

Effects of Mental Illness on Oral Health: A Brief Review

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Abstract: *Mental illness can negatively impact oral health in several ways. People with mental illness may neglect their oral hygiene due to lack of motivation or forgetfulness. Depression, anxiety, and other mental health conditions such as eating disorders, obsessive compulsive disorder etc. can also cause stress - related oral conditions such as bruxism (tooth grinding), oral ulcers, and temporomandibular joint disorders (TMJ). Furthermore, some medications used to treat mental illness can have side effects that can affect the mouth, such as dry mouth, gum disease, and fungal infections. This article reviews the association between psychological disorders and oral health.*

Keywords: Mental Illness, Eating Disorders, Obsessive Compulsive Disorder, Anxiety, Oral hygiene

1. Introduction

Mental illness refers to a range of psychological conditions characterized by clinically significant behavioral or psychological symptoms causing distress to the individual or those around them. (1)The physical health challenges faced by individuals with severe mental illness have garnered increasing attention, particularly in regards to conditions such as diabetes, cardiovascular disease, chronic lung disease, and cancer. (2) However, the issue of oral health, despite being a critical component of physical health and linked to numerous chronic diseases, has received limited attention. (3)Oral health is an integral aspect of overall well - being, impacting self - esteem and quality of life. While oral health may often be overlooked in the context of mental illness, it's crucial to acknowledge the impact that mental illness and its treatment can have on oral health. (4)

Eating Disorders

Eating disorders can have severe consequences not only for physical health, but also for mental well - being and social relationships. Although the exact causes are not yet understood, research suggests that a combination of genetic, cultural, and psychiatric factors contribute to the development of these disorders. Eating disorders are broadly categorized into three main categories: Anorexia Nervosa, Bulimia Nervosa, and Eating Disorder Not Otherwise Specified (EDNOS). (5)

Anorexia Nervosa

It is a complex disorder characterized by an aversion to food and severe weight loss, resulting from the interplay of biological, social, individual, and family factors. Individual regularly engages in binge eating or purging behaviors, such as self - induced vomiting, excessive exercise, or the improper use of laxatives, diuretics, or enemas.

Bulimia Nervosa

It is defined by excessive eating followed by inappropriate attempts to compensate for the binge. Key features of

bulimia include binge eating and purging behaviors. In general, individuals with anorexia have a body weight that is more than 15% below their ideal weight, while individuals with bulimia have a body weight that is within 10% of their ideal weight or are even overweight. (6)

EDNOS

It encompasses atypical eating disorders that exhibit symptoms similar to both Anorexia Nervosa and Bulimia Nervosa but do not meet the full criteria for either disorder. (7)

Obsessive Compulsive Disorder (OCD)

Obsessive - compulsive disorder (OCD) is a chronic mental health condition that affects people of all ages and genders. It is a heterogeneous disorder. The main features of OCD are obsessions and compulsions. Obsessions are unwanted, intrusive, and repetitive thoughts, images, or impulses that cause significant distress and anxiety. Compulsions are repetitive behaviors or mental acts that are performed in response to the obsessions, in an attempt to neutralize or prevent them from happening. Both obsessions and compulsions can take many forms, and people with OCD often experience a variety of different symptoms. (8)

Dental procedures may face obstacles due to various psychological symptoms, causing difficulty for dentists during treatment. Patients with OCD may exhibit concerns regarding the disinfection and cleanliness of dental equipment, which can be frustrating for dentists. It is essential for dentists to take a comprehensive medical history, including psychiatric information, and consult with the patient's psychiatric physician to prevent dental problems or oral conditions. Dentists should also be familiar with OCD diagnostic criteria to recognize potential cases and correlate patient behavior with diagnostic criteria. (9)

There are a few indicators that may alert a pediatric dentist to early signs of OCD in their patients, including:

- a) The child or adolescent patient's insistence on doing things in a specific way.

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- b) The patient becoming anxious or agitated if their wishes are not followed exactly.
- c) The patient consistently arriving late for appointments due to time - consuming OCD rituals, such as counting steps or checking locks.
- d) The patient excessively washing their hands, repeating actions, counting, or checking.

