SCIENTIFIC ARTICLE

Mental Health and Oral Health: A Correlational Study in the Context of Integrated Healthcare

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Introduction

Mental health is one of the fundamental pillars of a balanced and healthy life. It cannot be separated from other aspects of physical and social well-being. Mental health is built upon a complex interaction of biological, psychological, social, and environmental factors. It encompasses an individual's ability to cope with challenges, manage stress, and deal with pressure, in addition to maintaining positive relationships with others. Studies indicate that brain chemistry, social support, and cognitive patterns all play a pivotal role in developing mental health (Bhugra, Till, & Sartorius, 2013).

From this perspective, the role of oral and dental health in influencing an individual's psychological state and quality of life cannot be overlooked. Oral health is not merely defined by the absence of pain or cavities but rather by one’s ability to eat, speak, smile, and interact confidently with others, free from feelings of embarrassment or discomfort (Glick et al., 2016). These seemingly simple daily functions are, in fact, fundamental to a person’s sense of comfort and self-confidence.

Numerous studies have demonstrated a close and direct relationship between oral health and mental health. For example, research has shown that disorders such as anxiety and depression are associated with increased oral problems like periodontal disease and dental caries. Individuals with severe mental illness are more likely to experience complete tooth loss compared to the general population (Kisely, 2016). Moreover, a global study confirmed that oral diseases are not limited to physical effects but significantly impact psychological and social well-being, particularly when they interfere with sleep, nutrition, social interactions, and self-esteem (Peres et al., 2019).

On the other hand, some studies have revealed that individuals with mental illness often avoid dental visits due to feelings of discrimination or fear of being judged, which exacerbates both their mental and physical health issues (Ho, Leung, McGrath, & Yiu, 2017).

For Review: Definitions of Mental Health Disorders to Be Discussed

1. Depression: A psychological disorder affecting emotions, behavior, thinking, and sleep. Symptoms include deep sadness, loss of interest, sleep disturbances, fatigue, and low energy.
2. Anxiety: Persistent, excessive fear without a clear reason. It causes constant worry, difficulty concentrating, sleep issues, and rapid heartbeat.
3. Panic Disorder: A type of anxiety involving sudden intense fear episodes with physical symptoms like rapid heartbeat, shortness of breath, dizziness, and sweating.
4. Social Anxiety Disorder: Intense fear of social situations or performance, leading to avoidance and distress in interactions, affecting personal and professional life.
5. Obsessive-Compulsive Disorder (OCD): A chronic condition with intrusive thoughts (obsessions) and repetitive behaviors (compulsions) to relieve anxiety, such as excessive handwashing or checking.
6. Anorexia Nervosa: An eating disorder marked by extreme fear of gaining weight, leading to food restriction and significant weight loss with serious health risks.
7. Bulimia Nervosa: Involves binge eating followed by compensatory behaviors like vomiting, over-exercising, or fasting, causing health and emotional issues.
8. Addiction: A psychological and physical condition where a person loses control over substance use (e.g., drugs, alcohol) despite its harmful effects, impacting health and relationships (Al-Tuwaijri et al., 2019).

The Saudi National Mental Health Survey

The Saudi National Mental Health Survey (SNMHS) was conducted between 2010 and 2016, involving more than 4,000 individuals aged 15 to 65 and over 2,000 families. The survey used the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria to assess the prevalence of disorders. Results showed varying prevalence rates across conditions such as depression (6.0%, with a gender gap of 2.7% favoring women), anxiety disorders, obsessive-compulsive disorder (OCD), eating disorders, and addiction.

Disorder / Category	Prevalence Rate
Major Depression	6.0% (More common among women by 2.7%)
Bipolar Disorder	3.2% (No gender difference)
Social Anxiety Disorder	5.6% (More common among women by 2.0%)
Panic Disorder	1.6% (More common among women by 0.6%)
Obsessive-Compulsive Disorder	4.9% (Higher in women by 1.0%)
Binge Eating Disorder	3.3% (Slightly more common among women by 0.1%)
Bulimia Nervosa	2.9% (Slightly more common among men by 0.1%)
Substance Use Disorders	0.8% (More common among men by 0.1%)
Youth (Ages 15–24)	40% experience a mental disorder

Figure 1.Prevalence rates of mental disorders according to the Saudi National Survey

Source: Y. Al-Tuwaijri, A. Al-Subaie, and A. Al-Habib (2019), Technical Report of the Saudi National Mental Health Survey Riyadh: King Salman Center for Disability Research.

