

Relationship Between Oral Health and Mental Health in Individuals with Substance Use Disorder: A Short Commentary

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Abstract

Substance use disorders are highly widespread in the United States, exerting significant adverse effects on individuals' well-being, overall contentment, and societal functionality. Our review of the literature shows a close connection between Substance Use Disorder (SUD) and oral health problems, revealing a mutual association between drug addiction and oral health. Moreover, our review further indicates that individuals seeking treatment for addiction display a notably elevated occurrence of coexisting mental health disorders. Recent studies suggest a potential bidirectional relationship between mental health and dental well-being, emphasizing the broader implications for mental health and oral health outcomes even in individuals not involved in substance use. Based on the above review, we perceive a considerable gap to examine any relationship between oral health and mental health in individuals with SUD. Having co-occurring oral health and mental health problems can significantly reduce quality of life in individuals with SUD. There appears to be a critical need to investigate any relationship between oral health and mental well-being in individuals grappling with SUD. It is crucial to inform both mental health and dental health professionals, as well as substance addiction counselors about any potential existence of such a relationship. Recognizing this link could contribute to the development of more effective strategies to encourage individuals with SUD to seek treatment and address both their oral and mental health needs.

Substance use disorder and oral health

Substance use disorders are extremely prevalent in the US and have a severe negative impact on a person's health, happiness, and ability to function in society. An increasing body of research shows that individuals with Substance Use Disorder (SUD) frequently experience oral health issues, and drug addiction and dental health are mutually associated [1-3]. Tooth pain has serious implications in terms of drug relapses by enhancing negative emotion and reducing quality of life that may lead to a lower success rate for addiction treatment [2]. Drug addiction can exacerbate pre-existing oral issues like generalized dental abnormalities such as cavities, periodontal disease, candidiasis, mucosal dysplasia, mucosal infection, and bruxism. A study conducted by Shekarchizadeh and colleagues [3] examined the oral health status of individuals with opioid use disorder. Results showed that these individuals had poor oral health with

many missing teeth and compromised periodontal health. A literature review conducted by Shekarchizadeh and colleagues [2] aimed to investigate drug-related oral health issues, dental care during addiction treatment, accessible healthcare options, and obstacles to oral health promotion among individuals with addictive disorders. They concluded that drug addiction is linked with serious oral health related issues including dental caries, periodontal diseases, mucosal dysplasia, xerostomia (dry mouth), bruxism (teeth grinding), tooth wear, and tooth loss. In addition, oral health care is typically not included in health programs at the addiction treatment centers. Shekarchizadeh and colleagues recommend that oral health care including education, prevention, and treatment should be included into general care services for individuals going through addiction treatment. In another study conducted by Metsch and colleagues [4] compared the met and unmet need for dental services among

chronic drug users. The authors concluded that: (i) dental problems are among the most commonly reported health problems (ii) drug usage is independently linked to the demand for dental services; and (iii) injectable drug use is independently linked to an increased likelihood of unmet need for dental services. Metsch and colleagues recommend that dental services should be included into behavioral health initiatives as part of addiction treatment protocol. In consistence with the above studies, Baghaie and colleagues [1] concluded that individuals with SUD are more prone to develop periodontitis and undergo tooth deterioration. These individuals have higher prevalence of oral health problems relative to non-drug users. Additionally, drug users had more tooth decay but fewer restorations overall, indicating less access to dental care. Furthermore, individuals with alcohol use disorder were found to be suffering from increased periodontal disease. Similarly in another study conducted by Reece and colleagues [5] found that individuals with SUD had inferior oral health with more cavities, missing and removed teeth, and that these conditions deteriorated with age in a nonfluorinated setting. Also, individuals with SUD, from a very young age demonstrated severe degrees of oral pathology.

Effects of specific substances on oral health

There is increasing published data regarding the impact of the prominent illegal drugs such as opioids, cannabis, hallucinogens and stimulants, for example cocaine and amphetamine on oral health [1,5,3,6,7]. Studies have found that there is a strong correlation between cannabis usage and considerable xerostomia and increased oral malignancies [7] and a dose-response relationship exists between cannabis consumption and the onset of periodontitis in young people [3,6]. Furthermore, users of cannabis are particularly vulnerable to smooth-surface caries because of their lifestyle choices and temporary salivary reduction [3,7]. Additionally, Morio and colleagues [8] indicate that stimulant drugs such as amphetamine, methamphetamine, cocaine, and crack cocaine have a significant negative impact on teeth and oral health. In addition to advanced caries, amphetamine users exhibit accelerated tooth wear from related bruxism. Dental caries and periodontitis are two of the many oral disorders that individuals with opioid use disorder are prone to. They exhibit a high incidence of widespread dental caries, which are more common on cervical and smooth surfaces. Specifically, high caries is common because of a complicated, dynamic interaction between a number of variables. A diet heavy in convenience foods rich in simple sugars is common in individuals with opioid use disorder due to general personal neglect and financial hardship. Another important factor is the influence of the central opioid receptors like the k and m receptors that directly influence the eating habits of opioid users. Modulation of these receptors in opioid users increase the palatability and rewarding qualities of sweet foods [9]. Similar to cannabis and stimulant drugs, hallucinogens such as ecstasy and LSD (Lysergic Acid Diethylamide) cause oral complications such as dry mouth and bruxism [10]. Chewing, grinding, and Temporomandibular Joint (TMJ) tenderness are also frequently reported by ecstasy users [11]. To summarize, the above literature on drug addiction and oral health shows that individuals with SUD experience significant oral health impairment and specific substances have unique as well as general effects on the oral cavity.

