ORIGINAL RESEARCH PAPER

Dental Science

# KNOWLEDGE AND AWARENESS REGARDING ORAL LICHEN PLANUS - AN ANALYSIS AMONGST DENTAL PRACTITIONERS IN BANGALORE

**KEY WORDS:** Dental Practitioner, Oral Lichen Planus Awareness, Potentially Malignant Disorder

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**ABSTRACT**

**Background :** OLP is a chronic condition which is prone for flare-ups. Its early identification and treatment are imperative for a better prognosis. However many studies have suggested that oral physicians and dentists do not accurately diagnose the lesion in the early stages because of the multifactorial etiology, perception and lack of knowledge on the disease

**Aims and objectives:** The current study was undertaken to assess the awareness, knowledge, and practices about oral lichen planus (OLP) among general dental practitioners in Bangalore.

**Materials and methods:** A self-administered questionnaire based survey was undertaken to assess the knowledge, awareness, and practices about oral lichen planus among general dental professionals within Bengaluru. It was distributed to the participants who comprised of private practitioners and dental surgeons working in public and private institutions. A total of 100 randomly selected (DP) dental practitioners- 56 BDS and 44 MDS participated in the study. The data was analyzed using descriptive statistics that included SPSS (statistical packages for social sciences) version 11.5 software and Fischer's statistical test to compare the responses.

**Results:** A 100% response rate was noted among the dentists. It was observed that there was no statistical significance between the responses amongst BDS and MDS practitioners. Only 31% were aware of the various presentations of OLP.

**Conclusion:** Based on the knowledge gaps and lack of awareness among DPs identified by the current study, periodic continuing education programs covering oral lesions are suggested to enhance the knowledge and practice skills and diagnostic ability of dental practitioners.

(193 words)

## Introduction

Oral lichen planus (OLP) is a chronic inflammatory disorder. It affects women more than men, 1.4:1 with onset during the fourth decade. It generally affects the buccal mucosa, gingiva, and tongue. Clinical presentation varies from mild painless white papular lesions to painful erosions and ulceration [1-3]. The six types of presentation of OPL are- reticular, papular, plaque, atrophic, erosive and vesiculobullous[4-6]. The erosive and atrophic type is believed to have a higher potential for malignant transformation [6]. Cutaneous lichen planus may present as violaceous flat-topped papules seen in the ankles, wrist, and genitalia, typically the facial skin is spared [3]

Approximately 0.5% to 2.6% of the general population is found to be affected with both oral and cutaneous lichen planus [7]. Pindborg et al found a prevalence of oral lichen planus as 0.02 among the population of Bangalore in 1966 [8]. The general prevalence in Indian population observed was 1.5%.[9]According to Mattson et al, the prevalence of OLP in the Indian population is about 2.6% with a female predilection[10].The exact etiopathogenesis for OLP is unknown. Several theories are proposed based on the available evidence. OLP is believed to be an autoimmune disease in which apoptosis of the basal cells of the oral epithelium is triggered by CD8+ T cells. The other possible etiologies are cytokine-mediated lymphocyte homing mechanism and hepatitis C virus infection [3].

Studies done in the last 20 years have shown the possibility of OLP being potentially malignant. Studies have revealed malignant transformation rate of OLP of 0.27% per year[10,11]. A study by Shen ZY et al. done in eastern China with long-term follow-up of 6 months to 21.5 years showed that approximately 1% of OLP developed into cancer[12]. World Health Organization, has classified it as a potentially malignant condition [13].

OLP is a chronic condition and is prone for flare-ups. Long-term follow-up is indicated for OLP in view of its malignant potential as well as to monitor flare-ups [14]. Its early identification and treatment are imperative for a better prognosis. Histopathological examination (HPE) of the lesion is the investigation of choice to confirm the diagnosis. Early diagnosis and prompt intervention are vital to significantly reduce the frequency of malignant transformation and patient morbidity [11].

