

Cognitive Enhancement for the Healthy

Carolyn Chapman

Keywords: Ethics, Bioethics, Cognitive Enhancement, Neuroethics

INTRODUCTION

Healthy high school and college students, as well as working adults, are turning to drugs for cognitive enhancement in increasing numbers. According to a recent national survey, over 6% of college students aged 18-22 reported using Adderall non-medically.¹ In another survey of U.S. 12th graders, 4% reported using Adderall and 2% reported using Ritalin—without a doctor's prescription—in the previous year.² In a poll of readers conducted by the journal *Nature*, 20% had turned to pharmaceuticals to improve focus, concentration or memory.³ The *NY Times* recently published anecdotal accounts of expanding use of stimulants by working adults, and cited a federal report that indicated emergency room visits caused by non-medical use of prescription stimulants tripled from 2005 to 2011.⁴

ANALYSIS

Back in 2008, Greely et al. published a *Nature* paper advocating for a responsible and thoughtful response to the “growing demand for cognitive enhancement.”⁵ This group of neuroscientists and bioethicists called for more research to evaluate benefits and risks.⁵ The authors also recommended that physicians give “serious consideration to the ethics of appropriate prescribing of cognitive enhancers” and that medical organizations formulate professional standards and guidelines.⁵ Greely et al. maintained that competent adults should be able to use drugs for cognitive enhancement, although they did express concern that coercion to enhance cognition might occur directly or indirectly (through, for example, “the need to compete with enhanced classmates and colleagues”).⁵ They also brought up issues of justice and fairness, and recommended that policies governing the use of cognitive enhancements should avoid exacerbating social inequalities.⁵

Fast forward to 2015, and the Presidential Commission for the Study of Bioethical Issues (PCSB) has just released the second volume of a report entitled “Gray Matters: Topics at the Intersection of Neuroscience, Ethics and Society.”⁶ In many ways, the recommendations regarding cognitive enhancement in this report echo those in the 2008 paper. Although recognizing that neural modification for healthy adults is controversial, the PCSB report takes the position that neural modification for healthy adults is neither inherently ethical or unethical, and on balance, seems markedly pro-enhancement: “contemplating novel methods to improve such functions as learning and memory in school or performance in competitive professions is truly exciting.”⁶ The report points out that many well-accepted activities, like drinking coffee or going to school, might qualify as cognitive enhancement.

Although putting stimulant use in the same bucket as coffee might strike some as incongruous, the report does acknowledge that using pharmaceuticals for non-therapeutic purposes such as enhancement involves unknown risks, including the potential to become dependent.⁶ But rather than discourage use of neural

modifiers, the PCSBI recommends more research to clarify the risk/benefit ratio for specific uses.⁶ It calls on professional organizations to “develop guidelines to assist clinicians in responding to requests for prescriptions for interventions to expand or augment neural function.”⁶ The PCSBI also recommends that access to neural modifiers is “equitable so as not to compound or exacerbate social and economic inequities.”⁶

More research on the risk/benefit ratio for using these drugs for cognitive enhancement by healthy students and adults is sorely needed. Many worry that use of these drugs for cognitive enhancement may lead to addiction and/or act as a gateway for abuse of other drugs. In a recent NY Times Room for Debate, cognitive neuroscientist Martha Farah acknowledged that Adderall users feel more focused and energetic and that the benefits of use can outweigh risks in certain contexts, such as military use.⁷ However, she cautioned against using the pills to increase productivity for everyday tasks, stressing that “frequency of use is a major determinant of addiction risk” and “regular use on the job is an invitation to dependence.”⁷ One does not need to search hard to find examples of stories with a bad ending: a 2013 NY Times article tells the disturbing story of Richard Fee, a boy who took his own life after becoming addicted to Adderall medication prescribed by his physician.⁸ The article cites studies that claim that 10% of adolescents and young adults who misuse stimulants become addicted, and that the medications can cause psychotic behavior or suicidal thoughts in 1 of 400 patients.⁸ Another survey found that full-time college students who were nonmedical users of Adderall were 3 times more likely to have used marijuana and 8 times more likely to have used cocaine in the past year than those who had not used Adderall non-medically.¹

