WOŹNIAK, Martyna, SŁOMIANNY, Marcela, KUTNIK, Karolina, KUSIBAB, Karolina, SIKORA, Gabriela, CZECHOWSKI, Michał, SKÓRSKA, Gabriela, KOGUC, Karolina, KOLADA, Karolina and SAJDA, Małgorzata. Mind Over Mouth: Psychological Determinants of Oral Health – A Review. Journal of Education, Health and Sport. 2025;85:66501. eISSN 2391-8306.
https://doi.org/10.12775/JEHS.2025.85.66501
https://apcz.umk.pl/JEHS/article/view/66501

The journal has had 40 points in Minister of Science and Higher Education of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 05.01.2024 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical culture sciences (Field of medical and health sciences); Health Sciences (Field of medical and health sciences).
Punkty Ministerialne 40 punktów. Załącznik do komunikatu Ministra Nauki i Szkolnictwa Wyższego z dnia 05.01.2024 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przypisane dyscypliny naukowe: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).
The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 08.11.2025. Revised: 09.11.2025. Accepted: 09.11.2025. Published: 13.11.2025.

Mind Over Mouth: Psychological Determinants of Oral Health – A Review

Martyna Woźniak

Medicover Sp. z o.o, *Al. Jerozolimskie 96, 00-807 Warszawa,* Poland

m.wozniak912@gmail.com

https://orcid.org/0009-0002-2518-4531

Marcela Słomianny

Medical University of Silesia, Poniatowskiego 15, 40-055 Katowice, Poland

slomiannymarcela@gmail.com

https://orcid.org/0009-0004-8029-1422

Karolina Kutnik

Medical University of Lublin, Aleje Racławickie 1, 20-059 Lublin, Poland

karolinakutnik98@gmail.com

https://orcid.org/0009-0008-2250-1232

Karolina Kusibab

Medical University of Lublin, Aleje Racławickie 1, 20-059 Lublin, Poland

karolinakusibab00@gmail.com

https://orcid.org/0009-0004-9743-8734

Gabriela Sikora

Medical University of Lublin, Aleje Racławickie 1, 20-059 Lublin, Poland

gabriela.sikora1029@gmail.com

https://orcid.org/0009-0002-4627-7403

Michał Czechowski
Medical University of Silesia, Poniatowskiego 15, 40-055 Katowice, Poland
michat.czechowski@gmail.com
https://orcid.org/0009-0009-7038-6731

Gabriela Skórska
Medical University of Silesia, Poniatowskiego 15, 40-055 Katowice, Poland
gabrielaskorska12@gmail.com
https://orcid.org/0009-0008-2197-3414

Karolina Koguc
Medical University of Lublin, Aleje Racławickie 1, 20-059 Lublin, Poland
karolinakoguc@gmail.com
https://orcid.org/0009-0004-0762-7356

Karolina Kolada
Medical University of Lublin, Aleje Racławickie 1, 20-059 Lublin, Poland
karolinakolada2001@gmail.com
https://orcid.org/0009-0005-4960-9604

Małgorzata Sajda
Medical University of Lublin, Aleje Racławickie 1, 20-059 Lublin, Poland
m.skura15@gmail.com
https://orcid.org/0009-0004-6836-0704

Abstract

Background: Mental health conditions such as stress, depression, anxiety, and eating disorders can significantly influence oral health. These psychological factors affect oral function, behavior, and quality of life, yet their role in overall health remains underrecognized.

Aim: To review current literature on the psychological determinants of oral health and examine their broader implications for individual and population well-being.

Methods: A narrative review was conducted using 39 peer-reviewed articles identified through PubMed, Scopus, and Google Scholar. The studies were organized into five thematic categories: stress-related symptoms, depression-associated neglect, dental anxiety, eating disorders, and psychosomatic manifestations.

Results: Psychological disorders were associated with bruxism, xerostomia, dental erosion, chronic oral pain, and decreased oral health-related quality of life. Mental distress often led to harmful behaviors and neglect of self-care. Psychosomatic conditions presented diagnostic challenges. Interdisciplinary strategies, including psychological and physiotherapeutic interventions, were shown to enhance health outcomes. Integrating mental health support into oral and general health frameworks appears essential for effective prevention and

intervention. Further research is needed to establish standardized approaches for identifying and managing psychological influences on oral health.

Conclusions: Oral health and mental well-being are closely interconnected and should be considered together in health promotion and disease prevention strategies. A holistic understanding of health requires integration of psychological, behavioral, and somatic dimensions.

Keywords: oral health, mental health, stress, depression, anxiety, bruxism, burning mouth syndrome, eating disorders, psychosomatic disorders.

1. Introduction

Oral health is an essential component of general health and well-being, influencing one's ability to eat, speak, and socialize without pain or embarrassment. Beyond its clinical relevance, oral health is also closely linked to psychological, behavioral, and social factors that affect individuals across the lifespan. The World Health Organization emphasizes that oral health is integral to overall health and quality of life, highlighting the need for a holistic approach to oral care that considers mental and emotional dimensions [1].

In recent years, there has been a growing body of research exploring the intersection between psychological health and oral health. Mental health disorders—including stress-related conditions, depression, anxiety, post-traumatic stress disorder (PTSD), and eating disorders—have been increasingly associated with adverse oral health outcomes such as periodontal disease, dental caries, tooth loss, bruxism, and burning mouth syndrome [2,3,1]. Although the precise nature of these associations remains complex and multifactorial, evidence suggests the existence of both behavioral and biological mechanisms that mediate the mental–oral health connection.

