

LETTER TO THE EDITOR

Is Addiction to Substance Abuse a Developmental Disease that Establishes in Early Life?

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Recent studies suggest that the environment can alter the ultimate behavior of individuals (Jaenisch & Bird, 2003). The underlying mechanism for this alternation is thought to be related to the long-lasting changes in gene structures. These changes in genes that result from environmental or biochemical factors are called epigenetic changes. Epigenetic changes can occur in childhood or later in life. It can be said that the ultimate behavior of individuals can be established in childhood as a result of changes in genes and other important factors that may influence gene translation (McGowan et al., 2009). Based on this assumption, addiction can be developed in individuals whose childhood environments have influenced great changes in their genetic characteristics.

There are many problems in addiction treatment that mandate efforts to understand the mechanisms causing addiction (Robison & Nestler, 2011). Many studies in this regard are focused on addiction in adults. However, studies about the causes of addiction that begin in childhood are sparse. Epigenetic changes are an interesting topic because they open a new perspective for additional research. Based on epigenetic changes, we can explain how addiction may begin de novo in an individual with no evidence of important risk factors (Blum et al., 2015). Although many addicted individuals have a family history of addiction, not all of them do (Kendler et al., 2008).

Epigenetic changes have been well established in adult addicts. It is thought that the environment can change behavior by effecting changes in the genetic material, resulting in addiction (Nestler, 2014). Considering that epigenetic changes occur in the reward circuit of infants during childhood, it can be considered that addiction may occur in adult individuals without any family history or predisposing

factors such as mental illness (Bagot et al., 2014). Based on this assumption, it can be said that the inefficiency of the reward center as the result of epigenetic changes may result in the susceptibility of individuals to developing a dangerous addiction.

The main focus of this article is assessing the abnormal conditions that occur during laboring that predispose individuals to addiction, without considering the fact that individuals are not aware of the consequences of unwanted epigenetic changes. Recent studies suggest that during labor, some risk factors predispose individuals to harmful epigenetic changes. These include the exposure to synthetic oxytocin, prophylactic antibiotics, and cesarean section (Dahlen et al., 2013). Most epigenetic changes are covalent modifications and hypermethylation, but other types may occur. The epigenetic changes may predispose individuals to stress in later life that may result in drug abuse. However, these changes may also predispose individuals to co-morbid psychiatric disorders such as depression (Vialou et al., 2013), which in turn increase the individual's susceptibility to drug abuse.

During birth and later, the brain is under normal development and is very susceptible to biological damage. Considering some of these predisposing factors may greatly improve a child's mental and brain function. Epigenetics in this regard plays an important role.

Peer Review: Externally peer-reviewed.

Author Contributions: Concept - H.F., M.K.; Design - H.F.; Supervision - M.K.; Analysis and/or Interpretation - H.F., M.K.; Literature Review - H.F.; Writing - H.F.

Conflict of Interest: The authors have no conflicts of interest to declare.

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Received: March 27, 2021
Revision: April 20, 2021
Accepted: May 26, 2021

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Yeşilay Cemiyeti (Turkish
Green Crescent Society) -
Available online at
www.addicta.com.tr

Cite this article as: Famitafreshi, H., & Karimian, M. (2021). Is addiction to substance abuse a developmental disease that establishes in early life? *Addicta: The Turkish Journal on Addictions*, 8(2), 160-161.

Financial Disclosure: The authors declared that this study has received no financial support.

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