The relationship between mental health and oral health

The relationship between mental health and oral health is an emerging area of research, highlighting the mutual impact between the two. Several studies have shown that psychological disorders, such as anxiety, depression, obsessive-compulsive disorder, and eating disorders, can directly affect oral health through behaviors and habits related to oral hygiene (Okoro et al., 2011; Hybels et al., 2015). On the other hand, poor oral health is linked to increased levels of stress and depression due to chronic pain and associated health complications (Zwick et al., 2023).

Scientific evidence indicates that individuals with mental health disorders may be less concerned about their oral health, leading to issues like tooth loss and cavities, while the deterioration of oral health can worsen psychological symptoms (McGrath et al., 2021). For example, eating disorders are associated with an increased risk of dental acid erosion due to harmful dietary habits, while compulsive behaviors in individuals with obsessive-compulsive disorder may affect their oral care routines (Kisely et al., 2015; Kisely, 2016).

From this perspective, there is a need for an integrated approach between mental health providers and dentists to ensure comprehensive healthcare for patients. Some researchers have emphasized the importance of collaboration between mental health service providers and dentists to ensure integrated care for the overall health of patients (Scrine et al., 2017; Lam et al., 2019).

Anxiety and Its Impact on Oral Health

Anxiety disorders directly affect oral health through behavioral habits and physiological changes. Individuals suffering from anxiety often engage in habits such as teeth grinding (bruxism) and nail-biting, which can lead to tooth wear and temporomandibular joint (TMJ) disorders (Sutin et al., 2010). Chronic stress may also cause muscle tension in the face and jaw, resulting in jaw pain and headaches.

Physiologically, anxiety is associated with increased secretion of stress hormones like cortisol, which weakens the immune system and raises the risk of gum disease and other oral infections (Frohlich et al., 2023). Additionally, certain anti-anxiety medications, such as benzodiazepines, may cause dry mouth, increasing the likelihood of tooth decay and oral ulcers (Elkamash et al., 2021).

A study by Winkler et al. (2023) found that patients with high levels of dental anxiety tend to brush their teeth less frequently, neglect tartar removal, and avoid professional dental cleanings, all of which negatively impact their oral health-related quality of life. Similarly, Guentsch et al. (2017) found that individuals with high dental anxiety have higher rates of tooth decay and gum inflammation, as well as fewer dental visits.

Kisely et al. (2016) confirmed that individuals with anxiety disorders—including dental anxiety—have higher rates of tooth decay and tooth loss compared to the general population. This highlights the importance of strengthening collaboration between dentists and mental health professionals to effectively address these issues.

Effective strategies for managing dental anxiety include both psychological and pharmacological interventions. Hoffmann et al. (2022) indicated that behavioral techniques such as muscle relaxation, guided imagery, and systematic desensitization can be beneficial. In more severe cases, pharmacological options such as nitrous oxide (laughing gas) and oral sedatives may be considered.

Children and adolescents are among the most affected by anxiety related to oral health. A study by Grisolia et al. (2021) showed that the prevalence of dental anxiety was 36.5% among preschool children, 25.8% among school-aged children, and 13.3% among adolescents—suggesting that younger children are more vulnerable to this type of anxiety compared to teenagers.

Furthermore, a study by Coxon et al. (2019) found that children with dental anxiety have higher rates of tooth decay and gum bleeding. This anxiety also impacts family life, increasing parental stress and influencing their decisions regarding their children's dental care.

Seligman et al. (2017) pointed out that dental anxiety often begins in childhood, and avoiding dental care due to fear can lead to long-term oral health problems, such as worsening tooth decay and periodontal disease, making future treatment more complex.

Depression and Its Relationship with Oral Health

Depression significantly impacts oral health, as it is associated with an increased risk of tooth decay, tooth loss, and dry mouth. Cademartori et al. (2018) indicated that individuals suffering from depression are more prone to oral health deterioration due to neglect of oral hygiene, leading to the worsening of dental problems. Similarly, Kisely et al. (2016) found that people with depression are less likely to attend regular dental check-ups, contributing to delayed diagnosis and treatment.