Recognizing these signs can aid in early detection and treatment of OCD in pediatric patients. (10)

Anxiety

In the field of psychology, anxiety is often defined as an aversive emotional state that arises when an individual anticipates a future event or stimulus that is perceived as threatening, with or without the presence of an immediate physical threat. (11)

On one hand, the possibility of receiving dental treatment can cause anxiety and phobia. (12) On the other hand, individuals with psychiatric illnesses may experience poor oral health due to lifestyle factors, inadequate oral hygiene practices, and challenges in accessing dental care. (7)

Oral manifestations seen due to mental illness

Psychiatric illnesses can have a profound impact on an individual's oral health, often resulting in a vicious cycle of decreased oral hygiene, limited access to dental care, and the development of oral health problems. The consequences of poor oral hygiene, including the growth of harmful bacteria, can in turn exacerbate existing psychiatric conditions. (7)

1) Erosion

Perimylolysis is a common condition observed in individuals with Eating disorders, characterized by a smooth erosion of the enamel on the lingual surfaces of the teeth. This erosion occurs due to the chemical and mechanical effects of chronic regurgitation of low - pH gastric contents and repetitive movements of the tongue. (13)

As self - induced vomiting continues over time, erosive lesions on the teeth can become increasingly severe and affect not only the enamel but also the underlying dentin and the palatal surfaces of the teeth.

The occurrence of dentin lesions is highest on the occlusal surfaces of teeth, followed by the palatal surfaces of the upper anterior teeth. Among the 66 surfaces with dentin erosions on biting surfaces, the lower first molars are most commonly affected, while enamel lesions are most frequently observed on the upper central incisors. (14)

2) Dental caries

Dental decay is a significant characteristic observed in individuals with eating disorders. Since it is a multifactorial condition, which means that its occurrence is influenced by various factors such as poor oral hygiene, high sugar consumption, and inadequate dental care. Therefore, it cannot be exclusively attributed to eating disorders. (15)

Chronic self - induced vomiting, excessive use of laxatives, diuretics, and appetite suppressants, and rigorous physical exercise can often result in chronic dehydration, which negatively impacts the production and secretion of saliva.

Furthermore, the use of antidepressants as a treatment for eating disorders may also cause dry mouth, exacerbating the problem.

The combination of increased salivary viscosity and reduced buffering capacity can lead to a more acidic salivary pH, contributing to the demineralization and decay of tooth structure. (16)

3) Salivary Gland disorders

a) Sialadenosis

It is a chronic condition commonly observed in patients with eating disorders, particularly those with bulimia. (17) It is a non - inflammatory, non - neoplastic, asymptomatic, bilateral, and relapsing enlargement of the salivary glands that does not affect their functioning. (18)

In 1969, Lavender was the first to propose a connection between chronic vomiting and bilateral enlargement of the parotid glands. Lavender also demonstrated that this enlargement of the parotid glands may be the first noticeable sign of bulimia in some individuals. (19) This disorder is most commonly observed in individuals with bulimia nervosa who induce vomiting. (20) The salivary gland enlargements are typically soft and do not cause any symptoms. (21)

The cause of bulimic sialomegaly is not well understood. It is believed that the enlargement of the salivary gland is due to frequent activation of the parotid gland through cholinergic stimulation, which occurs during vomiting as a result of stimulation of the taste receptors on the tongue. This persistent stimulation leads to glandular hypertrophy over time. The trophic stimuli responsible for this hypertrophy are produced by the interaction of pancreatic proteolytic enzymes with the oral mucosa during vomiting. However, this is just speculation and further research is needed to fully understand the pathogenesis of bulimic sialomegaly. (22)

An alternative explanation for the development of bulimic sialomegaly is that the repeated cholinergic stimulation during vomiting causes a sustained increase in salivary flow, leading to hypertrophy of the acinar cells and eventual enlargement of the parotid gland. (19)

b) Necrotizing Sialometaplasia

Instances of bulimia linked to necrotizing sialometaplasia are infrequent in scientific literature, based on available clinical cases. Patients with bulimia often induce vomiting by inserting their fingers repeatedly and violently into their oral cavity, which can result in trauma to the palate and the development of lesions. Additionally, forceful vomiting can cause micro - ruptures in blood vessels, leading to ischemia in the minor salivary glands' stroma. Ulcerative lesions are commonly observed in association with bulimia. Many of these patients also receive antidepressant therapy, which can lead to dryness of the mouth (xerostomia) and increased fragility of the oral mucosa. These conditions can further exacerbate the vascular sensitivity to local trauma, making the development of necrotizing sialometaplasia more likely. (23)

c) Xerostomia

Individuals with bulimia may experience a decrease in unstimulated salivary flow, which can be further reduced by the overuse of laxatives and diuretics. This can lead to xerostomia, or dryness of the mouth, which can be exacerbated by chronic dehydration resulting from fasting and vomiting. The combination of xerostomia and poor oral hygiene can increase the risk of periodontal disease in individuals with bulimia. It is a common side effect of psychotropic medications, such as antidepressants, which can reduce the production of saliva, a critical component in maintaining oral health. Saliva helps neutralize harmful acids produced by bacteria, protect the teeth from decay, and promote healthy gum tissue. Without sufficient saliva, the oral cavity becomes vulnerable to a range of oral health problems, including tooth decay and gum disease. (24)

