The Rise of Neuro-Enhancing Drugs: An Ethical Quandary of Nootropics and How It Can Impact Society As We Know It

Abstract

The field of medicine has advanced so much to the point that it is now possible for people to take a single pill to improve their cognition. The market of these drugs, called nootropics or neuro-enhancing drugs, is in fact set to reach $4.94 billion by 2025, indicating that indeed, these drugs are bound to take the world up by storm in the near future [1]. As fascinating as they sound, nootropics have been subject to intense scientific debate. This essay aims to discuss the ethical implications of its widespread applications in society, regarding its current and possible uses as they become safer to consume, and provide possible solutions to the hazards presented. All in all, while nootropics have the likelihood of beneficially revolutionizing society, they may also serve to worsen employer-employee relations, widen the wealth gap, increase tensions globally, upturn the educational sector, and negatively impact those diagnosed with brain disorders. Governments must administer multi-faceted solutions to the problems provided before the world faces the consequences of their inability to take proactive steps to regulate nootropics.

Introduction

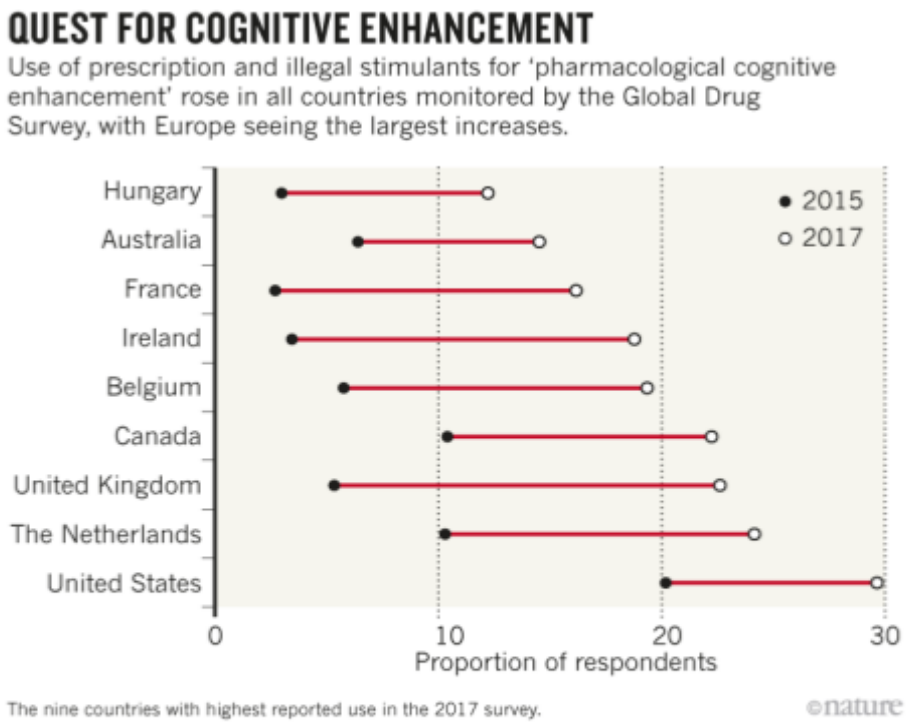

Figure 1. A graph depicting an increase in the proportion of respondents of nine countries that use prescription and illegal stimulants for pharmacological cognitive enhancement, in the years of 2015 and 2017 [2].

Nearly 1 in 5 students at Ivy League colleges have misused prescription stimulants while studying, whether it be to write an essay or prepare for an exam [3]. In fact, of the 16 million adults reported to use such prescription stimulants in 2018, approximately 5 million of them have reported taking these pills illegally [4]. So what exactly are these drugs? Neuro-enhancing drugs, also called nootropics, are defined as "drugs and other interventions to modify brain processes to enhance memory, mood, and attention in people who are not impaired by illness or disorder" [5]. In an era emphasizing output, whether it be economic or educational, who wouldn't want to boost their brains? Acing a final exam could be as simple as taking a memory pill. Impressing an interviewer could be as effortless as taking a drug that makes you friendlier. However, just as the possibilities are endless for neuro-enhancing drugs to improve life, so too are the possibilities for these drugs to impose disastrous consequences on civilization.

