



## The relationship between disordered eating oral health: implications for dental prevention

BY

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### Abstract

Eating disorders, characterized by persistent disturbances in eating behavior and food consumption, pose a significant threat to both physical and psychosocial well-being. This article explores the intricate relationship between eating disorders and oral health, shedding light on the profound impact of these disorders on the oral cavity. Individuals with eating disorders often engage in behaviors such as vomiting and restricted food intake, which lead to a spectrum of oral health issues, including tooth erosion, salivary gland enlargement, and gingival recession. The consequences of these disorders extend beyond the oral cavity, affecting various body systems and potentially leading to life-threatening electrolyte imbalances and hypoglycemia. While research has primarily focused on the oral health implications of eating disorder behaviors, there is a scarcity of literature addressing the knowledge and training of oral health professionals in dealing with individuals suffering from eating disorders. Case-control studies have consistently demonstrated negative oral health effects in patients with eating disorders, revealing differences in dental conditions and oral health behaviors between those with anorexia nervosa and bulimia nervosa. These findings underscore the need for personalized oral hygiene recommendations and treatments based on the specific type of eating disorder. The implications for oral health professionals are substantial. There is a pressing need to incorporate eating disorder-related content into the training of oral health professionals to enhance their ability to provide appropriate guidance and support to affected individuals. Furthermore, research should focus on mechanisms to promote patient engagement with oral health care within the context of eating disorder treatment. Consequently, emphasizing importance of the of eating disorders in the oral health prevention requires emphasizing the need for a multidisciplinary approach. By bridging the gap between eating disorder professionals and oral health providers, we can improve patient care, enhance early intervention, and ultimately contribute to the holistic well-being of individuals grappling with eating disorders.

### Introduction

Eating and feeding are briefly defined as a persistent disturbance of eating or eating-related behaviour that results in the altered consumption or absorption of food. These disorders usually develop during childhood and are characterized by high morbidity and mortality rates resultant from the aberrant eating habits. If not treated, eating disorders significantly affect both physical health and psychosocial functioning resultant from under- or overweight and the compensatory behaviours such as vomiting, laxative abuse, and rumination (van Elburg, 2021), which can impact that they impact all body systems and include conditions ranging

in severity from vitamin deficiencies to potentially fatal electrolyte imbalances and hypoglycemia (Mitchell, 2016). Therefore, individuals suffering from eating disorders are at greater risk of suicide attempts, mortality, and poorer quality of life relative to both the general population and individuals with other psychiatric conditions (Barakat et al., 2023). Eating disorders can be severe and are often chronic in nature, particularly if not addressed in a timely manner, as on an average, the delay between first symptoms and treatment-seeking can be as much as 5.28 years long (Hamilton et al., 2021).



The development of an eating disorder is usually restricted to individual case as it can be influenced by various factors, ranging from sociocultural to biological and genetic, and psychological impacts. Despite the variation and complexity present in the aetiology of eating disorders, extensive research to date proposed certain risk factors which commonly predict onset. Some of them included inherited genetic risk combined with biological risk factors, such as appetite and alerted the gut microbiota function; as well as abuse, trauma, and childhood obesity and education attainment, body image-related factors, and use of appearance-focused social media were also associated with increased risk of eating disorder symptoms (Barakat et al., 2023).

More recently, oral health has been identified as a considerable factor which can be affected by disordered eating (Presskreischer et al., 2023), what has been supported by studies indicating that presence of compensatory behaviours such as vomiting, as well as alerted food intake can have profound impact not only on overall physical condition but especially on the health of oral cavity (van Elburg, 2021).

In addition, limited oral health guidance, often sparse or absent from many guidelines for healthcare professionals dealing with patients with eating disorder additionally contribute to poor oral health status and increase in dental issues among individuals with eating disorders.

### How eating disorders influence on oral health

Most of the research to date, examining the relationship between eating disorders and oral health are focused on the impact of eating disordered behaviors. Actually, there is a significantly smaller literature on the knowledge and training of oral health professionals related to eating disorders and individuals with eating disorders' experiences of oral health care.

The result of a recent scoping review focused on the oral health effects of eating disorder behaviors found that majority of available research are case-control studies, which compare oral health findings between people with/at risk for eating disorders and healthy controls/those not at risk; with some describing the oral health status and risk behaviors in patients with diagnosed eating disorders (Presskreischer et al., 2023). Briefly, findings from these studies indicate negative effects of eating disorders on oral health including tooth erosion, increased size of salivary glands, and gingival recessions at higher rates than control groups. Interestingly, dental conditions and oral health behaviors, such as frequency of brushing noted differences in the presence of both between people with anorexia nervosa and bulimia nervosa. In this case, more frequent dental attendance and toothbrushing were observed in patients with eating disorders than in controls, while lower plaque index and bleeding on probing were observed in healthy participants rather than in patients, whereas percentages of sites with gingival recession >2 mm were higher in patients with eating disorders than in controls. Interestingly, the basic erosive wear examination (BEWE) score >2 was significantly more frequent in bulimia nervosa

patients than in anorexia nervosa patients (76.5% versus 41.7%,  $p < 0.01$ ). Regarding periodontal parameters, mean plaque index, bleeding on probing, and clinical attachment loss were increased in anorexia nervosa patients compared to bulimia nervosa patients. Observed differences in the oral health approaches in eating disorder patients according to diagnosis type suggest that personalized oral hygiene recommendations and treatments can be delivered according to the type of eating disorder (Pallier et al., 2019).