Behaviorally, individuals suffering from mental health disorders may exhibit reduced motivation, energy, or capacity for maintaining daily oral hygiene, keeping dental appointments, or accessing professional care [3]. Factors such as dental fear, social anxiety, or anhedonia can lead to avoidance behaviors that exacerbate oral disease progression [2]. Biologically, chronic psychological stress and internalizing disorders may influence immune function, salivary gland activity, and inflammatory responses, thereby increasing susceptibility to periodontal pathogens and mucosal dysregulation [2,1].

The COVID-19 pandemic has further underscored the importance of this relationship, as lockdown-related disruptions to dental services and heightened levels of psychological distress have disproportionately affected vulnerable populations [4]. In a nationally representative study, individuals with poor mental health were significantly more likely to

report unmet oral health needs and poor self-rated oral health compared to those without mental health concerns [3]. These findings draw attention to the systemic barriers faced by individuals with psychological disorders and the need for integrated care models that bridge dental and mental health services.

Despite the growing recognition of these associations, findings across studies have not been uniformly consistent. While several studies confirm significant correlations between depression, anxiety, or PTSD and poor oral outcomes, others report inconclusive or null results, particularly in the context of longitudinal or interventional research [5]. The heterogeneity in study design, populations, diagnostic criteria, and outcome measures further complicates the synthesis of existing evidence and points to a need for comprehensive narrative reviews.

The aim of this review is to systematically explore and synthesize the current evidence on the impact of psychological determinants—such as stress, depression, anxiety, dental fear, and disordered eating—on oral health outcomes. By analyzing findings from cross-sectional, longitudinal, and interventional studies published in recent years, this review seeks to (1) identify key mechanisms linking mental and oral health, (2) highlight implications for clinical and public health practice, and (3) provide direction for future interdisciplinary research. Understanding this dynamic relationship is crucial not only for improving oral health outcomes but also for promoting holistic, person-centered care.

2. Methodology

This narrative review synthesizes recent research on the psychological determinants of oral health. A structured search was conducted in PubMed, Scopus, and Google Scholar for studies published between 2001 and 2024.

Key search terms included: oral health, mental health, psychological stress, depression, anxiety, dental anxiety, bruxism, burning mouth syndrome, eating disorders, and psychosomatic disorders. Boolean operators (AND, OR) were used to refine results.

Studies were included if they were peer-reviewed, published in English, focused on human subjects, and examined the impact of psychological factors on oral health outcomes or behaviors. Exclusion criteria encompassed non-full-text publications, and non-primary data sources.

A total of 39 relevant articles were selected, including observational, longitudinal, interventional, and review studies. Articles were thematically categorized into five domains: stress-related oral symptoms, depression-linked neglect, dental anxiety, eating disorders, and psychosomatic oral conditions. This structure guided both selection and synthesis of findings.

As a narrative review, this study does not include formal quality scoring or meta-analysis. However, methodological diversity and relevance were considered when interpreting results.

3.1 Stress and its Oral Manifestations

Psychological stress exerts a profound influence on oral health through neuroendocrine, behavioral, and immunological pathways. Its manifestations in the oral cavity range from functional disorders to inflammatory diseases and microbial dysbiosis. This section explores the complex mechanisms by which stress impacts oral health, with evidence drawn from both human and animal studies.

- Bruxism and Muscular Hyperactivity

Bruxism is one of the most common stress-related oral conditions. Multiple studies have confirmed that stress-induced activation of the hypothalamic–pituitary–adrenal (HPA) axis and increased cortisol levels correlate with clenching and grinding behaviors [6]. Clinical studies have shown that elevated levels of psychological stress are significantly associated with the presence and severity of sleep bruxism, particularly in individuals with ineffective stress coping strategies. [7,8]. These findings are consistent with the idea that bruxism may serve as a maladaptive coping mechanism for stress and is modulated by personality traits and psychological resilience [8].

Consequences include dental wear, fractured restorations, hypertrophy of the masticatory muscles, and temporomandibular joint dysfunction—conditions that have clear implications for oral rehabilitation and long-term dental health [9].

- Xerostomia and Salivary Dysfunction

Stress also impacts salivary flow and composition. Chronic activation of the sympathetic nervous system results in decreased salivary secretion and alterations in protein content, leading to xerostomia. Patients with xerostomia often exhibit higher levels of psychological stress and anxiety compared to controls [10]. In a comparative study, individuals with stress-related dry mouth (including Sicca and Sjögren's syndromes) had significantly fewer remaining teeth and higher DMFS scores than controls, despite reporting better hygiene routines such as regular fluoride use [10,11,12].

These results highlight how stress-related alterations in salivary function contribute to a higher caries risk, impaired antimicrobial defense, and discomfort in daily oral functions such as speaking and swallowing.

- Stress-Induced Microbial Dysbiosis

Psychological stress can alter the oral microbiome, potentially increasing susceptibility to periodontal disease and other infections. In a human study involving military medical students undergoing hyper-realistic trauma simulations, acute psychological stress led to measurable changes in oral microbiota diversity, with significant shifts in the abundance of Corynebacterium, Tannerella, Capnocytophaga, and Leptotrichia species [11]. These shifts are believed to result from elevated cortisol levels affecting microbial gene expression and adhesion properties [11].

A parallel animal model confirmed these findings, showing that chronic restraint stress in rats led to reduced alpha diversity and increased expression of specific salivary proteins, including von Ebner's gland protein and BPIFA2 (also known as parotid secretory protein), which are involved in host–microbe interactions and mucosal immunity [11,7] Proteomic analysis further revealed altered expression of stress-responsive salivary biomarkers such as carbonic anhydrase VI and cystatin D, suggesting a molecular basis for stress-induced oral pathophysiology.