In addition, depression can lead to changes in dietary behavior, such as increased consumption of sugary foods, which raises the risk of tooth decay. A study by Kalaigian & Chaffee (2023) also found that certain antidepressant medications may cause dry mouth, thereby increasing the likelihood of gum disease and tooth decay.

Different age groups are affected by the impact of depression on oral health. For instance, a study by Cao et al. (2024) showed that elderly individuals with depression are more likely to suffer from tooth loss and a decline in oral function, negatively affecting their quality of life. Nerobkova et al. (2023) also confirmed that depression among older adults influences their awareness and practices related to oral health, highlighting the need for targeted interventions to improve their oral care.

Moreover, depression can influence oral hygiene habits. An et al. (2024) found that pregnant and postpartum women experiencing depression and psychological stress are less likely to maintain proper brushing and flossing routines. Park et al. (2014) also reported that adults with depression tend to neglect oral hygiene and avoid seeking treatment when faced with dental issues.

Overall, these studies underscore the importance of adopting an integrated treatment approach that combines dental care with mental health support. This ensures comprehensive care for patients with depression and enhances their awareness of oral hygiene as a vital component of overall treatment.

The Impact of Eating Disorders on Oral Health

According to Aditya & Lele (2015), eating disorders such as anorexia nervosa and bulimia nervosa can significantly worsen oral health problems. In cases of bulimia, the lingual surfaces of the upper front teeth are frequently exposed to gastric acids from repeated vomiting, leading to noticeable enamel erosion. Anorexia nervosa, which involves extreme dietary restrictions, can cause serious health issues like hypocalcemia (low blood calcium levels), weakening the enamel and increasing the risk of dental caries.

A study by Nijakowski et al. (2023) reported that eating disorders are relatively common, particularly among adolescents and young adults. Although prevalence rates vary, estimates suggest:

- Approximately 1–2% of women will experience bulimia nervosa at some point in their lives.
- Approximately 0.5–1% of women will experience anorexia nervosa during their lifetime.

These disorders have a profound impact on oral health:

- 54.4% of bulimia nervosa patients experience dental erosion.
- 26.7% of anorexia nervosa patients experience dental erosion.
- Overall, 42.1% of individuals with eating disorders exhibit erosive lesions on their teeth.

The Effect of Repeated Vomiting on Enamel

Another study by Tomar et al. (2011) confirmed that frequent vomiting is a key factor contributing to enamel erosion. The consumption of large quantities of soft, sugary foods—a common behavior among individuals with bulimia—also heightens the risk of tooth decay. Prior studies, such as those by Hazleton & Fine (1996), found that up to one-third of bulimic patients suffer from erosion of the front teeth.

The Role of Dentists in Early Detection

Tomar et al. (2011) also highlighted the essential role of dentists in the early detection of eating disorders, as they may be the first to recognize oral signs related to these conditions. For patients with anorexia nervosa, reduced serum calcium levels can compromise enamel integrity and increase susceptibility to caries. Vitamin deficiencies may also lead to issues such as gingival bleeding, angular cheilitis, and glossitis.
In bulimia nervosa, the continuous exposure of teeth to stomach acid due to repeated vomiting necessitates preventive measures to protect enamel. It is recommended not to brush the teeth immediately after vomiting, as this may exacerbate acid erosion. Instead, using a fluoride-containing mouth rinse is advised to help preserve enamel health.

Preventive and Cosmetic Treatments

Tomar et al. (2011) also addressed the negative impact of gastric acid on dental restorations such as crowns, fixed prostheses, and orthodontic appliances. Continuous acid exposure can damage these restorations. Therefore, it is advisable for patients with eating disorders to undergo comprehensive medical stabilization and treatment before pursuing expensive cosmetic procedures to ensure the success and longevity of such treatments.

Obsessive-Compulsive Disorder (OCD) and Oral Health

According to Elkamash & Abuohashish (2021), Obsessive-Compulsive Disorder (OCD) is a common mental health condition characterized by recurrent intrusive thoughts and compulsive behaviors. Among these obsessions, an intense fear of contamination or infection can directly influence oral health and patient behaviors regarding dental care and treatment.

