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Original Article

# Prevalence of Oral Parafunctional Habits in Individuals with Anxiety and Stress Disorders

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## ABSTRACT

**Background:** Oral parafunctional habits are repetitive, non-functional activities of the masticatory system that may lead to dental and temporomandibular complications. Psychological conditions such as anxiety and stress are recognized contributors to the development and persistence of these habits.
**Aim:** To assess the prevalence of oral parafunctional habits in individuals with anxiety and stress disorders and to evaluate their association with the severity of psychological distress and clinical oral findings.
**Materials and Methods:** A cross-sectional observational study was conducted among 120 adults diagnosed with anxiety and/or stress disorders. Psychological assessment was performed using the Depression Anxiety Stress Scale-21 (DASS-21). Oral parafunctional habits were recorded through a structured questionnaire and clinical examination. Clinical signs associated with parafunctional activity were documented.
**Results:** Oral parafunctional habits were observed in 76.7% of participants. Bruxism (38.3%) and clenching (28.3%) were the most prevalent habits. A statistically significant association was found between increasing severity of anxiety and stress and the presence of parafunctional habits ($p < 0.001$). Tooth wear facets, linea alba, tongue indentations, and muscle tenderness were common clinical findings among participants with parafunctional habits.
**Conclusion:** Anxiety and stress disorders are significantly associated with increased prevalence of oral parafunctional habits and related clinical signs. Incorporating psychological evaluation into dental care may aid in early detection and prevention of long-term oral complications.

***Keywords****: Oral parafunctional habits; Anxiety; Stress; Bruxism; Psychosomatic disorders; Oral health.*

## INTRODUCTION

Oral parafunctional habits are repetitive, non-functional activities of the masticatory system that are not related to normal functions such as chewing, speaking, or swallowing. Common parafunctional habits include bruxism (teeth grinding or clenching), nail biting, lip biting, cheek biting, and tongue thrusting. These habits can exert excessive forces on teeth, muscles, and temporomandibular joints, leading to dental wear, periodontal damage, temporomandibular disorders (TMDs), and orofacial pain [1].

Psychological factors play a significant role in the development and maintenance of oral parafunctional habits. Anxiety and stress disorders are among the most frequently reported psychological conditions worldwide and are known to influence muscle activity and behavioral responses. Chronic stress activates the autonomic nervous system and increases muscle tension, which may manifest as clenching or grinding of teeth, particularly during sleep or periods of emotional strain [2].

Bruxism is one of the most widely studied parafunctional habits associated with psychological stress. Both sleep bruxism and awake bruxism have been linked to emotional disturbances such as anxiety, stress, and depression. Individuals experiencing high stress levels often exhibit increased jaw muscle activity, which may occur subconsciously as a coping mechanism [3]. Several studies have reported a higher prevalence of bruxism and other parafunctional habits among individuals with anxiety disorders compared to the general population [4].

Apart from bruxism, habits such as cheek biting, nail biting, and lip chewing are also frequently observed in anxious individuals. These behaviors are often considered self-soothing or tension-relieving actions and may worsen during periods of psychological distress. Over time, these habits can result in oral mucosal lesions, gingival trauma, tooth mobility, and esthetic concerns [5].

Despite growing evidence linking psychological stress and anxiety to oral parafunctional habits, these behaviors often remain underdiagnosed in routine dental practice. Many patients are unaware of their habits, especially when they occur subconsciously [6]. Early identification of parafunctional habits and associated psychological factors is essential for preventing long-term oral complications and improving patient outcomes.

Therefore, understanding the prevalence of oral parafunctional habits in individuals with anxiety and stress disorders is important for comprehensive patient care. Identifying these habits may help dental professionals adopt a multidisciplinary approach involving behavioral management, stress reduction strategies, and appropriate dental interventions to reduce oral morbidity associated with psychosomatic stress.

## MATERIALS AND METHODS

### *Study Design, Setting and Population*

The present study was conducted as a cross-sectional observational study to assess the prevalence of oral parafunctional habits among individuals diagnosed with anxiety and stress disorders. The study population consisted of adult individuals aged 18 years and above who attended the dental and psychiatry OPD of RINPAS for evaluation or management of anxiety and stress-related disorders.

Ethical clearance was obtained from the Institutional Ethics Committee prior to the commencement of the study. Written informed consent was obtained from all participants after explaining the purpose and procedures of the study. Confidentiality of participant information was maintained throughout the study.

### *Sample Size*

A total of 120 participants were included in the study. The sample size was determined based on feasibility and previous studies evaluating parafunctional habits in individuals with psychological disorders.