- Oral Lichen Planus and Stress-Modulated Inflammatory Disease

Oral lichen planus (OLP) is a chronic inflammatory condition increasingly understood to have psychosomatic underpinnings. Studies show that patients with OLP exhibit significantly elevated stress, anxiety, and depression scores compared to healthy controls [11, 13]. A meta-analysis confirmed that psychological stress negatively affects oral health-related quality of life (OHRQoL) in this population [10,14]. Moreover, these patients often report a cycle of worsening symptoms during periods of elevated stress, reinforcing the need for interdisciplinary management.

- Subjective Oral Complaints and Quality of Life

Stress is strongly associated with self-reported oral pain, mucosal burning, and chewing discomfort. In a population-based study from Toronto, perceived current stress was significantly correlated with both higher frequencies of oral pain and poorer self-rated oral health [7]. The strength of this association increased in individuals with limited access to care, such as those without dental insurance or from lower socioeconomic backgrounds [7,13]. These findings illustrate the compounding effect of psychosocial stressors and systemic inequalities on oral disease burden.

Moreover, studies investigating the buffering role of social networks show mixed results. While some research suggests that social support may attenuate the effects of stress on oral

health-related quality of life (OHRQoL), one large cross-sectional analysis did not confirm a statistically significant interaction between social support and stress-related oral impacts [7].

3.2 Depression and Oral Health Neglect

Depression is a multifaceted mental health condition that affects not only mood and cognition but also behavior, lifestyle, and self-care—including oral hygiene practices. Research across various populations and age groups has consistently demonstrated a strong bidirectional relationship between depression and poor oral health, often mediated by neglect, psychotropic medication side effects, altered salivary function, and behavioral patterns such as smoking, poor diet, and avoidance of dental care.

- Oral Hygiene Neglect and Treatment Avoidance

Patients suffering from depression often exhibit decreased motivation, fatigue, and anhedonia, which can severely impair their ability to maintain daily oral hygiene routines. A large cross-sectional study based on NHANES data confirmed that individuals with depressive symptoms were significantly more likely to report difficulties accessing dental care, neglect oral hygiene behaviors, and experience work-related limitations due to oral health problems [15, 16].

Difficulty accessing dental care and postponing necessary treatment leads to progression of untreated oral disease. Among participants with depressive symptoms, the odds of reporting dental pain, difficulty working due to oral issues, and problems obtaining treatment were all significantly elevated even after adjusting for sociodemographic and health behavior confounders [16].

- Depression and Caries, Tooth Loss, and Periodontal Disease

Several studies have shown that depression is positively correlated with caries prevalence, missing teeth, and periodontal inflammation. In an elderly Polish cohort (n=500), the PHQ-9 score was positively associated with the number of decayed and missing teeth, and the presence of xerostomia. Importantly, individuals with moderate to severe depressive symptoms had significantly worse DMFT indices and oral dryness scores [17].

This is corroborated by a Chilean national health study, where individuals experiencing depression or suspected of having depressive symptoms were more likely to report oral discomfort when eating or speaking, use removable upper dentures, and suffer from associated social limitations [18]. The use of prosthetic appliances—especially when

associated with discomfort—was significantly associated with both suspected and diagnosed depression [18].

- Antidepressant Medications and Salivary Function

Antidepressants, particularly SSRIs and tricyclic antidepressants (TCAs), are associated with xerostomia due to their anticholinergic effects on salivary secretion. A recent systematic review found consistent associations between antidepressant use and increased risk of dry mouth, caries, and periodontal disease. SSRIs and TCAs were most commonly linked to these effects, while their impact on the chemical composition of saliva was minimal [15].

This pharmacologically induced hyposalivation reduces the protective function of saliva and further compounds the negative oral health behaviors often seen in depression. The resulting environment favors bacterial proliferation and increases susceptibility to both caries and mucosal infections.

- Oral Health-Related Quality of Life (OHRQoL) and Depression

Depression significantly deteriorates oral health-related quality of life (OHRQoL). A longitudinal analysis of Korean older adults demonstrated that even a mild worsening in depressive symptoms was associated with a measurable decline in GOHAI (Geriatric Oral Health Assessment Index) scores. Men and women with a ≥3-point increase in CESD-10 scores over two years experienced significantly greater OHRQoL deterioration, including social withdrawal, eating discomfort, and speaking [19].

Moreover, subgroup analyses showed that this effect was amplified in individuals with lower cognitive or physical function, reduced handgrip strength, and lower income levels. These results highlight the role of psychological distress not only in direct biological mechanisms but also in social functioning and self-perception of oral health.

3.3 Dental Anxiety and Avoidance of Care

Dental anxiety (DA) is a pervasive psychological phenomenon that significantly disrupts oral health behavior, patient–provider relationships, and treatment outcomes. It often leads to a vicious cycle of avoidance, deterioration of oral health, and further anxiety. The prevalence of DA varies across populations but can affect up to 20% of adults and children globally, with even higher rates reported among older adults and individuals with neurocognitive or psychosocial impairments [20].

- Prevalence and Consequences in Older Adults

In a cross-sectional study of 390 community-dwelling older adults in rural Egypt, an overwhelming 90.5% of participants exhibited some level of dental anxiety, and 66.9% were classified as very anxious or phobic. The study demonstrated a strong, statistically significant inverse correlation between dental anxiety and oral health-related quality of life (OHRQoL), as measured by the OHIP-5 instrument [21]. Those with extreme DA had the poorest OHRQoL, characterized by discomfort when eating, embarrassment due to dental appearance, and limitations in daily functioning.