Treatment is mainly directed at managing the symptoms. It is primarily treated with anti-inflammatory and immunosuppressive drugs. The pharmacological treatment choices include- corticosteroids, immunosuppressive and immunomodulatory drugs such as calcineurin inhibitors, cyclosporine, tacrolimus, and pimecrolimus; other drugs include- retinoids, dapsone mycophenolate, low dose or low molecular weight heparins and efalizumab. Non-pharmacological treatments include photodynamic therapy, laser therapy etc [3].

Considering that dental practitioners (DP) are the first physicians whom the patients will approach, DPs should be aware of the clinical presentation of the lesion. A high index of suspicion is required considering its malignant potential. General DPs can play an important role in the management of OLP, as they are in a position to diagnose the lesion at its earliest stages. DPs can implement an effective screening program and evolve an effective referral system for its early diagnosis and treatment.

However many studies have suggested that oral physicians and dentists do not accurately diagnose the lesion in the early stages because of the multifactorial etiology and due to the DPs perception and lack of knowledge on the disease [15]. Many dentists are also unaware of the prevalence of the lesion in the general population.

Although, a variety of approaches have been used to improve the general DPs approach and practice in the detection, diagnosis, and management of OLP. There are however, very few studies that assess the knowledge regarding etiology, clinical presentation, and management of OLP among the general DPs. In view of the paucity of the data available in the literature on this information, the present study was undertaken to analyze the knowledge, awareness and clinical management of OLP among the general DPs in Bengaluru city.

## Materials and Methods

Oral lichen planus awareness was assessed among 100 dentists comprising of BDS and MDS qualified DPs selected randomly from Bengaluru city using a questionnaire survey comprising of 15 questions (Figure 1). Validation of the questionnaire was performed by the specialists in the field of Oral Medicine using the Aiken scale of validation [16]. The validated questionnaire consisted of 15 questions which assessed the awareness and knowledge of the dental practitioners. The DPs were briefed about the aims and objectives of the survey and the procedure of completing the questionnaire. The structured questionnaire was divided into two components including knowledge based and awareness based. Questions numbered 3, 4, 5, 10, 11, 12, and 13 were knowledge based. Questions numbered 1, 2, 6, 7, 8, 9, 14 and 15 were awareness based (Figure 1). The questionnaire assessed the knowledge of DP regarding the clinical features of OLP and their relevant professional experience in managing patients with this condition, opinions of the need and usefulness of diagnosing this potentially malignant condition, and referral method to specialists. The questionnaires were assessed for their completeness and only completed questionnaires were considered for the final analysis. The necessary ethical clearance was granted by the Institutional Review Board. All the participants provided written informed consent. The results of the study were analyzed statistically using descriptive statistical analysis to examine the distribution of the study variables and to describe the sample demographics. The collected data was analyzed using SPSS (statistical packages for social sciences) version 11.5 software. Fischer's statistical test was used to compare the responses obtained from the DPs in the questionnaire and the table was constructed. A p-value of $\leq 0.05$ was considered significant.

## Results

The questionnaires were filled independently by the respondents. A total of hundred questionnaires were completed and returned (response rate was 100%) by the study participants. Among the study participants, forty-nine (49%) were males and fifty-one (51%) were females; seventeen DPs were <30 years, forty-two were 31-40 years, and thirty-three DPs were 41-50 years, and eight were between 51-60 years of age. When considering the qualification of the study participants it was observed that 56 of them had a BDS degree, while the remaining 44 respondents had additional post graduate qualification. The respondents had experience ranging from 1-30 years. It was observed that 46% of them had >7 years of professional experience, 54% had <7 years of experience (Table 1).

On analyzing the questionnaire it was observed that there was no significant difference between knowledge and awareness of OLP amongst BDS and MDS qualified Dps.

Among the respondents, 13% reported that they come across the patient with OLP in their practice frequently and 21% of them often. 51% reported that cases of OLP belong to the age group of 20-40 years and are more common among the males (56%). About 38% of them reported that, altered taste sensation was the clinical complaint of OLP cases; 68% of the respondents were aware that OLP is a potentially malignant condition; 67% did not experience any difficulty in diagnosing the condition;48% were not aware that OLP can exist as an exclusive disease of the oral cavity; 31% were aware that, OLP can manifest in different forms; 49% were aware that, OLP is a stress related disorder, it affects the quality of life and that follow-up is required due to its malignant potential.

