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Research Article

Investigating the Oral Health among Individuals with Depression and Anxiety

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ABSTRACT

Depression and anxiety are widespread mental health disorders that can have a major influence on oral health. People with these conditions may experience poor oral hygiene, dental caries, and other oral health problems.

Objective: The purpose of this study was to investigate the oral health status of individuals with depression and anxiety.

Methods: This quantitative research used a cross-sectional study design involving 100 individuals (50 with depression and 50 with anxiety), Ages between 18-60 years. In a six-month research period, the non-probability consecutive sampling technique was employed. The data was obtained from patients through Oral Health Impact Profile (OHIP) questionnaire, the Dental Exam (DMFT index), the Generalized Anxiety Disorder 7-item scale (GAD7), and the Patient Health Questionnaire9 (PHQ9). **Results**: The statistical analysis was performed using an independent t-test and a chi-square test. Compared to normative data, people with depression and anxiety had worse oral health, as shown by higher DMFT and OHIP scores ($p < 0.001$). Oral health results were highly correlated with anxiety and depression scores.

Conclusion: This study emphasizes how crucial oral health care is for people who suffer from depression and anxiety. Dental practitioners should be mindful of the possible effects of these disorders on oral health and deliver individualized treatment to address the specific demands of these individuals.

INTRODUCTION

In recent years, there has been a great deal of focus on the relationship among oral health and mental well-being [1]. People who have mental illnesses, notably depression and anxiety, are more prone to have poor oral health than those who do not have these disorders [2]. Study have demonstrated, depression is associated to a number of oral health issues, such gum disease, periodontal disease, and dental caries [3,4].

There are several ways that depression can impact oral health. People experiencing depressive symptoms may have decreased energy and motivation, leading to neglect of essential oral hygiene behaviors like brushing their teeth and flossing [5]. Furthermore, those who are depressed may forego necessary dental care, which increases the risk of dental issues [6]. Oral health issues can also result from unhealthy coping mechanisms, such as overeating or binge eating [7].

In populations with mental health issues like depression and anxiety, oral health is frequently ignored, even if it is essential element of overall well-being. Depression and anxiety are common psychosocial diseases that have an affect on many facets of a person's health, including oral and dental health. These mental health conditions can influence oral health through both physiological mechanisms, such as altered immune response and salivary flow, and behavioral factors, including reduced motivation for oral hygiene and irregular dental care utilization(8).

Several researches revealed a strong connection among depression and poor oral health outcomes. For instance, peopy with depression have more chances of dental caries, tooth loss, periodontal diseases, and report worse oral health-related quality of life. Depression has also been linked to increased oral pain, difficulty accessing dental care, and negative impacts on daily functioning related to oral health (16).While anxiety is also common, its relationship with oral health is less consistently observed; some studies suggest anxiety may not significantly affect oral health indices, whereas others report increased dental disease in anxious populations(8).

Figure1: Relationship among Mental Health and Oral Health

The interplay among mental health and oral health is complicated and influenced by socioeconomic factors, lifestyle behaviors, and comorbid chronic conditions. Mental health disorders can cause neglect of oral hygiene, unhealthy dietary habits, and side effects of psychotropic medications such as dry mouth, all contributing to oral disease risk(9).

LITERATURE REVIEW

A systematic review and meta-analysis covering 26 studies with over 330,000 subjects found that depression and anxiety are linked with high dental decay (measured by DMFT/DMFS scores) and greater tooth loss, though not consistently with periodontal disease except in panic disorder. The authors recommend integrated oral and mental health care approaches to address these risks (9).

A 2024 meta-analysis and systematic review investigated how oral health-related quality of life (OHQOL) associates with anxiety and depression. It highlighted that poor OHQOL is linked with these mental health conditions, though data remain limited and scattered, underscoring the need for further research and integrated care programs (10).

A nationally representative survey in the US showed depression is strongly linked with poorer self-rated oral health and oral health-related quality of life, including embarrassment about oral appearance and functional difficulties. Socioeconomic factors like income, education, and dental insurance influence both depression and oral health outcomes (11).

Another research revealed the relationship between mental health status and oral health status and utilization. It found individuals with poor mental health had worse oral health and were less likely to visit the dentist regularly. The study emphasized the need to address oral health disparities amplified by mental health conditions and sociodemographic factors (12).