Multiple factors contributed to elevated DA levels in this cohort, including prior traumatic dental experiences, pain, embarrassment, and fear of infection or bleeding. Moreover, DA was significantly associated with emergency-only dental visits, low rates of preventive care, and dissatisfaction with past dental services. These findings underscore the need for targeted interventions in underserved, aging populations where DA remains underdiagnosed and underaddressed [21].

- Psychosocial and Neuropsychological Dimensions

A broader conceptual model of DA reveals complex interrelationships between dental fear, general anxiety, sensory over-responsivity (SOR), and oral health behaviors. Stein Duker et al. synthesized findings from 188 studies and proposed a framework in which DA interacts with other psychological constructs such as catastrophizing and SOR, contributing to irregular attendance, behavioral management problems, and a need for pharmacological intervention during dental care [20].

DA was shown to co-occur with general anxiety in both pediatric and adult populations. Additionally, patients with high sensory sensitivity (e.g., to the sound or smell of dental instruments) reported heightened DA and displayed behavioral problems such as gagging, refusal to open the mouth, or physical aggression during treatment. These behavioral manifestations contribute to increased dental morbidity and present challenges for dental professionals [20].

- Impact on Neurologically Vulnerable Populations

DA may have disproportionately adverse effects among individuals recovering from neurological events such as stroke. In a pilot study involving stroke survivors, although their average DA scores did not differ significantly from matched controls, a strong positive correlation between DA and poor oral health was identified exclusively in the stroke group. This association remained robust even after controlling for general psychological distress and life satisfaction [22].

The findings suggest that even subclinical levels of DA may have outsized effects in populations facing physical, cognitive, or emotional barriers to care. Dental anxiety in stroke survivors may further undermine already limited functional abilities, resulting in progressive oral deterioration.

- Maternal Mental Health and Intergenerational Effects

Parental, especially maternal, dental anxiety can influence children's oral health outcomes. A literature review indicated that maternal depression and anxiety are associated with increased caries incidence, enamel defects, and irregular brushing habits in children [23]. Mothers who experience dental fear are less likely to seek preventive dental care for their children, perpetuating a cycle of oral health neglect across generations.

This intergenerational transmission of fear and avoidance behaviors further demonstrates the broad public health implications of untreated DA and highlights the need for integrated, family-centered dental and psychological care models.

- Stress, Anxiety, and Pandemic-related DA

The COVID-19 pandemic introduced additional dimensions to dental anxiety. A large-scale cross-sectional study among 1,770 Chinese college students during the Omicron wave revealed that anxiety—rather than stress alone—was a significant predictor of self-reported oral symptoms such as gingival bleeding, oral ulcers, and toothache [4]. Structural equation modeling demonstrated that stress impacted oral health indirectly through increased anxiety.

These findings affirm that dental anxiety may not only arise from direct dental experiences but also from broader psychosocial stressors, including pandemics, lockdowns, and uncertainty. This reinforces the need for systemic, trauma-informed care approaches within dental settings.

3.4 Eating Disorders and Oral Health

Eating disorders (EDs), including anorexia nervosa (AN), bulimia nervosa (BN), and other specified feeding or eating disorders (OSFED), are serious psychiatric conditions characterized by abnormal eating behaviors and distorted body image. Beyond their psychological and systemic consequences, these disorders manifest significantly in the oral cavity, with profound implications for dental structures, salivary function, mucosal integrity, and overall oral health-related quality of life (OHRQoL).

- Dental Erosion and Tooth Structure Loss

Dental erosion is the most widely recognized oral manifestation associated with EDs, particularly in cases involving self-induced vomiting. Repeated exposure to gastric acid results in the progressive demineralization of enamel, primarily on the palatal surfaces of the maxillary anterior teeth. Perimylolysis, the hallmark lesion of acid-induced erosion, is commonly observed in both AN and BN patients [24, 25, 26].

A systematic review including 32 studies confirmed a strong and consistent association between eating disorders and dental erosion. The severity of erosion was positively correlated with the duration and frequency of vomiting behaviors [27]. Some patients exhibit erosive lesions after only six months of purging behaviors [26]. Importantly, differentiating between erosions caused by dietary acids and those caused by vomiting is possible based on lesion location—lingual and palatal surfaces are more commonly affected in purging behaviors [26].

- Salivary Function and Xerostomia

EDs and their treatment regimens are associated with salivary gland dysfunction and xerostomia. The use of antidepressants, anxiolytics, and appetite suppressants—common in the psychiatric management of EDs—contributes to reduced salivary flow and altered salivary composition [28, 26]. This hyposalivation not only impairs the protective functions of saliva but also predisposes patients to caries, mucosal infections, and taste disturbances.

In a cross-sectional study involving 23 psychiatric inpatients, nearly one-third showed objective signs of severe oral dryness. Stimulated salivary flow rates were significantly lower than in controls, and higher xerostomia scores were positively associated with nutritional difficulties and reduced OHRQoL [28].

- Caries and Periodontal Health

The literature on dental caries in EDs is heterogeneous. While some studies indicate a higher prevalence of caries due to poor hygiene, frequent snacking, and hyposalivation, others report no difference or even lower caries rates—potentially due to rigorous oral cleaning rituals following purging [26,25]. Periodontal conditions in patients with EDs may be exacerbated by nutritional deficiencies (e.g., vitamin C deficiency), poor oral hygiene, and immune suppression.

A systematic review revealed mixed evidence regarding caries prevalence, likely due to variable methodology and failure to distinguish vomiting subtypes [27].