Substance use disorder and mental health

Substance use disorders and mental health issues frequently co-occur. When these disorders present together, it can lead to more severe functional impairment, poorer treatment out-

comes, higher rates of morbidity and mortality, higher treatment costs, and a higher risk of homelessness, incarceration, and suicide than when the disorders occur separately. Han and colleagues [12] reported that on average 3.3 percent of US people, or 7.7 million persons had co-occurring mental illness and substance use disorders based on the 325,800 sampled adults ages 18 and older during 2008-2014. Specifically, 18.2 percent of the 42.1 million persons with mental illness also experienced substance abuse issues. Han and colleagues further reported that, of the adults with co-occurring disorders, 9.1% received treatment for both mental health and substance use disorders, 34.5 percent received mental health care exclusively, 3.9 percent received substance use treatment exclusively, and 52.5 percent received neither. Data from significant epidemiological studies conducted in Australia, Europe, and North America showed that co-morbidity between substance use disorders and mental health issues is very common [13-15]. The prevalence of co-occurring mental health disorders appears to be considerably higher among addiction treatment-seekers. According to a review cited by Kingston and colleagues [14], the recurrent use of drugs to "self-medicate" to alleviate various psychological symptoms may lead to substance use disorders. On the other hand, Teesson and colleagues [16] reported that psychiatric symptoms and illnesses could also be a result of chronic substance use. In conclusion, Kingston and colleagues [14] suggest that it is necessary for the addiction treatment centers to recognize the mental health needs of their patients. Thus, based on the above research it evident that (i) higher rates of oral health issues occur in individuals with SUD, and (ii) also SUD individuals experience serious mental disease in comparison to the general population.

Mental health and oral health in non-substance using population

Many mental health symptoms, including weariness, worthlessness, and anhedonia, or lack of drive can negatively impact adults' oral hygiene maintenance practices [17]. For example, erosion, attrition, or abrasion causes accelerated decay and gum disease in people with severe mental diseases like dementia and schizophrenia [18]. A study conducted by Elter and colleagues [19] explored the relationship between depression and periodontal disease. Results showed that a negative impact on periodontal health was observed after a year of the onset of depression, controlling for variables such as sex, smoking status, usage of antidepressants, physical health, and baseline oral health. Other studies also concluded that dental caries and tooth loss were more prevalent in people with psychological illnesses in comparison to people without psychological illnesses [18,20]. In addition, xerostomia caused by antipsychotics, antidepressants, and mood stabilizers can account for higher incidence of dental caries and tooth loss. According to Piccoli and colleagues [21], bruxism can result from long-term usage of neuroleptic medications. Specifically, bruxism in people with psychological problems can result from disruptions in dopaminergic systems, and a psychological stress component. Thus, the above studies indicate a possible reciprocal relationship between dental health and mental health and has implications for mental health and oral health outcomes in non-substance using individuals.

Existing research gap and future direction

Based on the above review, we perceive a considerable gap to examine any relationship between oral health and mental health in individuals with SUD. Having co-occurring oral health

and mental health problems can significantly reduce quality of life in individuals without SUD. Any relationship between oral and mental health in SUD population still needs to be explored. It is conceivable that the presence of these co-occurring conditions can severely compromise treatment outcomes in individuals undergoing substance addiction treatment. From the above review, it is obvious that many individuals who undergo substance addiction treatment do not receive simultaneous attention to their mental health needs. Additionally, the dental health needs are also not prioritized for these individuals in treatment. Thus, an investigation as well as an establishment of such a relationship will better equip the drug addiction treatment centers to offer an integrated mental and oral health intervention along with addiction treatment. The mental and dental health specialists, along with the substance addiction counselors should be educated if such a relationship exists. We suggest that a multidisciplinary treatment approach that incorporates mental and dental health specialists may be adopted by the community treatment sites that offer addiction treatment. This approach may improve certain preventable conditions and improve patients' general health as a whole. It would also bolster the development of better methods to motivate individuals with SUD to avail treatment and manage their oral and mental health needs efficiently. This integrative approach of treatment will promote healing and better social reintegration post addiction treatment.

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