Among the respondents 79% reported that they were able to diagnose OLP with clinical appearance alone; 55% were aware it was preferable to refer this patient to Oral medicine specialty for further treatment and that biopsy (51%) is the investigation of choice for diagnosing OLP. On analyzing the management offered for OLP, 43% of the respondents reported, that they administered antioxidants as the treatment of choice for treating the cases with 42% preferring steroids.(Table 2).

## Discussion

The present study reflects the awareness of dentists in Bengaluru regarding the diagnosis and knowledge of OLP in their general dental practice. The study was undertaken, due to its relative frequency, the presence of symptoms and the lack of effective management option and an additional increased risk of malignant transformation [15].

To the best of our knowledge, this is the first questionnaire study which was done in the Indian population to assess the awareness and knowledge about OLP. Studies have indicated that OLP is common in Asian populations and occurs commonly between 30 to 60 years of age [3, 6, 7, 14]. In line with the findings from other studies, OLP was seen in >75% of patients between 20-60 years of age. However as against the female predilection [3,6,7,14] seen in other studies the respondents in this study indicated that it is seen more in male patients (56%) when compared with the female patients (44%). In the Indian population, the prevalence is approximately 2.6% more common in the female sex[7, 14]. The most common presenting symptom of patients with OLP is burning sensation and pain[6, 18].However, in the current study, the respondents indicated that burning sensation (39%) was the most common symptom closely followed by alteration of taste (38%).

The profile of our OLP patients was not similar to that found in other studies, wherein the disease was more prevalent among women more than twice as men [17]

Surprisingly, there was no significant difference between the responses of the participants, based on their professional qualification (BDS/MDS). The study is limited in that, it just identified the difference in diagnostic skills and practicing knowledge regarding OLP between the different dental specialists, the reasons for the difference such as lack of exposure to the disease during training etc was not evaluated. Most of the respondents were aware that OLP was a potentially malignant disorder (68%), but very less were aware that it can have a varied presentation (31%) and perceived it as an exclusive oral condition (41%). Also, only half of the respondents rightfully preferred to refer the patients with OLP to a specialist in oral medicine (55%).

Among the respondents, 79% reported that they were able to diagnose OLP with clinical appearance alone. This is in line with the standard clinical practice, wherein the lesion is initially diagnosed based on the pathognomonic appearance of interlacing white striae on the posterior buccal mucosa of both the sides [3]. More than 51% of the DPs were aware that biopsy was the investigation of choice for diagnosing the condition, and that follow-up was required in these patients (59%). Only forty-nine percent of the respondents rightfully perceived that OLP was a stress related disorder and could affect the quality of life. Majority (43%) preferred anti-oxidants closely followed by corticosteroid (42%) for the management of OLP.

The evaluation of the data from the current study provides data on the perceptions and knowledge of the DPs regarding OLP. It also identified knowledge gaps among the respondents especially regarding the incidence of OLP and its perceived potential for malignant transformation.

## Conclusion

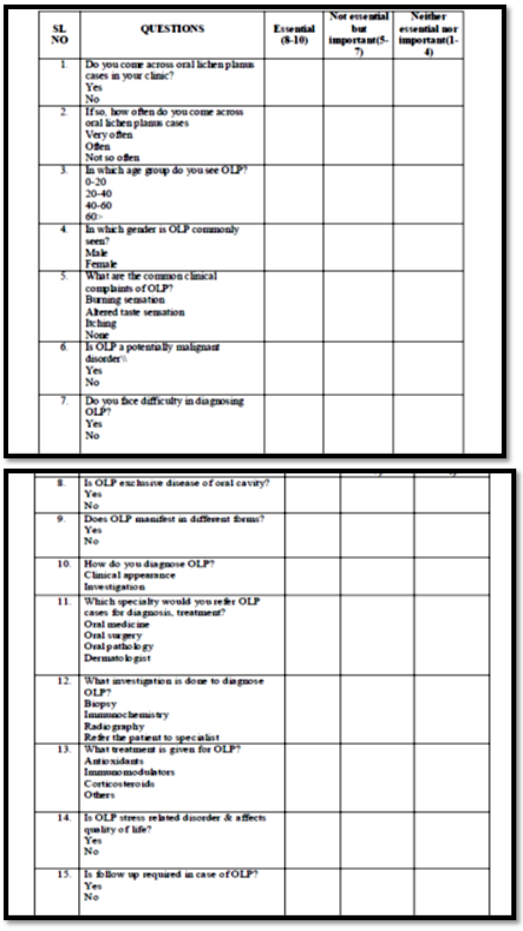
OLP is very common condition affecting the oral cavity. The current study highlights the lack of awareness and practicing knowledge regarding the early identification, diagnosis, and management of OLP among the DPs. However, this study was conducted in a limited geographic location with only 100 DPs. A more in-depth