Nootropics are classified into three different categories: dietary supplements, synthetic compounds, and prescription drugs [6]. They are already very prevalent in society: both caffeine and

nicotine, two household compounds, are considered nootropics and work to create a stimulatory effect in the brain by blocking neuronal receptors. Racetams are a synthetic over-the-counter compound that works to promote thinking abilities. Stronger prescription drugs such as Modafinil and Ritalin, drugs traditionally used to treat narcolepsy and attention-deficit hyperactivity disorder, have begun to be used by the public to boost their cognitive processes. As the medical field advances and studies are more conclusive, it may be possible strong pharmacological interventions that can improve brain functions in healthy people become ubiquitously used - much like caffeine, which already seems impossible to imagine a world without.

Figure 2. How nootropic prescription tablets may be packaged in the future [7].

Ethical Implications of Nootropic Drug Use

Regardless of the possible benefits neuro-enhancing prescription drugs can give, important ethical issues must be addressed. Smart-drugs, whether used to improve focus, memory, or behavior, can encourage a new, standard baseline for people's level of functioning. Following this concept of "brain standardization", it is highly likely companies may require their employees to take these drugs regularly, an issue addressed by esteemed bioethicist Jacob Appel [8]. He elaborates, "...what if hospitals started to demand that medical residents dose up on methylphenidate, a drug used to improve concentration, as a prerequisite for employment? Or if fast-food chains insisted that all counter employees consume serotonin reuptake inhibitors to keep them 'affiliative' when confronted by dissatisfied customers?"

For example, there are already increasing reports of programmers in Silicon Valley abusing nootropics to enhance their productivity [9]; what would stop tech businesses from tracking and

demanding such nootropic use? Jobs may even require prerequisite nootropic use, hinting at the anti-egalitarian possibilities of nootropic treatment. Wealthy people who can afford to buy nootropics to "fix" their brains would leave poorer people behind, only serving to widen the wealth gap. Countries as a whole that can afford to produce nootropic drugs for their people would be able to enhance their economic value and output, exacerbating wealth disparities between countries.

Ever since 2003, the United States military has researched and administered Modafinil tablets in certain sections of their personnel, as has the British Ministry of Defense and France [10]. Not only does this place even more global power in the hands of the wealthiest countries, but it also sets the stage for a "nootropics race" within the intelligence community. It could very well be possible to see a steep decline in diplomatic relations as power is centralized in a handful of rich countries already so militarily supreme, placing the world into an era of paramount tension.

The unequal applications of neuroenhancement would most directly be seen in education. Students who can afford to pay for neuro-enhancing drugs essentially pay to receive a boost in their grades. However, will it ever be possible to tightly restrict students from abusing nootropics? Would it be feasible to drug test every student at every exam to ensure "cheating" is not occurring or did not occur? Guaranteeing every student receives the same neuro-enhancing drug may also be impractical, especially because every student has different needs. Judging by the fact that students are already illegally taking prescription stimulants to improve their focus [3], schools should address the rising use of nootropic drugs as soon as possible.

Even more so, wider society is already not accepting of neurodiversity. Prescription drugs that improve the lives of those with developmental disorders may be ineffective, as nootropic use by healthy people raises the bar on what is considered "normal". Additionally, since prescription nootropics are so new, the long-term implications of healthy individuals taking these drugs must be studied heavily before people have the opportunity to use them daily. Despite growing evidence that Adderall prescription usage by healthy people can negatively impact health [11], a vast number of people regularly illegally consume this substance in the hopes it improves cognition [3], which only reaffirms why governments and organizations must address this escalating issue.

Figure 3. Two of the most administered drugs used to treat attention-deficit hyperactivity disorder, which are also subject to the some of the greatest amount of prescription stimulant misuse [12].

What Must Be Done

At a minimum, wider society must acknowledge the existence of nootropics; state and federal governments should act to prohibit organizations from requiring their employees to take neuro-enhancing drugs. Regulatory bodies such as the FDA must also heavily monitor the production and distribution of such drugs. Employment watchdogs, such as the Equal Employment Opportunity Commission, must ensure discrimination based on whether or not a person chooses to take neuroenhancement drugs is minimized to the greatest extent. Furthermore, the funding of scientific studies to determine nootropic safety should be prioritized, perhaps even prior to the policy changes suggested above. Finally, because the ubiquitous use of neuro-enhancing drugs has the inevitable potential to once again leave neurodiverse people at a disadvantage, modulation must be emphasized.

In conclusion, before everyone is encouraged to pop an Adderall pill first thing in the morning, more medical studies and ethical discussions regarding nootropic usage must be facilitated to prevent the world from suffering dire consequences.

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