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Assessment of Anxiety Levels in Patients with Oral White Patches: A Gender-Based Analysis-A Cross-sectional study

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INTRODUCTION

Dental anxiety is a very common problem that can be quite unpleasant for the patient and interferes with dental treatment. Individuals with high dental anxiety most of the time avoid treatment, delay it .

The presence of oral white patches (leukoplakia and related lesions) adds a significant dimension to dental anxiety. Oral white patches are among the most commonly encountered oral mucosal lesions and carry the potential for malignant transformation. The clinical uncertainty associated with these lesions — including the need for biopsy, histopathological evaluation, and long-term follow-up — may substantially heighten patient anxiety beyond that experienced during routine dental visits. The psychological burden of a potentially premalignant diagnosis, coupled with repeated dental appointments, can exacerbate existing anxiety levels and generate new anxieties.

The amount and nature of dental anxiety varies from one individual to another. It has been recommended that with the help of psychometric measures, patient's dental anxiety can be assessed. There are numerous dental anxiety measurement scales for assessments. The most well-known adult questionnaire made to assess dental anxiety is Corah's Dental Anxiety Scale (DAS). The DAS consists of four questions about different dental situations. Each question is scored from 1 (not anxious) to 5 (extremely anxious), and hence, the range of possible scores is 4–20. Significant anxiety is indicated for a score of 15 or more.

Another popular anxiety scale is the Modified Dental Anxiety Scale (MDAS), which consists of five questionnaires having scores distributed as one (non-anxious) to five (extremely anxious). The score for each respective questionnaire is added, and a cutoff of 19 or above indicates a highly dentally anxious patient, possibly dentally phobic. Dentists are not very accustomed to analyzing individual responses to dental anxiety measures and thus do not prefer to adopt such a process. However, with practice and training, the inclusion of routine anxiety assessment may lessen the overall contact time between patient and dentist.

Therefore, this study aims at assessing the level of dental anxiety in patients presenting with oral white patches according to gender, using the MDAS as the primary assessment tool in a larger cohort of 1000 patients.

MATERIALS AND METHODS .

A total of 1000 patients comprising 430 males and 570 females diagnosed with oral white patches and visiting the dental hospital were randomly selected for the study. All patients included in the study had clinically visible white patches in the oral cavity, confirmed by an oral medicine specialist. Patients with known psychiatric disorders, those already on anxiolytic medications, and patients who declined to participate were excluded from the study.

All participants were provided with the first section of the MDAS questionnaire. The first

section was concerned with age, gender, educational level, frequency of dental visits, reasons for irregular attendance, and existence of past traumatic dental experience. Additionally, details pertaining to the nature, duration, and site of the oral white patches were recorded. The second section comprised the MDAS and was evaluated by a trained clinician. Patients were asked to select a suitable option for each question and the forms were submitted upon completion.

For each questionnaire, patient scoring was added to give a total score for all five respective questions, with a minimum possible score of 5 and a maximum of 25. A score of 19 or above was considered to indicate a highly anxious patient. Data were collected and analyzed with respect to gender using the MDAS. Statistical analysis was performed using the independent samples t-test and chi-square test where appropriate. A P value of <0.05 was considered statistically significant.

RESULTS

In the present study of 1000 patients with oral white patches, male and female patients showed a statistically significant difference in anxiety levels as measured by the MDAS ($P < 0.001$). Female patients demonstrated a higher level of anxiety as compared to males, with a mean MDAS anxiety score of 14.20 (SD ± 3.42) for females and 11.35 (SD ± 3.18) for males [Table 1]. The overall mean MDAS score across all participants was 12.98 (SD ± 3.51).

Among the 1000 patients, 312 (31.2%) scored 19 or above on the MDAS, indicating high dental anxiety or cancer phobia. Of these, 204 (65.4%) were female and 108 (34.6%) were male. The proportion of highly anxious patients was significantly greater in females (35.8% of all female participants) compared to males (25.1% of all male participants) ($P < 0.001$) [Table 2].

