



HSOA Journal of Addiction & Addictive Disorders

Opinion

From Prevention and Treatment, is There a Purpose for Knowing the Changes in the Drug User's Brain?

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The fact that the persistent and frequent use of high doses of addictive substances provokes changes in the functioning of the brain cannot be denied. Brain changes are generated, too, by food intake, air pollution, intense physical exercise and, with no doubt, sex and sports with high probabilities of physical contact between players. Following Levy [1]. "There are neural changes associated with and causally involved in all behaviors. Establishing that this is true with regard to addiction therefore does not establish that it is a brain disease." Furthermore, even if the activation of some brain systems may represent an obstacle to the abstinence process of a person who has an addictive problem, that person is also influenced by a large set of factors, that comes from genes, personality, culture, emotional situation and many other elements that combine with the antecedents, chronicity of the addiction, tolerance, reactions to craving and abstinence. Also, the meaning drug use has for each particular user, what he or she is expecting to feel or to stop feeling.

However, as Levy also asserted [1], "the neural dysfunction that is characteristic of addiction is not sufficient for impairment, because people who suffer from that dysfunction are impaired, sufficiently to count as diseased, only given certain features of their context." And she adds that: "the abstinent addict suffers from a pathology but the addict who is using does not... An addict may suffer an impairment, caused by a dysfunction of the dopaminergic system and yet be able to

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Citation: Millé C (2020) From Prevention and Treatment, is There a Purpose for Knowing the Changes in the Drug User's Brain?. J Addict Addictv Disord 7: 41.

Received: April 27, 2020; Accepted: May 05, 2020; Published: May 14, 2020

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maintain homeostasis. The claim that addiction is not a brain disease allows us to resituate the addict in her social environment. She suffers from a disorder only insofar as her brain is dysfunctional in certain ways and prevailing social conditions make it likely that she will suffer from a defect of rationality or an impairment of agency."

Without entering into a discussion about the differences pointed out by the scientific evidence between the degree or the persistence of the modifications generated by some addictive substances and those of the other examples here mentioned, the most relevant issue is considering the contributions made by the knowledge of these modifications. Also, what the drug use behavior facilitates or promotes, considering other areas not related to brain functioning. In the case of the use of drugs, we may insist that these elements are linked to emotional, behavioral, social and cultural factors.

Thus, when thinking about drug use, it is very important that we do not center our attention only in its brain repercussions, especially if we wish to define it or to look for preventive or treatment responses to addiction. Certainly, overestimating any of the elements that intervene makes us underestimate the others. In the case of brain changes, they come to be placed as the only factor by means of which addiction is defined, as it is done by the USA National Institute of Drug Abuse: "Addiction is defined as a chronic and relapsing brain disease... because drugs make brain change -they change its structure and how it works. These brain changes can be long lasting and can lead to the harmful behaviors seen in people who abuse drugs" [2].

However, even one of the proponents of this definition recognizes that: "Not only must the underlying brain disease be treated, but the behavioral and social cue components must also be addressed, just as they are with many other brain diseases including stroke, schizophrenia and Alzheimer's disease" [3]. Similarly, DSM-V (Diagnostic and Statistical Manual of Mental Disorders, 5th edition) uses, in order to define addiction, criteria related to the behavior and not to biological elements. Only criterion number 4, out of the 11 specified criteria, relates to the urge to use drugs and may be attributed to the activation of specific brain structures of the reward system.

The preference for accepting addictions as a brain disease might be explained by means of, at least, two considerations. On the one hand, this idea might justify the withdrawal from moralist approaches, which connected -and are still connecting- the addictive behavior to the notion of vice or of weak will people and stigmatizes the consumer. The technology being developed during the last few decades allows us to "see" the changes in brain and strengthens the definition of persons with addictive problems as sick individuals who require medical treatment and the administration of substances to modify the frequency of use, to substitute the route of administration or to maintain their addiction by means of controlled substances, provided by health staff.

On the other hand, this dominance of the importance of the effects on the brain reinforces the relevance agreed by the society about

results generated by basic sciences researchers at neuroscience labs, while the contemporary culture gives a lower level of consideration as Sciences (with capital letters) to human and social studies. This is related to the statements made by Hammer et al. [4], regarding the fact that it is considerably easier to obtain financing for researches on biomedicine, as compared to those in which researchers wish to study the context or social interactions. As for social sciences, the higher relevance seems to be granted to the results of quantitative studies, through surveys that show percentages: the more decimals they have, the better. It is of little importance that many of these expensive -and large- epidemiological studies only have an effect in the state of mind of those to which the results are presented, who include the scientific community, the decision makers and the press, all of which often do not care enough to check whether some results are made-up. Therefore, we might realize that the age of onset of use has been declining and the frequency of use has been increasing. But there is generally not enough material in the conclusions or the recommendations to generate an effect on public policies and on prevention interventions and treatment approaches.

