



Adverse Childhood Experiences in a Group of Inpatient Treatment-Seeking Individuals with Prescription Opioid Use Disorder

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Commentary

Prescription opioid (PO) addiction is a critical health problem both in the U.S. and internationally [1]. There were 18,893 overdose deaths related to PO pain relievers in 2014 in the U.S. alone [2]. The costs of U.S. PO epidemic are estimated at \$78.5 billion [3] and are rapidly increasing with increasing PO use. In 2015, 276,000 adolescents were current nonmedical users of pain relievers with 122,000 having an addiction to prescription pain relievers [4]. From 2002 to 2011, there was a 1.9-fold increase in the total number of deaths involving POs [5]. The current PO epidemic necessitates a fuller understanding of the risk factors for PO initiation. Doing so will provide us the opportunity to enhance prevention efforts and to reduce mortality by intervening at a much younger age. A small body of research has indicated an association between adverse childhood experiences (ACEs) and non-medical PO use [6]. Neuroscience suggests that ACEs may guide to physiological processes that cause disruption in early development of the central nervous system, diminishing ability to cope with emotions [7], and leading to impaired emotional and behavioral self-regulation over the life course [8]. And as a result, individuals may self-medicate with substances to cope with the dysregulated stress response [9,10].

This article reports the ACEs in a group of 26 (six females) long-term inpatient treatment-seeking individuals with prescription opioid use disorder and 19 (10 females) healthy controls between the ages of 21 and 54 years. The ACEs were collected using the Childhood Experience (ACE) questionnaire [11] to obtain any history of physical, emotional, or sexual trauma, parental incarceration, threatened with violence, or parental substance abuse during the first 18 years of life. In addition, any current

stress related affective disorders (e.g., anxiety, depression or PTSD) and perceived stress scores (Perceived Stress Scale; [12]) are also assessed in these two groups. ACEs were reported significantly higher in PO patients compared to the control participants (t-test, $p < .001$). Approximately 80% of individuals with prescription opioid use disorder experienced adverse childhood events. Therefore, there is a strong association between ACEs and PO addiction in the later life. Of the PO patients who had ACEs, 65% of them reported three or more adverse childhood events. Controls reported very low ACEs score, approximately 0.58, and only one participant reported ACEs score above 3. In the PO sample, the PO initiation occurred during the emerging or early adulthood and thus after the exposure to the adverse childhood events.

In addition, 13 of the 26 individuals with prescription opioid use disorder (50%) were suffering from stress related affective disorders and were diagnosed with either PTSD [13], moderate to severe anxiety [14] or a moderate to severe depressive [15] disorder during the post-month from the day of the interview. None of the control participants showed any stress related affective disorders. In addition, the individuals with prescription opioid use disorder showed an increased perceived stress score during the last month indicating a higher perceived stress compared to the healthy controls (t-test, $p < 0.1$). PO addicted individuals' mean perceived stress score fell into the moderate stress category whereas the control participants' stress level was low and the mean score fell into the low stress category. Taken together, these results demonstrate that ACEs are strongly associated with abuse of prescription medications during the adulthood years. In addition, individuals with multiple adverse events during childhood may be more prone to develop comorbid opioid addiction and psychiatric

disorders such as depressive or anxiety disorder in their adult years.

They furthermore experienced a heightened perceived stress during the past month. These findings emphasize an enhanced need to comprehensively address untreated and undiagnosed mental health issues among those with a history of trauma as a public health priority. This is particularly important as stress related disorders or an enhanced perceived stress in PO addicted individuals may contribute to an increased use of opioids or a greater risk of relapse to opioids after addiction treatment. Thus, it is crucial to utilize interventions that can target the stress symptoms in the opioid patients. One of these interventions may include heart rate variability biofeedback [16,17], a bio-behavioral intervention that targets the neurophysiological component of affect regulation and craving. If proven efficacious, it can be provided as part of the current first-line treatments for opioid users suffering from stress related affective disorders or chronic perceived stress.

In addition, since the ACEs are a serious public health concern, the communities should work together with the families in order to prevent child maltreatment and produce positive physical and mental health outcomes for the children and families. The public schools in the communities may promote a brief stress management intervention for students in the class specifically for kids dealing with adversity in order to ensure that they can better regulate stress and negative emotion. This proposal is consistent with a study conducted by Bothe and colleagues (2014) who demonstrated that teacher-led daily 10-minute stress management intervention improved elementary students' anxiety and they were better able to handle their stress at school and at home.

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Conflict of Interest

The author has no conflict of interest to declare.

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