### *Inclusion Criteria*

- Individuals aged 18 years and above
- Patients clinically diagnosed with anxiety and/or stress disorders by a qualified psychiatrist
- Individuals who provided written informed consent
- Participants who were cooperative during clinical examination

### *Exclusion Criteria*

- Individuals with a history of neurological disorders affecting muscle activity
- Patients receiving muscle relaxants or antipsychotic medications
- Individuals with ongoing orthodontic treatment
- Participants with a history of maxillofacial trauma or surgery
- Individuals who were unwilling to participate

### *Assessment of Anxiety and Stress*

Psychological assessment was carried out using the Depression Anxiety Stress Scale-21 (DASS-21). The questionnaire was administered in the participant's preferred language. Anxiety and stress scores were calculated according to standardized scoring guidelines, and participants were categorized into normal, mild, moderate, severe, and extremely severe groups.

### *Assessment of Oral Parafunctional Habits*

Information regarding oral parafunctional habits was obtained through a structured self-reported questionnaire and clinical examination. The habits assessed included bruxism (awake and sleep), clenching, nail biting, lip biting, cheek biting, and tongue thrusting.

***Clinical Oral Examination***

All participants underwent an intraoral examination performed by a single calibrated examiner under adequate illumination using a mouth mirror and explorer. Clinical signs suggestive of parafunctional habits, such as tooth wear facets, linea alba, tongue indentations, cheek keratosis, and muscle tenderness, were recorded.

Prior to the study, the examiner was calibrated by examining ten patients who were not included in the final sample. Intra-examiner reliability was assessed using kappa statistics, which demonstrated satisfactory agreement. Demographic details, psychological assessment scores, self-reported parafunctional habits, and clinical findings were recorded in a pre-designed proforma.

***Statistical Analysis***

Data were entered into Microsoft Excel and analyzed using Statistical Software for Social Sciences 26.0. Descriptive statistics were used to summarize demographic variables, anxiety and stress levels, and prevalence of parafunctional habits. The Chi-square test was used to assess the association between anxiety/stress levels and parafunctional habits. A p-value of $<0.05$ was considered statistically significant.

**RESULTS**

A total of 120 participants diagnosed with anxiety and/or stress disorders were included in the study. All participants completed the psychological assessment and oral examination, and their data were included in the final analysis.

The mean age of the study participants was $32.8 \pm 9.4$ years, ranging from 18 to 58 years. Females constituted a slightly higher proportion of the sample compared to males as seen in Table 1.

**Table 1: Demographic Distribution of Study Participants**

| Variable | Frequency (%) |
|---|---|
| **Age (years)** | |
| 18–25 | 32 (26.7) |
| 26–35 | 44 (36.7) |
| 36–45 | 26 (21.7) |
| >45 | 18 (15.0) |
| **Gender** | |
| Male | 54 (45.0) |
| Female | 66 (55.0) |

Based on DASS-21 scores, the majority of participants exhibited moderate to severe levels of anxiety and stress as seen in Table 2.

**Table 2: Distribution of Anxiety and Stress Severity (DASS-21)**

| Severity Level | Anxiety n (%) | Stress n (%) |
|---|---|---|
| Normal | 18 (15.0) | 22 (18.3) |
| Mild | 26 (21.7) | 30 (25.0) |
| Moderate | 42 (35.0) | 38 (31.7) |
| Severe | 22 (18.3) | 20 (16.7) |
| Extremely severe | 12 (10.0) | 10 (8.3) |

Oral parafunctional habits were observed in 92 out of 120 participants (76.7%). Bruxism and clenching were the most commonly reported habits as seen in Table 3.

**Table 3: Prevalence of Oral Parafunctional Habits**

| Parafunctional Habit | Frequency (n) | Percentage (%) |
|---|---|---|
| Bruxism (sleep/awake) | 46 | 38.3 |
| Clenching | 34 | 28.3 |
| Nail biting | 28 | 23.3 |
| Cheek biting | 22 | 18.3 |
| Lip biting | 20 | 16.7 |
| Tongue thrusting | 12 | 10.0 |
| No habit detected | 28 | 23.3 |

A statistically significant association was observed between increasing anxiety severity and the presence of parafunctional habits ($p < 0.001$) as seen in Table 4.

**Table 4. Association Between Anxiety Severity and Parafunctional Habits**

| Anxiety Level | Habit Present n (%) | Habit Absent n (%) | p-value |
|---|---|---|---|
| Normal | 8 (44.4) | 10 (55.6) | |
| Mild | 16 (61.5) | 10 (38.5) | |
| Moderate | 36 (85.7) | 6 (14.3) | |
| Severe/Extremely severe | 32 (94.1) | 2 (5.9) | <0.001* |

*= Significant

Stress severity also showed a significant correlation with the presence of oral parafunctional habits as seen in Table 5.

**Table 5. Association Between Stress Severity and Parafunctional Habits**

| Stress Level | Habit Present n (%) | Habit Absent n (%) | p-value |
|---|---|---|---|
| Normal | 10 (45.5) | 12 (54.5) | |
| Mild | 18 (60.0) | 12 (40.0) | |
| Moderate | 32 (84.2) | 6 (15.8) | |
| Severe/Extremely severe | 32 (94.1) | 2 (5.9) | <0.001* |

*Statistically significant

Among participants with parafunctional habits, common clinical signs included tooth wear, linea alba, tongue indentations, and muscle tenderness as seen in Table 6.