- Oral Mucosal Lesions and Parotid Gland Enlargement

Oral mucosal manifestations include angular cheilitis, glossitis, erythema, and candidiasis, often secondary to malnutrition and reduced salivary flow [29, 26]. In BN, bilateral parotid gland enlargement is also a frequent finding, often accompanied by discomfort and facial asymmetry.

- Malocclusion and Aesthetic Concerns

In addition to erosion and caries, eating disorders may contribute to malocclusion through altered growth patterns, tooth loss, and self-induced trauma. A Brazilian study found that patients with AN and BN demonstrated significantly higher rates of severe malocclusion and dissatisfaction with dental aesthetics, speech, and chewing compared to controls [30,31].

3.5 Psychosomatic Oral Disorders

Psychosomatic oral disorders are conditions in which psychological or emotional factors contribute to the onset, exacerbation, or persistence of oral symptoms, often in the absence of clear clinical pathology. These disorders frequently pose diagnostic and therapeutic challenges, as patients may present with medically unexplained symptoms that do not correlate with observable lesions. Among the most studied psychosomatic oral conditions are Burning Mouth Syndrome (BMS), atypical facial pain, and oral cenesthopathy.

- Burning Mouth Syndrome (BMS)

Burning Mouth Syndrome is characterized by a persistent burning sensation in the oral mucosa, most commonly affecting the tongue, lips, and palate, without any visible lesions or systemic causes. According to the International Headache Society, BMS is defined as a daily, intraoral burning or dysaesthetic sensation lasting for more than two hours per day for over three months, with no observable clinical abnormalities [32].

BMS predominantly affects postmenopausal women, with a peak incidence between the ages of 50 and 70. Epidemiological data suggest a prevalence of 1.5%–5.1% in the general population [33, 32]. The condition often coexists with symptoms such as xerostomia, dysgeusia, and oral dysesthesia, and has been strongly linked with anxiety, depression, alexithymia, and history of psychological trauma [32, 34, 35]. Neurophysiological studies indicate that BMS may result from small-fiber sensory neuropathy, with altered pain and thermal thresholds in the trigeminal pathways. Functional MRI and quantitative sensory testing (QST) have revealed changes in pain processing at both peripheral and central levels [33, 32].

Treatment of BMS is multimodal and often includes:

- Cognitive-behavioral therapy (CBT) as a first-line approach,
- Pharmacologic treatments such as clonazepam, α-lipoic acid, gabapentin, and duloxetine,
- Topical therapies, including clonazepam rinses or low-level laser therapy,
- Desensitization protocols with capsaicin.

An evidence-based therapeutic gradient recommends starting with psychological support, progressing to local interventions, and introducing systemic agents if necessary [32, 36].

- Oral Cenesthopathy and Dysesthesia

Oral cenesthopathy refers to abnormal oral sensations (e.g., slimy feeling, perception of foreign bodies, excessive mucus) without clinical findings. It is considered part of the medically unexplained oral symptoms (MUOS) group and is classified as a somatoform disorder in DSM-5 [35, 36].

Patients with cenesthopathy frequently resist psychiatric referrals and may "shop" among dental providers seeking physical explanations. Imaging studies have shown asymmetric cerebral blood flow in affected individuals, and brain perfusion irregularities have been proposed as objective markers of this condition [35, 36].

- Atypical Facial Pain and Chronic Orofacial Pain

Chronic facial pain, including atypical odontalgia, is another common psychosomatic oral disorder. These conditions are characterized by dull, persistent pain without identifiable dental pathology and often co-occur with psychiatric comorbidities such as depression, anxiety, and somatization [37, 36].

Psychiatric evaluation and tricyclic antidepressants such as amitriptyline have shown moderate efficacy. Multidisciplinary management combining dental, neurologic, and psychiatric expertise is recommended [37].

- Psychosocial Context and Clinical Implications

The shared psychogenic and neurogenic mechanisms underlying these disorders underscore the need for a biopsychosocial approach. Dentists are often the first point of contact and must be trained to:

- Recognize psychosomatic patterns,
- Avoid unnecessary dental interventions,
- Collaborate with mental health professionals.

Educational gaps and healthcare system fragmentation often leave these patients underserved. A coordinated interdisciplinary treatment plan, incorporating validated screening tools, CBT, pharmacologic support, and patient education, is essential for optimal outcomes [34, 35, 36].

4. Implications for Dental Practice and Public Health

As growing evidence reveals the bidirectional relationship between psychological well-being and oral health, it becomes imperative to integrate interdisciplinary strategies into dental

practice and public health planning. Dental professionals are increasingly faced with patients whose oral health is influenced, or even determined, by mental health conditions. Addressing such complexity requires collaboration between dentistry, psychology, psychiatry, general medicine, and, in many cases, physiotherapy.

4.1. Integrated Care for Psychologically Vulnerable Populations

People living with mental illness are disproportionately affected by oral diseases, including caries, periodontitis, xerostomia, and edentulism. Individuals with severe mental illness are nearly three times more likely to lose all of their teeth compared to the general population [38]. This disparity is driven by a multitude of intersecting factors: decreased self-care abilities, low health literacy, poor access to services, medication side effects, and fear or mistrust of healthcare systems [38].

The Norwegian TADA model (Torture, Abuse, and Dental Anxiety) exemplifies a successful interdisciplinary approach that combines CBT-based psychological therapy with adapted dental treatment. Patients with odontophobia and histories of trauma who completed TADA interventions not only reduced anxiety and PTSD symptoms but also re-entered the cycle of regular dental care [38]. Notably, all patients in the pilot study who completed CBT moved forward with dental rehabilitation—demonstrating the practical value of trauma-informed, interdisciplinary treatment frameworks.

