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Letter to Editor

Dentistry Section

Correspondence: Periodontal Health among Non-Hospitalized Chronic Psychiatric Patients in Mangaluru City-India

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Dear Editor,

Nayak SU et al., sought to evaluate the periodontal and gingival health of chronically non-hospitalized psychiatric patients {N=34 participants, 47.1% Schizophrenics (SZ)} living in India compared to age and gender-matched controls [1]. There were significant differences in Community Periodontal Index (CPI), with psychiatric patients showing a higher mean number of sextants with a CPI score of 1, 2, 3 or 4. Similar adverse oral health findings have been made in other patients with psychiatric illness, including Attention Deficit Hyperactivity Disorder (ADHD) [2]. However, the conventional thinking underlying these investigations has been that those with psychiatric illness are at a greater risk for oral disease because of a lack of interest or patience for proper oral hygiene practices or the side effects from psychiatric medications. Yet, Nayak SU et al., admit prior suggestions that individuals with schizophrenia may be capable of proper tooth brushing practices, highlighting a potential over vivification in current thinking that adverse dental outcomes may result from psychiatric illness [1]. The reverse is, therefore, suggested here. That is long periods of poor oral hygiene may predispose an increased risk of later psychiatric illness.

It has recently been suggested for the first time through both empirical investigation and review [3] that chronic environmental exposure to the widespread air pollutant, nitrous oxide (N_2O), including dental plaque-derived N_2O, may be the dominating influence in the onset of neurodevelopmental disorders like ADHD and schizophrenia. A recent review [3] cites a prior empirical paper wherein it was concluded that N_2O pollution may significantly and positively predict both psychotic disorders and ADHD, but tressing extant clinical literature indicates that not only N_2O-mediated working memory impairments but also symptoms of acute psychosis subsequent to inhalational N_2O exposure for several hours.

The mechanisms that were suggested in a prior review [3] by which environmental N_2O may facilitate onset of neurodevelopmental disorders, like ADHD, include N-Methyl-D-Aspartate (NMDA) receptor hypofunction and activation of the Kappa Opioid Receptor (KOR) system via the release of its endogenous ligand dynorphin. These molecular targets have also been implicated in SZ. It has been shown that dissociative anesthetics with NMDA antagonism properties "could replicate the full range of psychotic, negative, cognitive, and physiologic features of schizophrenia in normal subjects" [4]. Moreover, molecular studies involving Salvinorin A, a strong KOR agonist, provides evidence that KOR activation may play a role in disorders of disturbed perception [5]. These shared mechanisms offer insight into the possible co-occurring nature of these neuropsychiatric conditions.

Therefore, Nayak SU et al., should also consider that those with poor early life oral hygiene habits may be at an increased risk for adverse neurodevelopmental outcomes through the endogenous production of dental plaque-generated N_2O and perturbations of molecular targets implicated in SZ risk, including NMDA receptor modulation and KOR activation [1]. Future research in this area should focus on early socio-behavioral interventions aimed at increasing the adoption of better oral health hygiene habits in those most at risk for psychiatric illness.

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