Figure2: Connection between Mental and Oral Health

A recent systematic review found tooth loss, oral pain, and impaired oral function are consistently associated with increased depressive symptoms, suggesting oral health problems may contribute to or exacerbate depression (13).

METHODOLOGY

The cross sectional study design was used to explore the oral health status of individuals with depression and anxiety. The sample size consisted of 100 individuals, with 50 individuals diagnosed with depression and 50 individuals diagnosed with anxiety. The age range of the participants was 18-60 years. Consecutive sampling was used to recruit participants from mental health clinics and hospitals.

Data Collection Tools: Patient Health Questionnaire-9 (PHQ-9) to assess the severity of depressive symptoms. PHQ consists of 9 items with response scored on scale from 0 (Not at all) to 4(Nearly every day). A higher total score indicates greater levels of depression. Generalized Anxiety Disorder 7-item scale (GAD-7) to assess the severity of anxiety symptoms.GAD consists of 7 items with response scored on scale from 0(Not at all) to 4(Nearly every day). A higher total score indicates greater levels of Anxiety. Dental examination using the DMFT (Decayed, Missing, Filled Teeth) index to assess the prevalence of dental caries, this was a clinical examination and the Oral Health Impact Profile (OHIP) questionnaire to assess the impact of oral health on quality of life. OHP consists of 49 number of items with five point likert scale 0(Never) to 4(very often).

Inclusion Criteria: The inclusion criteria of this study were adult's ages between 18-60 years. Patient's diagnosed with depression or anxiety by a mental health professional and able to provide informed consent. Patients who were willing to participate in a dental examination and complete questionnaires.

Exclusion Criteria: The exclusion criteria for the study were Individuals with severe mental illness or psychosis. Individuals with cognitive impairment or dementia. Individuals who were edentulous (toothless). Individuals who were undergone dental treatment in the past 6 months.

Statistical Analysis: SPSS software was used to analyze the data. The oral health of those suffering from anxiety and depression was assessed using independent t-tests and chi-square tests.

RESULTS

Table1: Demographic Characteristics of Study Participants

Variables	Frequency
Total participants	100
Gender distribution for depression group	Male 20(40%), female 30(60%)
Gender distribution for Anxiety group	Male 25(50%), female 25(50%)

Age (mean ± SD)	35.6 ± 12.1 years
Education level	➢ High school or equivalent 50 (50%) ➢ College or university 30 (30%) ➢ Postgraduate 20 (20%
Marital status	▸ Married 60 (60%) ▸ Unmarried 40 (40%)

The demographic profile of the study sample is summarised in this table, which includes mean age, education level, and marital status together with the overall sample size and distribution of men and women in the anxiety and depression groups.

Table 2: Comparison of Oral Health Status

Group	Mean DMFT Score (± SD)	Mean OHIP Score (± SD)
Depression	14.2 (± 6.3)	35.1 (± 12.4)
Anxiety	13.5 (± 5.9)	32.5 (± 11.6)
Normative data	8.5 (± 4.2)	20.5 (± 8.5)

Between the depression group, anxiety group, and normative data, this table contrasts mean DMFT (Decayed, Missing, and Filled Teeth) ratings and OHIP (Oral Health Impact Profile) scores. The results shows that patients with anxiety and depression have worse oral health than compared to normative data.

Table3: DMFT and OHIP Scores

Test	Comparison	t-value	P-value
Independent t-test	DMFT scores between depression and normative data	6.2	< 0.001
Independent t-test	OHIP scores between depression and normative data	7.1	< 0.001
Independent t-test	DMFT scores between anxiety and normative data	5.5	< 0.001
Independent t-test	OHIP scores between anxiety and normative data	6.3	< 0.001
Chi square test	Association between depression, anxiety, and oral health outcomes	.	< 0.001

This table compiles independent t-test and chi-square test statistical analysis results. The findings suggest a strong link between oral health results, depression, and anxiety.