4) Bruxism

It is a muscular activity that occurs when a person repetitively grinds or clenches their teeth and thrusts or braces their jaw. This activity is primarily controlled by the central nervous system and can involve more than just dental contact. (25). Risk factors associated with bruxism include anxiety, smoking, gastroesophageal reflux disease, sleep apnea syndrome, genetic and behavioral factors, alcohol excess, and depression. This systematic review indicates that although there may be other contributing factors, various forms of stress can impact the incidence and severity of bruxism. (26). Timely detection of bruxism is crucial for both its treatment and prevention. The diagnosis should involve identifying signs and symptoms reported by the patient or observed by the dentist during a clinical examination. (27)

5) Canker sores

Recurrent aphthous stomatitis (RAU) is a frequently occurring oral mucosal condition that causes pain among patients. Typically, these ulcers emerge during childhood or adolescence. The appearance of RAU is characterized by the presence of round to ovoid ulcers that have a yellowish or gray floor and are surrounded by a non - red halo. These ulcers tend to recur over time. (28). The precise source and development of RAU remain unknown. Research suggests that diet, medications such as non - steroidal anti - inflammatory drugs (NSAIDs), germs, physical injury, tobacco, food allergies, hormones, and psychological stress all may be contributing factors. (29)

6) Jaw pain

Temporomandibular disorder (TMD) is characterized by a variety of symptoms, including pain in the preauricular area, temporomandibular joint (TMJ), and masticatory muscles; as well as restriction or deviation of movement, and a clicking sound when the mandible is in motion. (30) It is the most common type of orofacial pain that is not caused by an infection. (31). Research has shown that stress, depression, and anxiety are linked to Temporomandibular Joint Disorder (TMD) symptoms. Notably, stress has been identified as the primary cause of TMD, and studies have found that females are more vulnerable to TMD than males. (32)

7) Periodontitis

Periodontitis is an advanced form of gum disease that is characterized by inflammation of the gums and destruction of the structures that support the teeth, such as the periodontal ligament and the alveolar bone. This destruction can lead to increased tooth mobility and tooth loss if left untreated. (33) There is a connection between emotional disorder and the risk of chronic periodontitis, but the mechanism is unclear. Research suggests that emotional disorder can change health - related behaviors, such as oral hygiene, oral health examination, smoking, and diet, which can increase the risk of periodontitis. (34) Additionally, it has been hypothesized that emotional disorder can worsen already damaged periodontal tissues, through immunosuppression or increased susceptibility to inflammation. (35)

8) Dental Management

- Oral healthcare professionals should screen for eating disorders by asking about difficulties with eating or maintaining weight, and should non - confrontationally address any observed oral manifestations. Emphasis should be placed on the serious medical complications associated with eating disorders and the importance of seeking appropriate medical and psychological treatment.
- To prevent further destruction of tooth structure, it is recommended to implement rigorous oral hygiene practices and home care.
- After vomiting, it is recommended to rinse the mouth with water to remove any residual gastric acid, followed by a 0.05% sodium fluoride rinse to neutralize any remaining acids and protect tooth surfaces.
- Toothbrushing should be discouraged immediately after vomiting due to the abrasive action that may accelerate enamel erosion. (36)
- For patients with severe xerostomia, the use of artificial saliva is recommended. (37)

2. Conclusion

Oral health is an important part of overall physical health, especially for people with severe mental illness. Poor oral health can lead to a variety of physical and psychological problems, including systemic inflammation, pain, and difficulty with eating and speaking. Interventions to improve oral health for people with severe mental illness should include support with oral hygiene, such as brushing and flossing; management of iatrogenic dry mouth caused by medications; and early dental referral for necessary treatment. Promoting good oral health in people with severe mental illness can help to improve overall physical health and quality of life. (38)

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