Further studies also reported an increased self-reported oral health problem in individuals with eating disorders compared to those without, not limited to dental problems and dental erosion, but also including burning tongue and dry/cracked lips; thus less gingival bleeding compared with healthy controls. In addition, participants with eating disorders with self-reported vomiting/binge eating behaviors reported worse perceived oral health and had more dental erosion than those without such behavior. In eating disorder patients with longer duration of the disease, dental erosion was significantly more common; thereby implicating the need of careful assessment of oral health in this group of eating disorder patients and should considered in patient assessment and treatment decisions (Johansson et al., 2012).

A study using a 26-item self-reported questionnaire developed to assess the behavioral, nutritional, and local risk factors for oral health in people with anorexia nervosa in order to identify risk factors and symptoms of oral diseases. Evaluation of the results have shown that items related to water intake, extracted teeth, gingival status, and oral hygiene had the best concordance among participants when filled alone and in the preference of qualified professionals (Rangé et al., 2021). Similarly, earlier conducted study investigating the periodontal condition along with the changes in salivary biochemical parameters and oral health-related quality of life in Brazilian women diagnosed with anorexia and bulimia nervosa, have found that females affected by these eating disorders had significantly worst condition of oral cavity than control group. Interestingly, women with bulimia and anorexia had significantly elevated salivary concentrations of total protein, alanine aminotransferase, aspartate aminotransferase, and lactate dehydrogenase, as well as decreased salivary flow rate, which all together contributed to poorer the Oral Health Impact Profile (Chiba et al., 2019).

Another study examined the prevalence of erosive lesions in a cross-section of Polish 18-year-olds and found that lesions were significantly associated with eating disorders. The results have been shown that dental erosion was present in 42.3% of the patients. Interestingly, early damage to the enamel was the most frequent finding (BEWE 1)-28.9%; whereas more advanced lesions (BEWE 2) were observed in 12% of the patients. Advanced damage to the teeth (BEWE 3) was diagnosed rarely-1.4%. Acidic diet, hygienic habits, and medical conditions such as asthma, eating disorders, and esophageal reflux showed statistical significance, as associated with erosion in the examined population. The following observations supporting need of conducting further

evaluation of the oral health, especially by using erosive lesion system as a valuable standard for assessing erosive and related risk factors among individuals with eating disorders (Struzycka et al., 2017).

In addition, there is an emerging opportunity for eating disorder professionals and professional organizations to improve understanding and care of eating disorders by building relationships with oral health providers and professional organizations in their local communities.

### Implications for dentist professionals

The current state of evidence regarding the intersection of oral health and eating disorders. Beyond the emerging need for investigating the oral health consequences of eating disorders, the level of knowledge and education regarding eating disorders among Oral Health Professionals should be emphasized in the training. This deficiency is marked by the absence or limited inclusion of eating disorder-related content in their training programs, paralleling the challenges seen in medical training programs. Consequently, this ultimately allow to incorporate appropriate oral hygiene guidance and nutrition advice to patients affected by eating disorders, and may help to swift patient attitudes and behaviors into focus of the oral health care. Nonetheless, there is a need for further research to evaluate the applicability of these interventions outside of the United States and their adoption by dental and dental hygiene programs.

One critical point which should be made is the importance of connecting Oral Health Professionals with eating disorder professionals. Although, there is a notable lack of research exploring mechanisms to facilitate this connection, the great potential of establishing relationships between the eating disorders field and oral health provider organizations could help increase awareness of referral resources and provide support to Oral Health Professionals who may be the first to observe signs of an eating disorder during their dental practice. Encouraging patients to disclose their eating disorders to OHPs and addressing their fears and anxieties about oral health procedures are additional areas for research and collaboration between eating disorder professionals and Oral Health Professionals.

A significant number of the studies are focusing on the behaviours related to the oral hygiene in the individuals with eating disorder and their reluctance to disclose their condition to Oral Health Professionals. Future research should seek to investigate how eating disorder treatment professionals can promote patient engagement with oral health care; thereby providing opportunity to formally integrate Oral Health Professionals into the American Psychiatric Association's practice guidelines for eating disorder treatment, potentially increasing patient engagement with Oral Health Professionals.

Lastly, the review highlights that the majority of work in this field focuses on the oral health consequences of eating disorder behaviors, which can also manifest in other conditions.

### Conclusions

In conclusion, eating disorders represent a complex and multifaceted group of psychiatric conditions that profoundly impact both physical and psychosocial well-being. The altered eating behaviors associated with these disorders, including restrictive eating, binge eating, and purging behaviors, have significant repercussions on oral health. Scientific research has consistently demonstrated the detrimental effects of eating disorders on oral health, including tooth erosion, salivary gland enlargement, gingival recession, and various dental problems. These consequences are observed across different eating disorder diagnoses, highlighting the need for personalized oral hygiene recommendations and treatments based on the specific type of eating disorder.

Furthermore, individuals with eating disorders often face challenges in disclosing their condition to oral health professionals, emphasizing the importance of building bridges between the fields of eating disorder treatment and oral health care. Education and training programs for oral health professionals should incorporate content related to eating disorders to enhance their ability to provide appropriate guidance and support to affected individuals.

Moreover, the review underscores the need for further research to investigate mechanisms that promote patient engagement with oral health care within the context of eating disorder treatment. Establishing connections between eating disorder professionals and oral health provider organizations can aid in increasing awareness of referral resources and facilitating early intervention.

In summary, the intersection of eating disorders and oral health is a critical area of concern, and addressing the oral health needs of individuals with eating disorders requires a multidisciplinary approach. By enhancing the knowledge and collaboration between eating disorder professionals and oral health professionals, we can improve the overall well-being of those affected by these debilitating conditions and promote a holistic approach to their care.

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