**Table 6: Clinical Findings Associated With Parafunctional Habits (n = 92)**

| Clinical Sign | Frequency (n) | Percentage (%) |
|---|---|---|
| Tooth wear facets | 54 | 58.7 |
| Linea alba | 48 | 52.2 |
| Tongue indentations | 36 | 39.1 |
| Cheek keratosis | 30 | 32.6 |
| Muscle tenderness | 28 | 30.4 |

The study demonstrated a high prevalence of oral parafunctional habits among individuals with anxiety and stress disorders. Bruxism and clenching were the most common habits. Increasing severity of anxiety and stress was significantly associated with higher occurrence of parafunctional habits. Clinical signs indicative of parafunctional activity was frequently observed, emphasizing the strong psychosomatic link between psychological distress and oral functional behavior.

## DISCUSSION

The present study evaluated the prevalence of oral parafunctional habits among individuals with anxiety and stress disorders and assessed their association with psychological severity and clinical oral findings. The results demonstrated a high prevalence of parafunctional habits, with more than three-quarters of the study population exhibiting at least one habit. These findings reinforce the close relationship between psychological distress and altered oral motor behavior.

In the current study, bruxism and clenching emerged as the most prevalent parafunctional habits. This observation is consistent with previous literature suggesting that anxiety and stress increase masticatory muscle activity, both consciously and subconsciously. Heightened sympathetic nervous system activity during psychological stress is known to increase muscle tension, which may manifest as jaw clenching or teeth grinding, particularly during sleep or emotionally stressful situations [7]. The high frequency of these habits among individuals with moderate to severe anxiety highlights the role of emotional dysregulation in parafunctional behavior.

A significant association was observed between anxiety severity and the presence of parafunctional habits. Participants with moderate to extremely severe anxiety demonstrated a markedly higher prevalence of habits compared to those with normal or mild anxiety levels. Similar findings have been reported by Winocur et al., who noted that individuals with elevated anxiety scores were more likely to exhibit bruxism and other parafunctional activities [8]. Anxiety-related hypervigilance and increased muscle reactivity may explain this relationship.

Stress severity also showed a statistically significant association with parafunctional habits. Participants with higher stress levels exhibited greater habit prevalence, supporting the hypothesis that stress acts as a triggering and perpetuating factor. Chronic stress is known to alter hypothalamic–pituitary–adrenal axis activity, resulting in sustained muscle contraction and behavioral manifestations such as oral habits [9]. These findings emphasize that both anxiety and stress independently and collectively influence oral parafunctional activity.

Clinical examination revealed common signs such as tooth wear facets, linea alba, tongue indentations, and muscle tenderness among participants with parafunctional habits. Tooth wear was the most frequent clinical finding, reflecting prolonged mechanical loading of teeth due to bruxism and clenching. Similar clinical features have been widely documented in individuals with parafunctional habits and psychosomatic disorders [10]. Muscle tenderness observed in the present study further supports the role of sustained muscle hyperactivity in these patients.

The presence of multiple parafunctional habits in several participants suggests that these behaviors may coexist rather than occur in isolation. Nail biting, cheek biting, and lip biting were frequently observed and may represent self-soothing behaviors adopted during periods of emotional stress. Such habits have been described as behavioral coping mechanisms in individuals with anxiety disorders [11].

The findings of this study underline the importance of incorporating psychological assessment into routine dental evaluation. Early identification of parafunctional habits and associated emotional factors can aid in preventing long-term complications such as temporomandibular disorders, chronic orofacial pain, and irreversible tooth wear. A multidisciplinary approach involving dentists, psychiatrists, and psychologists is essential for comprehensive management [12-14].

Although the study provided valuable insights, its cross-sectional design limits causal interpretation. Longitudinal studies are recommended to explore the temporal relationship between psychological distress and parafunctional habits. Future research incorporating objective measures such as electromyography and sleep studies may further enhance understanding of these associations.

## CONCLUSION

The present study demonstrated a high prevalence of oral parafunctional habits among individuals with anxiety and stress disorders. Bruxism and clenching were the most commonly observed habits, followed by nail biting, cheek biting, and lip biting. A statistically significant association was observed between increasing severity of anxiety and stress and the presence of parafunctional habits. Clinical signs such as tooth wear, linea alba, tongue indentations, and muscle tenderness were frequently noted in affected individuals, indicating sustained parafunctional activity. These findings highlight the strong psychosomatic link between psychological distress and oral functional behavior. Early identification of parafunctional habits and assessment of psychological factors should be incorporated into routine dental examinations. A multidisciplinary approach involving dental professionals and mental health specialists is essential for effective prevention and management of parafunctional habit-related oral complications.

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