The abandonment of the moral criteria or the stigma to persons who have an addictive problem, characterized as weak will or vicious people, is to be supported; however, defining addiction only on the functioning of the brain does not contribute to its best understanding or else to the design of creative new policies, interventions and approaches directed to addictive problems. Even if we may prefer to consider addiction as a disease, it is perhaps much more precise to see it as a behavior disorder or syndrome since, as Hammer et al. [4], also pointed out, there is no specific definition of its etiology. As we have been asserting for a long time [5-7], we are talking about a constellation of bio-psycho-socio-cultural ingredients where a myriad of factors is intervening which each case brings forward in different manners. It might be accepted, following Vrecko [8], that it is a "hybrid entity," for which it is necessary to integrate biology and culture, which cannot be understood without considering the social context.

Let us focus on the consequences of the definition of addiction as a brain disease, in relation to the preventive programs. As if our behavior were governed by predominantly rational parameters, far from desires, affections and emotions, preventive programs derived from this definition of addictions assume that, knowing the effects on the brain, the potential users would decide to abstain from using drugs. This does actually not differ from the first prevention approaches, on the early 70's, which were based on frequently alarming and exaggerated information, supposing that the knowledge about the adverse effects would act as a vaccine which would avoid the use of drugs. If there is, regarding the preventive programs based on information -even those that deliver updated and well-founded data- substantial scientific evidence of the lack of positive results, are we going to re-lapse now, claiming that a deeper knowledge about brain changes is going to avoid or reduce the users' behavior? As pointed out in the meta-analysis of assessments delivering scientific evidence [9,10], only those programs with a permanence of no less than 15 preventive sessions having an effect over personal and social abilities and skills have reached a medium-term and long-term impact on the use of addictive substances. That was also proved by our team [11], which evaluated a permanent preventive program at a Mexican school. The process, results and impact evaluations showed that not only relationships and inclusion had done better, but that there were substantive reductions in the use of drugs, comparing baseline data with those recovered after three years of implementing the program.

Let us consider the relationship treatment outcomes may have with the knowledge of the consequences of the use of drugs on the brain. As stated by Satel and Lilienfeld [12]: "Chronic drug exposure often changes the brain, but knowledge of the neural mechanisms underlying addiction typically has less relevance to the treatment of drug addiction and alcoholism than the psychological and social causes... Understanding the brain of addicts gives us only partial insight into why they become addicted and how they recover." The neurocentric perspective, according to these authors, "encourages unwarranted optimism regarding pharmaceutical cures and oversells the need for professional help. The brain disease story gives short shrift to the reality that substances serve a purpose in addicts' lives and neurobiological changes induced by alcohol and drugs can be overridden... The most effective interventions aim not at the brain but at the person."

Vrecko [8], considers that the manner we address the treatment of addict people is based on an ideology which pretends to restore the social order and the personal abilities of the persons with addictive problems, questioned by their addiction behavior. This is why Vrecko concludes that the way science analyzes addictions seems to reflect "a form of ideology that is essentially political in nature and is best understood as the result of efforts to establish new programmes of social and medical discipline over individuals' bodies and desires." This is related to the considerations of Hammer et al. [4], who point out that there is a contradiction between the diagnostics made to patients to whom opiates against pain are prescribed and the people who obtain these substances in the illegal market. In the first case, neuroadaptation is considered a normal collateral effect of medication, while neuroadaptation is considered as pathological, in the second case.

Therefore, there would be a broad set of factors underlining some scientific facts during a historical moment, instead of some others. And these factors do not come from the scientific environment, but rather from the social, political and economic context, which make it more probable to recognize something as a problem [8].

Thus, we are not pretending to generate another complot theory; or else to find, in this type of definitions, another manifestation of the enthronement of the physicians as representatives of Science on Earth. Rather, it is our turn to continue our task in the prevention of addictions and in contributing to the recovery of people with addictive problems, having an effect on the features of the society and the culture we all share, which make for some people so desirable to develop an addiction.

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