study including a higher number of DPs, more extensive questionnaire wherein the type of OLP most commonly encountered by the DPs, the duration of follow-up done in practice by the DPs etc is suggested. A nationwide study aimed at evaluating the awareness and practices among the DPs regarding OLP would be more useful.

A significant observation of the study was that there was no difference in the ability to diagnose OLP between BDS and MDS. Only half the population referred the patient to Oral medicine specialist who was trained to diagnose it. However, this study was conducted with a small number of study participants and small geographic area. This observation needs to be further evaluated in a larger study.

Based on the knowledge gaps and lack of awareness among DPs identified by the current study, periodic continuing education programs covering oral lesions are suggested to enhance the knowledge and practice skills and diagnostic ability of dental practitioners.

**Figure 1: Validated Questionnaire**



| SL NO | QUESTIONS | Essential (8-10) | Not essential but important(5-7) | Neither essential nor important(1-4) |
|---|---|---|---|---|
| 1. | Do you come across oral lichen planus cases in your clinic?<br>Yes<br>No | | | |
| 2. | If so, how often do you come across oral lichen planus cases<br>Very often<br>Often<br>Not so often | | | |
| 3. | In which age group do you see OLP?<br>0-20<br>20-40<br>40-60<br>60> | | | |
| 4. | In which gender is OLP commonly seen?<br>Male<br>Female | | | |
| 5. | What are the common clinical complaints of OLP?<br>Burning sensation<br>Altered taste sensation<br>Itching<br>None | | | |
| 6. | Is OLP a potentially malignant disorder?<br>Yes<br>No | | | |
| 7. | Do you face difficulty in diagnosing OLP?<br>Yes<br>No | | | |
| 8. | Is OLP exclusive disease of oral cavity?<br>Yes<br>No | | | |
| 9. | Does OLP manifest in different forms?<br>Yes<br>No | | | |
| 10. | How do you diagnose OLP?<br>Clinical appearance<br>Investigation | | | |
| 11. | Which specialty would you refer OLP cases for diagnosis, treatment?<br>Oral medicine<br>Oral surgery<br>Oral pathology<br>Dermatologist | | | |
| 12. | What investigation is done to diagnose OLP?<br>Biopsy<br>Immunochemistry<br>Radiography<br>Refer the patient to specialist | | | |
| 13. | What treatment is given for OLP?<br>Antioxidants<br>Immunomodulators<br>Corticosteroids<br>Others | | | |
| 14. | Is OLP stress related disorder & affects quality of life?<br>Yes<br>No | | | |
| 15. | Is follow up required in case of OLP?<br>Yes<br>No | | | |

