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Original Research Paper

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IMPACT OF ANXIETY, DEPRESSION, AND STRESS ON TEMPOROMANDIBULAR JOINT DISORDERS: A PSYCHOSOMATIC PERSPECTIVE

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ABSTRACT

Background: Temporomandibular joint disorders (TMD) are multifactorial conditions involving the temporomandibular joint, masticatory muscles, and surrounding structures. Increasing evidence suggests that psychosocial factors such as anxiety, depression, and stress play a significant role in the development and persistence of TMD. **Aim:** To evaluate the association between anxiety, depression, and stress with temporomandibular joint disorders from a psychosomatic perspective. **Materials and Methods:** A cross-sectional study was conducted among 220 participants aged 18–45 years attending a dental teaching hospital. Temporomandibular joint disorders were assessed using the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD). Psychological status was evaluated using the Depression Anxiety Stress Scale (DASS-21). Data were analyzed using descriptive statistics, chi-square test, and logistic regression with significance set at $p < 0.05$. **Results:** TMD symptoms were identified in 118 participants (53.6%). Individuals with moderate-to-severe anxiety and depression showed significantly higher prevalence of TMD ($p < 0.001$). Logistic regression analysis demonstrated that anxiety (OR = 2.64), depression (OR = 2.12), and stress (OR = 1.97) were significant predictors of TMD. **Conclusion:** Psychological distress significantly influences the occurrence and severity of temporomandibular joint disorders. Integrating psychosocial evaluation into dental practice may improve management outcomes.

KEYWORDS : Temporomandibular Disorders, Anxiety, Depression, Stress, Psychosomatic Dentistry, Orofacial Pain

INTRODUCTION

Temporomandibular joint disorders (TMD) represent a group of conditions affecting the temporomandibular joint, masticatory muscles, and associated structures. These disorders commonly present with symptoms such as joint pain, clicking sounds, muscle tenderness, and limited mandibular movement, which can significantly affect oral function and quality of life [1].

The etiology of TMD is considered multifactorial and involves a combination of structural, functional, behavioral, and psychological factors [2]. Among these, psychosocial influences have received increasing attention in recent years because emotional distress may contribute to the onset and progression of TMD [3].

Psychological conditions such as anxiety, depression, and stress may increase muscle tension and parafunctional activities including bruxism and clenching, which in turn exert excessive mechanical load on the temporomandibular joint [4]. These mechanisms may contribute to pain, inflammation, and functional disturbances of the joint.

Several epidemiological studies have demonstrated a significant association between psychological distress and TMD symptoms. Fillingim et al. reported that individuals experiencing higher levels of psychological distress have an increased risk of developing painful temporomandibular disorders [5]. Similarly, Kindler et al. found that depressive and anxiety symptoms were strongly correlated with temporomandibular joint pain in population-based studies [6].

Manfredini and Guarda-Nardini emphasized that psychosocial factors play an important role in the persistence and chronicity of TMD, supporting the biopsychosocial model of orofacial pain [7]. Additionally, Reissmann et al. demonstrated that psychological stress is significantly associated with increased severity of TMD symptoms [8].

Despite growing evidence supporting the influence of psychological factors on temporomandibular disorders, the relationship between anxiety, depression, stress, and TMD remains incompletely understood. Therefore, the present study aimed to evaluate the impact of psychological distress on temporomandibular joint disorders from a psychosomatic perspective.

MATERIALS AND METHODS

Study Design A cross-sectional observational study was conducted at a dental teaching hospital.

Study Population A total of 220 participants aged between 18 and 45 years were recruited.

Inclusion Criteria

- Adults aged 18–45 years
- Individuals willing to participate
- Patients with or without TMD symptoms

Exclusion Criteria

- History of TMJ trauma or surgery
- Neuromuscular disorders
- Systemic musculoskeletal diseases

Assessment of Temporomandibular disorders

TMD was evaluated using the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) which is widely used for clinical and research diagnosis of TMD [2].

Clinical Examination Included:

- TMJ pain on palpation
- Joint sounds
- Muscle tenderness
- Maximum mouth opening

Psychological Assessment

Psychological status was assessed using the Depression Anxiety Stress Scale (DASS-21), a validated questionnaire used for measuring emotional distress [9].

Participants were categorized into:

- Normal
- Mild
- Moderate
- Severe

Statistical Analysis

Data were analyzed using SPSS version 26. Statistical methods included:

- Descriptive statistics
- Chi-square test
- Logistic regression analysis

A p-value < 0.05 was considered statistically significant.

RESULTS

Table 1: Demographic Characteristics

Variable	Frequency	Percentage
Total participants	220	100%
Male	96	43.6%
Female	124	56.4%
Age 18–25	92	41.8%
Age 26–35	78	35.5%
Age 36–45	50	22.7%

Table2: Prevalence of Temporomandibular Disorders

TMD Status	Number	Percentage
TMD present	118	53.6%
No TMD	102	46.4%

Table 3: Psychological Status of Participants

Psychological Variable	Normal	Moderate	Severe
Anxiety	82	86	52
Depression	95	78	47
Stress	88	83	49

Table 4: Association Between Psychological Factors and TMD

Factor	TMD Present	TMD Absent	p-value
Anxiety	78	60	<0.001
Depression	71	54	0.002
Stress	69	55	0.004

Table 5: Logistic Regression Analysis

Variable	Odds Ratio	95% CI	p-value
Anxiety	2.64	1.78–3.92	<0.001
Depression	2.12	1.39–3.24	0.001
Stress	1.97	1.28–3.03	0.003

DISCUSSION

The present study evaluated the relationship between psychological distress and temporomandibular joint disorders.

The prevalence of TMD in this study was 53.6%, which is consistent with previous epidemiological studies reporting high prevalence of TMD symptoms among young adults [10].

The results revealed a significant association between anxiety, depression, and stress with temporomandibular disorders. Individuals with higher psychological distress were more likely to exhibit TMD symptoms. These findings are consistent with the OPPERA prospective cohort study, which identified psychological distress as an important risk factor for TMD development [5].

One possible explanation is that psychological stress leads to increased muscle tension and parafunctional activities such as bruxism and clenching [11]. These behaviors increase mechanical load on the temporomandibular joint and may lead to inflammation and pain.

Previous studies have also demonstrated that individuals with anxiety and depression have greater pain sensitivity and altered pain processing pathways [12].

The findings of the present study support the biopsychosocial model, which suggests that both biological and psychological factors contribute to the development of temporomandibular disorders [7].

CONCLUSION

Psychological distress, particularly anxiety and depression, is significantly associated with temporomandibular joint disorders. Early identification of psychological risk factors may improve the diagnosis and management of TMD. A multidisciplinary approach involving dental and mental health professionals may provide more effective treatment for affected individuals.

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