Fear of Contamination and Its Impact on Dental Treatment:

Also noted that Elkamash & Abuohashish (2021) that patients with OCD often experience excessive anxiety about the cleanliness of dental instruments and clinical environments. This may lead them to avoid treatment or set strict conditions before undergoing any dental procedure. Some patients may request that instruments be sterilized in their presence or repeatedly ask about the clinic's sanitation standards, potentially prolonging treatment time and causing stress during appointments.

Excessive Tooth Brushing and Compulsive Oral Hygiene Practices:

Individuals with OCD may engage in compulsive oral hygiene behaviors, including frequent and aggressive tooth brushing. This exposes them to high levels of fluoride—a compound commonly used in toothpaste to prevent cavities. Aragão et al. (2024) highlighted that overuse of fluoride toothpaste may lead to fluoride toxicity, resulting in white or brown dental spots, weakened enamel, and increased risk of erosion. For OCD patients, whose oral hygiene routines are often exaggerated due to fear of germs and contamination, the risk of such adverse effects is elevated.
Furthermore, Kasi et al. (2025) reported that Sodium Lauryl Sulfate (SDS), a common foaming agent in toothpaste, can irritate gingival tissues and damage the oral mucosa when overused. OCD patients who use large amounts of toothpaste during frequent brushing are more likely to develop gingivitis and mouth ulcers due to repeated exposure to SDS.
In addition, Goldberg et al. (2010) found that Hydrogen Peroxide (H_2O_2), present in some whitening toothpastes and mouthwashes, may erode enamel and increase tooth sensitivity. Frequent use can also cause gum irritation and mucosal ulceration. Given that some OCD patients obsessively use such products to avoid staining or bacterial buildup, they face an increased risk of oral tissue damage.
Moreover, Sangnes (1976) confirmed that excessive brushing with strong pressure—a behavior commonly observed in OCD patients—can cause gum bleeding and inflammation, which contributes to gingival recession. Sangnes & Gjermo (1976) also noted that repeated exposure to abrasive substances like SDS and H_2O_2 can worsen gum inflammation and accelerate tissue erosion.

Addiction Disorders and Oral Health

The study by Rossow (2021) highlighted that addiction significantly and negatively impacts oral health. Individuals with substance use disorders (SUDs) demonstrate a higher prevalence of dental caries, periodontal disease, and xerostomia (dry mouth) compared to the general population. These conditions can lead to severe dental complications such as cavities, abscesses, and tooth loss, ultimately affecting chewing, digestion, and overall well-being.

According to Rossow (2021) and Teoh, Moses, & McCullough (2019), the use of illicit drugs such as methamphetamine, heroin, and cocaine directly contributes to dry mouth, which increases the risk of tooth decay. Additionally, the lifestyle commonly associated with addiction—characterized by poor oral hygiene, high sugar consumption, and irregular dental visits—exacerbates these oral health issues. Rommel et al. (2015) noted that methamphetamine use is particularly linked to a condition known as "meth mouth," which involves widespread dental decay and severe gum disease.

Moreover, Zhang et al. (2023) reported that substance abuse disrupts the oral microbiome's balance, leading to dysbiosis (microbial imbalance), which may accelerate oral health deterioration.

A study by Sharma et al. (2018) collected data from 313 drug addicts in Sri Ganganagar, India, using self-reported questionnaires focused on oral hygiene habits and addiction history. Oral Health-Related Quality of Life (OHRQOL) was assessed through the OHIP-14 questionnaire, and results were statistically analyzed using chi-square, t-tests, and the Kruskal-Wallis test.

Key findings:

- 56.2% of participants reported engaging in oral hygiene practices.
- Most commonly used drugs: heroin (51.4%), cocaine (35.1%), amphetamines (13.4%).
- The majority of participants were employed (82.4%) and had only primary-level education (46.3%).
- Cocaine and amphetamine users showed the highest rates of gum disease and dental decay, with an average Community Periodontal Index (CPI) of 3.11 ± 0.98 and Decayed, Missing, and Filled Surfaces (DMFS) score of 6.69 ± 8.52.
- Inhalant drug users had particularly poor oral health-related quality of life, with heroin users faring the worst.