4.2. The Role of Dentists in Mental Health Detection

Dentists may be the first healthcare professionals to detect underlying psychiatric issues through oral manifestations such as BMS, atypical odontalgia, self-inflicted oral trauma, or halitophobia [34, 36]. As such, dental professionals must be trained to recognize psychosomatic signs, conduct basic psychosocial screenings, and refer appropriately. Unfortunately, as studies show, many dental providers lack confidence or training in the psychological dimensions of oral care [36].

Implementing standardized mental health screening tools in dental clinics—such as the PHQ-9 for depression or the MDAS for dental anxiety—can improve diagnostic precision and patient outcomes. Dentists should also be encouraged to document psychological or behavioral risk factors in patient records and to adopt a nonjudgmental, trauma-informed communication style.

4.3. Interdisciplinary Collaboration in TMD and Chronic Orofacial Pain

Temporomandibular disorders (TMD), a prevalent source of chronic orofacial pain, are known to have multifactorial etiology including psychological stress, parafunctions, and postural dysfunctions. Despite the recognized role of physiotherapy in TMD management,

inter-professional collaboration between dentists and physiotherapists remains limited in many settings [39].

A study conducted in France found that while 98% of dentists encounter TMD patients, only 57% referred to physiotherapists as part of their treatment plan. The main barriers to referral included lack of awareness of physiotherapy's role and limited access to trained professionals in rural areas [39]. Furthermore, 98% of respondents expressed interest in learning more about physiotherapy's contribution to TMD care—demonstrating the readiness for system-wide change if proper education and networks are established.

Multidisciplinary teams—including dentists, physiotherapists, psychologists, and primary care providers—offer more holistic care and are better equipped to manage both the somatic and behavioral aspects of TMD, bruxism, and chronic facial pain [39].

4.4. Training and System-Level Solutions

To make interdisciplinary approaches viable in routine practice, systemic adjustments are needed:

- Educational curricula in dental and physiotherapy schools must include modules on psychosomatic medicine, mental health screening, and collaborative care.
- Postgraduate continuing education should offer structured training in CBT-informed dental practice and trauma-sensitive communication.
- Shared care pathways and referral protocols can enhance coordination between mental health and dental care sectors, preventing patient dropout and redundant interventions.

Digital tools such as interdisciplinary patient records and professional directories (e.g., maxillofacial physiotherapists) could bridge knowledge gaps and logistical barriers, especially in underserved regions [39].

5. Conclusions

The present review highlights the intricate and bidirectional relationship between psychological health and oral health. Psychological factors such as stress, depression, anxiety, trauma, and eating disorders significantly affect oral structures, behaviors, and treatment outcomes. These influences manifest in the form of bruxism, xerostomia, oral pain syndromes, dental neglect, mucosal pathologies, and medically unexplained oral symptoms.

The evidence reviewed confirms that:

- Stress contributes to bruxism, dry mouth, dysbiosis of the oral microbiome, and exacerbation of conditions such as oral lichen planus and burning mouth syndrome.

- Depression is strongly associated with decreased oral hygiene motivation, increased caries, and adverse prosthetic outcomes, often intensified by pharmacologically induced xerostomia [15, 17].
- Dental anxiety and odontophobia lead to treatment avoidance, deteriorated oral status, and increased psychological comorbidity; interdisciplinary CBT programs, such as the TADA model, show promising effectiveness [38].
- Eating disorders result in dental erosion, mucosal changes, xerostomia, and impaired OHRQoL, with delayed recognition and underreported symptoms among clinicians [26, 27].
- Psychosomatic oral disorders, including BMS, atypical pain, and cenesthopathy, require a biopsychosocial diagnostic and therapeutic framework that bridges dentistry, psychiatry, and neurology [34, 36].

Despite the robust associations between mental and oral health, integration of psychological assessment and interdisciplinary treatment in dental practice remains limited. A recurrent theme in the literature is the need for improved communication and collaboration among dental professionals, psychologists, psychiatrists, physiotherapists, and primary care providers [39]. Barriers such as lack of training, resource constraints, and siloed care models hinder effective management of patients with complex psycho-oral profiles.

Therefore, to improve outcomes and equity in oral health, it is necessary to:

1. Incorporate mental health screening and trauma-informed communication in routine dental practice;
2. Promote interdisciplinary education and collaboration, particularly in the management of TMDs, oral pain syndromes, and dental fear;
3. Develop integrated care pathways, such as the TADA model, to reach underserved populations with comorbid psychological conditions;
4. Encourage longitudinal research and clinical trials to validate and refine intervention models targeting mental–oral health interfaces.

In conclusion, oral health does not exist in isolation from mental well-being. Dentists, as frontline healthcare providers, must recognize the psychological dimensions of oral health and actively participate in a collaborative, person-centered model of care. Only then can comprehensive, effective, and humane oral healthcare be delivered.