Table 1: Frequency breakdown and N size for participant sample including Modified Dental Anxiety Scale mean, standard deviation, and percent ≥19

Gender	N	Mean MDAS Score (SD)	Median Score	% Score ≥19
Male	430	11.35 (± 3.18)	11.0	25.1%
Female	570	14.20 (± 3.42)	14.0	35.8%
Total	1000	12.98 (± 3.51)	13.0	31.2%

P < 0.001 (independent samples t-test)

Table 2: Distribution of patients with oral white patches scoring ≥19 on MDAS by gender

Gender	Total Patients	Score ≥19 (n)	Score ≥19 (%)
Male	430	108	25.1%
Female	570	204	35.8%
Total	1000	312	31.2%

P < 0.001 (chi-square test)

DISCUSSION

The present study found significantly elevated dental anxiety or cancer phobia in patients presenting with oral white patches, particularly among female patients. The overall mean MDAS score of 12.98 observed in this cohort is notably higher than those typically reported in general dental patient populations, suggesting that the diagnosis and management of oral white patches carry an additional anxiety burden beyond routine dental care. This is clinically important, as oral white patches — including leukoplakia, lichen planus, and other potentially malignant

disorders — require regular monitoring, biopsy procedures, and long-term follow-up that may reinforce anxiety over time.

The present study results were consistent with the study done by Neverlien in 1990, who assessed that women had significantly higher mean values on the dental anxiety questionnaire (DAQ) than men in all age groups, and for both genders, the mean DAQ values decreased with increasing age. In the context of oral white patches, the diagnostic uncertainty and fear of malignancy may amplify pre-existing gender differences in dental anxiety.

Settineri et al., in 2005, studied the presence of dental anxiety in a group of 189 females and 176 males using the DAS and related scales. The results showed significant differences in relation to dental anxiety regarding the use of instruments (such as needles and handpieces) and the tilted-back position of the dental chair. In patients with oral white patches, the anticipation of biopsy procedures involving local anesthesia and incision may further heighten anxiety related to instruments, a factor likely contributing to the elevated scores observed in this study, particularly in female patients.

Similarly, a study by Berggren in 1992 reported that women have higher anxiety scores than men. The frequencies of extreme fears were high, with 92.7% of patients reporting at least one extreme fear. In the present study population with oral white patches, extreme fears may be compounded by fears of malignant transformation, reflecting a dual anxiety burden — one dental and one oncological.

There are some studies that indicate that younger adults may show lower dental anxiety than their more middle-aged counterparts. Given that oral white patches are more prevalent in middle-aged and older adults, this demographic overlap may partly explain the elevated anxiety levels observed. Lehrner et al. reported that ambient odor of orange in a dental office reduces anxiety and improves mood in female patients, suggesting simple environmental interventions that could be particularly beneficial in this anxious sub-population.

The higher proportion of female patients (35.8%) scoring in the highly anxious range (MDAS ≥19) compared to males (25.1%) underscores the need for gender-sensitive anxiety management strategies in patients undergoing evaluation and treatment of oral white patches. Anxiety may adversely affect treatment compliance, follow-up attendance, and willingness to undergo necessary biopsy procedures, potentially delaying diagnosis of malignant transformation.

SUMMARY AND CONCLUSION

Anxiety is an emotional state commonly present during dental visits and is more frequently and intensely associated with females than males. In patients with oral white patches, this anxiety is amplified by the diagnostic uncertainty, repeated clinical visits, and the potential implication of malignant transformation. The present study, carried out on a cohort of 1000 patients with oral white patches, demonstrated statistically significant levels of dental anxiety with respect to gender, with females having significantly higher MDAS scores and a greater proportion scoring in the dentally phobic range (≥19) than males.

The higher level of dental anxiety in female patients with oral white patches can be attributed to various factors such as infrequent prior dental visits, prolonged wait times in dental offices, previous traumatic dental experiences, and heightened concern about the implications of a potentially premalignant oral lesion. This anxiety explains why women may more commonly avoid follow-up care and delay biopsy, which are critical steps in the management of oral white patches.

Certain measures should be adopted by dental office staff to reduce dental anxiety in this population. These include reducing long waiting times, providing thorough and empathetic explanations of diagnostic and surgical procedures, offering written patient information on oral white patches and their management, utilizing anxiety-reducing environmental modifications (such as calming ambient scents), and considering formal psychological support or anxiolytic premedication in highly anxious patients. Targeted, gender-sensitive anxiety management is essential to motivate compliance with follow-up care and to facilitate timely diagnosis and treatment of oral white patches.

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