Patients do ask their physicians for prescriptions for cognitive enhancement purposes^{6, 9}, and many physicians occasionally grant such requests.⁹ The PCSBI report quotes Professor P. Reiner at the University of British Columbia as saying that physicians are not morally or legally obligated to either prescribe or withhold enhancements. According to Reiner, the lack of clear guidance leaves physicians to make decisions on their own about whether or not to prescribe enhancements, despite “their ambivalence about being gatekeepers for this issue.”⁶

According to a survey conducted by Hotze et al., physicians hold “diverse and sometimes ambiguous” views around the issue of enhancement.⁹ Their study also highlighted interesting inconsistencies in physician views regarding social equity: while a majority of physicians agreed that everyone should have access to enhancements that are legal, most also held that enhancements should not be covered by insurance.

Medical associations need to put forth clear guidelines to aid physicians in responding to the issue of cognitive enhancement for the healthy. The lack of clear guidance for physicians might well be causing injustices in patient access even today. If some healthy patients are receiving legitimate prescriptions from doctors supportive of cognitive enhancers, it seems unfair that others are committing crimes to gain access to the same pills. Because Adderall and Ritalin are Class 2 controlled substances, giving or selling the drug can be prosecuted as a felony.¹⁰ Possession of the substances without a prescription is also a crime.

CONCLUSION

The medical community as a whole should evaluate the benefits and risks of neural modifiers for cognitive enhancement in the healthy. Studies should be done to understand the risks of intermittent or regular usage of these drugs. If physician review of the evidence suggests that a certain medicine offers a benefit/harm profile that supports offering it to healthy patients, the medical community should take appropriate steps to ensure that patients are aware of their options and that the drug is covered by insurance. Alternatively, if the potential harms of cognitive enhancement for healthy adults are too great—including the risk of dependence—physicians should instead work to educate their patients and the public about the dangers of these drugs. Even a staunch advocate of cognitive enhancement like Julian Savulescu concedes that “we don't

know how to use these drugs safely because proper scientific studies are not done on the use of enhancement in the real world.”¹¹ The only thing that’s certain is that we need more research to answer these questions, so that medical professional organizations can develop evidence-based professional standards and guidelines for cognitive enhancement in the healthy.

¹ Substance Abuse and Mental Health Services Administration. "The NSDUH (National Survey on Drug Use and Health) Report: Nonmedical Use of Adderall® among Full-Time College Students," edited by Office of Applied Studies. Rockville, MD, April 7, 2009.

² Johnston, L.D., et al. (2014). Monitoring the Future National Survey Results on Drug Use, 1975-2013. Volume I: Secondary School Students. Ann Arbor, MI: Institute for Social Research, University of Michigan and National Institute on Drug Abuse.

³ Maher, B. "Poll Results: Look Who's Doping." *Nature* 452, no. 7188 (2008): 674-75.

⁴ Schwartz, Alan. "Workers Seeking Productivity in a Pill Are Abusing A.D.H.D. Drugs." *The New York Times*, April 18, 2015.

⁵ Greely, Henry, Barbara Sahakian, John Harris, Ronald C. Kessler, Michael Gazzaniga, Philip Campbell, and Martha J. Farah. "Towards Responsible Use of Cognitive-Enhancing Drugs by the Healthy." *Nature* 456, no. 7223 (2008): 702-05

⁶ Presidential Commission for the Study of Bioethical Issues. "Gray Matters: Topics at the Intersection of Neuroscience, Ethics and Society." Washington, D.C., March 2015.

⁷ Presidential Commission for the Study of Bioethical Issues. "Gray Matters: Topics at the Intersection of Neuroscience, Ethics and Society." Washington, D.C., March 2015.

⁸ Schwarz, Alan. "Drowned in a Stream of Prescriptions." *The New York Times*, Feb 2, 2013.

⁹ Farah, Martha. "The Risks Associated with 'Productivity Pills' Outweigh the Benefits." *The New York Times*, April 21, 2015.

¹⁰ Schwarz, Alan. "Drowned in a Stream of Prescriptions." *The New York Times*, Feb 2, 2013.

¹¹ Savulescu, Julian "A.D.H.D. Drugs Are Equalizers in a Stressful World, If Used Properly." *The New York Times*, April 21, 2015.