Disclosure

Author Contribution Statement:
Conceptualization: Martyna Woźniak, Gabriela Sikora, Marcela Słomianny, Karolina Kutnik, Karolina Kolada;
Methodology: Martyna Woźniak, Michał Czechowski, Gabriela Skórska
Formalanalysis: Karolina Koguc, Karolina Kusibab;
Investigation: Martyna Woźniak, Gabriela Sikora, Marcela Słomianny, Karolina Kutnik, Karolina Kolada, Karolina Koguc, Karolina Kusibab, Michał Czechowski, Gabriela Skórska;
Resources: Martyna Woźniak;
Data curation: Martyna Woźniak, Michał Czechowski, Gabriela Skórska, Marcela Słomianny;
Writing – roughpreparation: Martyna Woźniak, Gabriela Sikora, Marcela Słomianny, Karolina Kutnik, Karolina Kolada, Karolina Koguc, Karolina Kusibab, Michał Czechowski, Gabriela Skórska;
Writing - review and editing: Karolina Kolada, Karolina Kutnik, Karolina Kusibab;
Visualization: Karolina Kutnik, Karolina Kolada;
Supervision: Martyna Woźniak, Karolina Koguc, Gabriela Sikora;
Project administration: Martyna Woźniak;

All authors have read and agreed with the published version of the manuscript.
Funding Statement: The study did not receive special funding.
Institutional Review Board Statement: Not applicable.
Informed Consent Statement: Not applicable.
Data Availability Statement: Not applicable.
Conflict of Interest Statement: The authors declare no conflict of interest.

6. References

1. Kuipers S, Boonstra N, Kronenberg L, Keuning-Plantinga A, Castelein S. Oral health interventions in patients with a mental health disorder: A scoping review with critical appraisal of the literature. Int J Environ Res Public Health. 2021;18(15):8113. https://doi.org/10.3390/ijerph18158113

2. Kalaigian A, Chaffee BW. Mental health and oral health in a nationally representative cohort. J Dent Res. 2023;102(9):1007–1014. https://doi.org/10.1177/00220345231171108

3. Tiwari T, Kelly A, Randall CL, Tranby E, Franstve-Hawley J. Association between mental health and oral health status and care utilization. Front. Oral. Health. 2022;2:732882. https://doi.org/10.3389/froh.2021.732882

4. Cao R, Lai J, Fu X, Qiu P, Chen J, Liu W. Association between psychological stress, anxiety and oral health status among college students during the Omicron wave: a cross-sectional study. BMC Oral Health. 2023;23:470. https://doi.org/10.1186/s12903-023-03151-3

5. Matsuda S, Yoshimura H. Impact of oral health management on mental health and psychological disease: a scoping review. J Int Med Res. 2023;51(1):1–7. https://doi.org/10.1177/03000605221147186

6. Saczuk K, Lapinska B, Wilmont P, Pawlak L, Lukomska-Szymanska M. Relationship between sleep bruxism, perceived stress, and coping strategies. Int J Environ Res Public Health. 2019;16(17):3193. https://doi.org/10.3390/ijerph16173193

7. Vasiliou A, Shankardass K, O'Campo P, Quiñonez C. Current stress and poor oral health. BMC Oral Health. 2016;16:88. https://doi.org/10.1186/s12903-016-0284-y

8. Vlăduțu D, Popescu SM, Mercuț R, Ionescu M, Scrieciu M, Glodeanu AD, et al. Associations between bruxism, stress, and manifestations of temporomandibular disorder in young students. Int J Environ Res Public Health. 2022;19(9):5415. https://doi.org/10.3390/ijerph19095415

9. Pinheiro LS, Ritzel IF, Hugo FN, Hilgert JB, Bastos JL, Celeste RK. Associations between psychological stress, discrimination, and oral health-related quality of life: the buffering effects of social support networks. Cad Saude Publica. 2024;40(2):e00123123. https://doi.org/10.1590/0102-311xen123123

10. Stoy S, McMillan A, Ericsson AC, Brooks AE. The effect of physical and psychological stress on the oral microbiome. Front Psychol. 2023;14:1166168. https://doi.org/10.3389/fpsyg.2023.1166168

11. Paudel D, Kuramitsu Y, Uehara O, Morikawa T, Yoshida K, Giri S, et al. Proteomic and microbiota analyses of the oral cavity during psychological stress. PLoS One. 2022;17(5):e0268155. https://doi.org/10.1371/journal.pone.0268155

12. Stankeviciene I, Stangvaltaite-Mouhat L, Aleksejuniene J, Mieliauskaite D, Talijuniene I, Butrimiene I, et al. Oral health status, related behaviours and perceived stress in xerostomia, Sicca and Sjögren's syndromes patients – a cross-sectional study. BMC Oral Health. 2024;24:454. https://doi.org/10.1186/s12903-024-04224-7

13. Dagli N, Haque M, Kumar S. Bibliometric analysis and visualization of clinical trials on psychological stress and oral health (1967–2024). Cureus. 2024;16(4):e57865. https://doi.org/10.7759/cureus.57865

14. Chaudhary S. Psychosocial stressors in oral lichen planus. Aust Dent J. 2004;49(4):192–5. https://doi.org/10.1111/j.1834-7819.2004.tb00072.x

15. Alcázar-Hernández JM, Pecci-Lloret MR, Guerrero-Gironés J. Oral manifestations in patients in treatment with antidepressants: a systematic review. J Clin Med. 2024;13(22):6945. https://doi.org/10.3390/jcm13226945

16. Bafageeh F, Loux T. Depression symptoms linked to multiple oral health outcomes in US adults. JDR Clin Transl Res. 2025;10(1). https://doi.org/10.1177/23800844241246225

17. Skoskiewicz-Malinowska K, Malicka B, Ziętek M, Kaczmarek U. Oral health condition and occurrence of depression in the elderly. Medicine (Baltimore). 2018;97(41):e12490. https://doi.org/10.1097/md.0000000000012490

18. Palomer T, Ramírez V, Ortuño D. Relationship between oral health and depression: data from the National Health Survey 2016–2017. BMC Oral Health. 2024;24:188. https://doi.org/10.1186/s12903-024-03950-2