How to Address and Minimize the Impact of Mental Disorders on Oral Health

Effective Collaboration Between Mental Health Professionals and Dentists:

A study by Ball & Darby (2022) indicated that effectively managing the impact of mental disorders on oral health requires a collaborative approach between mental health professionals and dentists. Psychologists can identify at-risk patients and refer them to dental care providers, in addition to offering behavioral interventions to improve oral hygiene and reduce harmful habits such as smoking and alcohol use.

A recent study published in the Journal of the American Dental Association (Chen et al., 2025) noted that dentists should be aware of oral complications linked to psychiatric medications, such as xerostomia (dry mouth), which increases the risk of tooth decay and gum disease. Another study by Gemp et al. (2023) emphasized the importance of routine check-ups and preventive care for these patients, while also considering their mental health during dental treatments to ensure a supportive and empathetic approach.

Within the context of integrated care, a study published in Heliyon (Ye et al., 2024) highlighted that regular communication between mental health specialists and dental professionals—through case conferences and shared care plans—can improve care quality and address both psychological and oral issues. Kisely & Najman (2022) also confirmed that this integrated model may reduce the negative effects of mental disorders on oral health and improve patients' quality of life.

Anxiety Management Techniques to Reduce Bruxism:

A study by Steenen et al. (2024) showed that Cognitive Behavioral Therapy (CBT) is effective in reducing chronic and procedure-related anxiety, potentially alleviating teeth grinding. Beddis et al. (2018) also demonstrated that relaxation techniques—such as meditation, deep breathing, and massage—can reduce stress and anxiety, thereby decreasing bruxism.

According to Steenen et al. .(2024), pharmacological treatment of bruxism may include benzodiazepines, antidepressants, and in some cases, botulinum toxin (Botox) injections. Daily habit modifications, such as reducing caffeine and avoiding smoking—especially in the evening—also play a crucial role in improving sleep quality and reducing grinding episodes.

As for biofeedback, Vieira et al. (2023) found this technique effective in minimizing excessive jaw muscle activity in individuals experiencing awake bruxism. Steenen et al. (2024) also noted that while certain medications like benzodiazepines may alleviate anxiety, they must be used cautiously due to addiction risks.

A study by Przystańska et al. (2019) emphasized the psychological origins of bruxism, identifying anxiety and depression as key contributors, making psychotherapy a viable treatment option. Beddis et al. (2018) further noted that oral appliances such as night guards can protect teeth from damage, although they do not address the root cause.

Promoting Healthy Habits and Balanced Nutrition:

According to Smith et al. (2022), a high-quality diet supports both physical and mental health. It should include a variety of nutrient-rich foods such as fruits and vegetables high in vitamins, fiber, and antioxidants, which help reduce inflammation and enhance mood. Whole grains help stabilize blood sugar levels and boost mental energy, while lean proteins from poultry, fish, legumes, and nuts provide essential nutrients for brain and body development. Low-fat dairy offers calcium and vitamin D for bone and nerve health, while healthy fats—especially omega-3s from fish and nuts—have been linked to improved mental well-being and lower risk of mood disorders.

Conversely, low-quality diets high in added sugars, sodas, saturated and trans fats from processed foods and fast food are associated with increased risk of depression and anxiety, particularly in children and adolescents. The lack of fresh, nutritious foods may result in deficiencies that negatively impact mood and mental resilience.

Based on these findings, Smith et al. (2022) stressed the importance of adopting a nutrient-rich, balanced diet and avoiding processed foods and harmful eating habits.

Conclusion

According to Shappell & Cartier (2023), a strong, bidirectional relationship exists between mental health and oral health. Individuals with mental disorders are more likely to suffer from oral issues such as cavities, gum disease, dry mouth, and bruxism. This is due to multiple factors, including poor self-care, fear of judgment, medication side effects (especially anticholinergics), and low motivation to seek dental care.

Moreover, poor oral health may lead to psychological consequences such as low self-esteem and social withdrawal due to tooth loss or chronic pain, which can worsen anxiety and depression. Untreated oral problems, like chronic pain, may also lower serotonin levels, making it harder to manage mental health conditions.

Therefore, integrating oral and mental health services into a comprehensive care system is recommended to enhance patient quality of life.

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