**Figure 2: Distribution of Study Participants Based On Their Qualification**

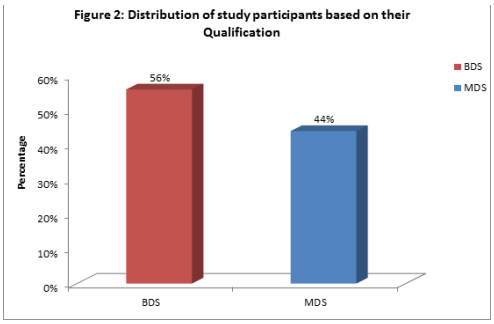



**Figure 3: Distribution of Study Participants Based On Their Professional Experience (In Yrs)**

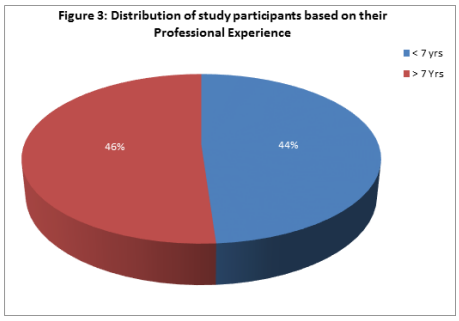



**Table 1:** Distribution of study participants based on their demographic characteristics

| Variables | n | % |
|---|---|---|
| **Age_Grp** | | |
| < 30 yrs | 17 | 17% |
| 31-40 yrs | 42 | 42% |
| 41-50 yrs | 33 | 33% |
| 51-60 yrs | 8 | 8% |
| **Sex** | | |
| Males | 49 | 49% |
| Females | 51 | 51% |
| **Qualification** | | |
| BDS | 56 | 56% |
| MDS | 44 | 44% |
| **Prof. Exp (yrs)** | | |
| < 7 yrs | 54 | 44% |
| > 7 Yrs | 46 | 46% |

**Table 2: Comparison of the responses by the study participants**

| QUESTION | RESPONSES | N (100) | % | $C^2$ VALUE | P-VALUE |
|---|---|---|---|---|---|
| Q1 | Very Often | 13 | 13.0% | 117.020 | <0.001* |
| | Often | 21 | 21.0% | | |
| | Not so often | 66 | 66.0% | | |
| Q2 | 0-20 | 25 | 25.0% | 14.060 | 0.001* |
| | 20-40 | 51 | 51.0% | | |
| | 40-60 | 24 | 24.0% | | |
| Q3 | Male | 56 | 56.0% | 1.440 | 0.23 |
| | Female | 44 | 44.0% | | |
| Q4 | Burning sensation | 39 | 39.0% | 75.120 | <0.001* |
| | Altered taste sensation | 38 | 38.0% | | |
| | Pain | 12 | 12.0% | | |
| | None | 11 | 11.0% | | |
| Q5 | Yes | 68 | 68.0% | 36.000 | <0.001* |
| | No | 20 | 20.0% | | |
| | Do not know | 12 | 12% | | |
| Q6 | Yes | 67 | 67.0% | 11.560 | 0.001* |
| | No | 33 | 33.0% | | |
| Q7 | Yes | 41 | 41.0% | 0.040 | 0.84 |
| | No | 48 | 48.0% | | |
| | Do not know | 11 | 11% | | |
| Q8 | Yes | 31 | 31.0% | 9.000 | 0.003* |
| | No | 59 | 59.0% | | |
| | Do not know | 10 | 10% | | |
| Q9 | Clinical appearance | 79 | 79.0% | 36.000 | <0.001* |
| | Investigation | 21 | 21.0% | | |
| Q10 | Oral medicine | 55 | 55.0% | 64.340 | <0.001* |
| | Oral surgery | 23 | 23.0% | | |
| | Oral Pathology | 14 | 14.0% | | |
| | Dermatologist | 8 | 8.0% | | |

| | | | | | |
|---|---|---|---|---|---|
| Q11 | Biopsy | 51 | 51.0% | 95.520 | <0.001* |
| | IHC | 21 | 21.0% | | |
| | Imaging | 7 | 7.0% | | |
| | Refer the patient to specialist | 21 | 21.0% | | |
| Q12 | Antioxidants | 43 | 43.0% | 58.940 | <0.001* |
| | Immunomodulators | 7 | 7.0% | | |
| | Corticosteriods | 42 | 42.0% | | |
| | Others | 8 | 8.0% | | |
| Q13 | Yes | 49 | 49.0% | 5.760 | 0.02* |
| | No | 33 | 33.0% | | |
| | Do not know | 18 | 18% | | |
| Q14 | Yes | 59 | 59.0% | 11.560 | 0.001* |
| | No | 29 | 29.0% | | |
| | Do not know | 12 | 12% | | |

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