19. Nerobkova N, Park EC, Jang SI. Depression and oral health-related quality of life: a longitudinal study. Front Public Health. 2023;11:1072115. https://doi.org/10.3389/fpubh.2023.1072115

20. Stein Duker LI, Grager M, Giffin W, Hikita N, Polido JC. The relationship between dental fear and anxiety, general anxiety/fear, sensory over-responsivity, and oral health behaviors and outcomes: a conceptual model. Int J Environ Res Public Health. 2022;19(4):2380. https://doi.org/10.3390/ijerph19042380

21. Hassan BH, Abd El Moniem MM, Dawood SS, Alsultan AA, Abdelhafez AI, Elsakhy NM. Dental anxiety and oral-health-related quality of life among rural community-dwelling older adults. Int J Environ Res Public Health. 2022;19(13):7643. https://doi.org/10.3390/ijerph19137643

22. Nangle MR, Adams AG, Henry JD. Dental anxiety and oral health following stroke: a pilot study. BMC Oral Health. 2022;22(1):568. https://doi.org/10.1186/s12903-022-02618-z

23. Ludovichetti FS, Zuccon A, Zambon G, Signoriello AG, Zerman N, Stellini E, et al. Maternal mental health and children oral health: a literature review. Eur J Paediatr Dent. 2023;24(2):99-103. https://doi.org/10.23804/ejpd.2023.1833

24. Presskreischer R, Prado MA, Kuraner SE, Arusilor IM, Pike K. Eating disorders and oral health: a scoping review. J Eat Disord. 2023;11:55. https://doi.org/10.1186/s40337-023-00778-z

25. Kavitha PR, Vivek P, Hegde AM. Eating disorders and their implications on oral health – role of dentists. J Clin Pediatr Dent. 2011;36(2):155–160 https://doi.org/10.17796/jcpd.36.2.3785414p682843wj

26. Frydrych AM, Davies GR, McDermott BM. Eating disorders and oral health: a review of the literature. Aust Dent J. 2005;50(1):6–15 https://doi.org/10.1111/j.1834-7819.2005.tb00079.x

27. Valeriani L, Frigerio F, Piciocchi C, Piana G, Montevecchi M, Donini LM, et al. Oro-dental manifestations of eating disorders: a systematic review. J Eat Disord. 2024;12:87. https://doi.org/10.1186/s40337-024-01050-8

28. Frigaard J, Hynne H, Randsborg K, Mellin-Olsen T, Young A, Rykke M, et al. Exploring oral health indicators, oral health-related quality of life and nutritional aspects in 23 medicated patients from a short-term psychiatric ward. Front Public Health. 2023;11:1083256. https://doi.org/10.3389/fpubh.2023.1083256

29. DeBate RD, Tedesco LA, Kerschbaum WE. Knowledge of oral and physical manifestations of anorexia and bulimia nervosa among dentists and dental hygienists. J Dent Educ. 2005;69(3):346–354 https://doi.org/10.1002/j.0022-0337.2005.69.3.tb03921.x

30. Chiba FY, Chiba EK, Moimaz SAS, Matsushita DH, Garbin AJI, Garbin CAS. Malocclusion and its relationship with oral health-related quality of life in patients with eating disorders. Dental Press J Orthod. 2022;27(2):e2220305. https://doi.org/10.1590/2177-6709.27.2.e2220305.oar

31. Silverstein LS, Haggerty C, Sams L, Phillips C, Roberts MW. Impact of an oral health education intervention among a group of patients with eating disorders (anorexia nervosa and bulimia nervosa). J Eat Disord. 2019;7:29. https://doi.org/10.1186/s40337-019-0259-x

32. Hamon B, Orliaguet M, Misery L, Boisramé S. Burning mouth syndrome and pelvodynia: a literature review. Medicine. 2023;102(3):e32648. https://doi.org/10.1097/md.0000000000032648

33. Gurvits GE, Tan A. Burning mouth syndrome. World J Gastroenterol. 2013;19(5):665–72. https://doi.org/10.3748/wjg.v19.i5.665

34. Priyadharshini G, Ramalingam K, Ramani P. Unveiling the unspoken: exploring oral manifestations of psychological disorders. Cureus. 2024;16(1):e52967. https://doi.org/10.7759/cureus.52967

35. Toyofuku A. Psychosomatic problems in dentistry. BioPsychoSocial Med. 2016;10:14. https://doi.org/10.1186/s13030-016-0068-2

36. Pop-Jordanova N, Loleska S. On psychosomatic problems in dentistry. Prilozi. 2020;41(1):57–63. https://doi.org/10.2478/prilozi-2020-0023

37. Madland G, Feinmann C. Factors Chronic facial pain: a multidisciplinary problem. J Neurol Neurosurg Psychiatry 2001;71:716–719 https://doi.org/10.1136/jnnp.71.6.716

38. Westad YAS, Flemmen GL, Solem S, Monsen T, Hollingen H, Feuerherm A, Havnen A, Hagen K. Interdisciplinary CBT treatment for patients with odontophobia and dental

anxiety related to psychological trauma experiences: a case series. BMC Psychiatry. 2024;24:606. https://doi.org/10.1186/s12888-024-06055-w

39. Sauvageon L, Savard G, Moussa C, Rochefort GY, Denis F, Fossat C, Renaud M. Dentists and physiotherapists level of collaboration in the treatment of temporomandibular disorders in France. BMC OralHealth. 2024;24:979. https://doi.org/10.1186/s12903-024-04768-8