Table4: Correlation between Depression, Anxiety, and Oral Health Outcomes

Correlation	r-value	p-value
Depression (PHQ-9) and DMFT	0.45	< 0.001
Anxiety (GAD-7) and DMFT	0.38	< 0.001
Depression (PHQ-9) and OHIP	0.51	< 0.001
Anxiety (GAD-7) and OHIP	0.46	< 0.001

This table presents the correlation coefficients (r-values) and p-values for the relationships between depression scores (PHQ-9), anxiety scores (GAD-7), DMFT scores, and OHIP scores. The results indicate significant positive correlations between depression, anxiety, and oral health outcomes.

Table5: Comparison between Depression and Anxiety Groups

Comparison	P-value
DMFT scores between depression and anxiety groups	0.23
OHIP scores between depression and anxiety groups	0.17

This table contrasts the OHIP scores and DMFT values between the anxiety group and the depressive group. The findings show no notable variance in DMFT scores and OHIP scores between the two groups**.**

DISCUSSION

The investigation into oral health among individuals with depression and anxiety reveals a complex and multifaceted relationship influenced by behavioral, physiological, and psychosocial factors. This study, alongside existing literature, highlights significant associations among depression and poor oral health outcomes, while the link between anxiety and oral health appears less consistent.

Depression and Oral Health

The findings demonstrate a clear and significant association among depression and deteriorated oral health indices, including increased dental caries, tooth loss, and poorer periodontal and gingival status (14). This aligns with prior research indicating that depressive symptoms contribute to neglect of oral hygiene, reduced motivation for self-care, and avoidance of dental care, all of which exacerbate oral health problems. Additionally, depression-related behaviors such as unhealthy dietary patterns and medication side effects (e.g., xerostomia) further compromise oral health (15). The psychological burden of depression also correlates with higher reports of dental pain and embarrassment related to oral conditions, underscoring the impact on quality of life (16).

Anxiety and Oral Health

Contrary to depression, anxiety's association with oral health is less direct. While some studies report increased oral disease in anxious individuals, others, including the present study, find no statistically significant relationship between anxiety and clinical oral health indices. However, anxiety is linked to poorer self-reported oral health quality, possibly due to heightened perception or fear of oral health issues rather than objective deterioration. Resilience appears to moderate this relationship, reducing the likelihood of negative oral health reporting among anxious individuals, suggesting psychological coping mechanisms influence self-assessment of oral health (15).

Behavioral and Physiological Mechanisms

Mental health disorders affect oral health through both behavioral pathways such as poor oral hygiene, irregular dental visits, and unhealthy nutrition and physiological mechanisms including altered immune response and medication side effects like dry mouth, which increases caries risk. Bruxism, often associated with anxiety and stress, can contribute to tooth wear and jaw pain, further complicating oral health. The bidirectional nature of this relationship is evident as poor oral health can exacerbate mental health issues by impairing nutrition, speech, self-esteem, and social interactions (17,18).

Figure 3: Association between Mental, Oral and General Health

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Clinical and Public Health Implications

These findings underscore the necessity for integrated healthcare approaches that address both mental and oral health. Dental professionals should be aware of the increased risk among patients with depression and consider tailored preventive and therapeutic strategies. Mental health practitioners should incorporate oral health assessments and referrals as part of comprehensive care. Interdisciplinary collaboration among dentists, physicians, and mental health providers is crucial to improve outcomes (17).

Limitations and Future Directions

The variability in findings regarding anxiety suggests the need for further research to elucidate the mechanisms linking anxiety and oral health, including the role of resilience and self-esteem as moderating factors. Longitudinal studies could clarify causal relationships and the impact of interventions targeting mental health on oral health outcomes. Additionally, exploring oral health in populations with severe mental illness and diverse socioeconomic backgrounds will enhance understanding and guide equitable care strategies.

CONCLUSION

The evidence overwhelmingly demonstrates that frequent SSB consumption is a major, modifiable risk factor for dental caries in children, with a clear dose-response relationship. This risk is amplified in low-income populations and can be mitigated by community water fluoridation. The resulting dental caries have a substantial negative impact on children's oral health-related quality of life, reinforcing the importance of reducing SSB intake as a public health priority.

In summary, depression is significantly connected with poorer oral health outcomes, mediated by behavioral neglect and physiological factors, while anxiety influences subjective perceptions of oral health rather than clinical measures. Addressing mental health in oral healthcare settings and vice versa is important to improve overall health and quality of life for affected individuals.

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