use of such measures and by referring patients with psychological risk factors to a psychologist or psychiatrist skilled in assessing and treating such patients. The reasons of referral should be explained carefully to the patients in order to reduce possible defensiveness and increase receptivity.

### Summary and Conclusion

The major findings of this study clearly indicate that patients perceived a relationship between stressful life events and onset and progression of OLP. Stress management and bereavement counseling should be a part of management protocol of OLP. Future research should aim at assessing coping style and the effects of stress management upon the outcome of the lesion and record the general personality traits of OLP patients.

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