

# Cognitive Enhancement, Lifestyle Choice or Misuse of Prescription Drugs?

## Ethics Blind Spots in Current Debates

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**Abstract** The prospects of enhancing cognitive or motor functions using neuroscience in otherwise healthy individuals has attracted considerable attention and interest in neuroethics (Farah et al., *Nature Reviews Neuroscience* 5:421–425, 2004; Glannon *Journal of Medical Ethics* 32:74–78, 2006). The use of stimulants is one of the areas which has propelled the discussion on the potential for neuroscience to yield cognition-enhancing products. However, we have found in our review of the literature that the paradigms used to discuss the non-medical use of stimulant drugs prescribed for attention deficit/hyperactivity disorder (ADHD) vary considerably. In this brief communication, we identify three common paradigms—prescription drug abuse, cognitive enhancement, and lifestyle use of pharmaceuticals—and briefly highlight how divergences between paradigms create important “ethics blind spots”.

**Keywords** Neuroethics · Enhancement · Prescription drug misuse · Lifestyle drugs · Public health

## Background

The use of prescription pharmaceuticals for reasons other than those medically intended, commonly called “prescription drug abuse” represents a potentially growing health problem. In the United States (US), 48 million individuals over the age of 12 have used<sup>1</sup> prescription drugs non-medically ranging from central nervous system (CNS) depressants and opioids to stimulants [12]. The non-medical use of prescription stimulants (e.g., methylphenidate) in particular has been found to range from 5% to 35% in surveys of North American young adult and adolescent populations [18]. Rates for non-medical use of stimulants to specifically improve academic performance range from 3% to 11% in college students (reviewed in Table 1). Similar patterns of prescription use have recently been reported in a *Nature*-sponsored survey where 20% ( $N=288/1,427$ ) of respondents reported having used drugs non-medically to improve concentration, focus and memory [11]. Methylphenidate was the most commonly

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<sup>1</sup> In this paper, we use the term “non-medical use” to: (1) reflect the fact that the uses we refer to are not medically approved and (2) take some distance from the prescription drug abuse and cognitive enhancement paradigms that we are discussing.

**Table 1** Brief review of studies reporting prevalence rates of lifetime non-medical prescription stimulant (NMPS) use and NMPS use specifically for cognitive enhancement (CE) in college student populations

Study	Sample population	NMPS use (%)	NMPS use for CE (%) <sup>a</sup>
Teter et al. <i>Pharmacotherapy</i> . 2006 [17]	4,580 college students in a large Midwestern university	8.3	5.4 (enhance concentration) 5.0 (enhance studying) 4.0 (enhance alertness)
Prudhomme White et al. <i>J Am Coll Health</i> . 2006 [15]	1 025 students at the University of New Hampshire	16.2	11.0 (enhance concentration) 8.7 (enhance studying) 3.2 (enhance grades)
Teter et al. <i>J Am Coll Health</i> . 2005 [16]	9161 undergraduate students at the University of Michigan	8.1	4.3 (enhance concentration) 3.2. (enhance alertness)
Hall et al. <i>J Am Coll Health</i> . 2005 [7]	381 college students from the University of Wisconsin-Eau Claire	13.7	3.7 (enhance studying)
Graff Low and Gendaszek, <i>Psychol Health Med</i> . 2002 [10]	150 undergraduate students at a small, competitive college in the US	35.3	8.2 (enhance intellectual performance) 7.8 (enhance studying)

<sup>a</sup> Our own calculation based on data presented in the studies

used drug in that survey (62%;  $N=132/214$ ). Potential contributing factors to the spread of non-medical prescription use include the low cost of prescription drugs relative to illegal drugs, the availability of drugs through several channels other than traditional prescription, and the emergence of on-line pharmacies [12]. Consequently, the non-medical use of pharmaceuticals has created a source of growing medical and ethical problems. Currently, various paradigms are employed to approach non-medical prescription use reflecting a wide range of views and ethical opinions.

### The Prescription Drug Abuse Paradigm

Most public health studies on the nature and prevalence of non-medical use of prescription stimulants name the phenomenon “prescription drug abuse”. This paradigm expresses concerns for the health of individuals engaging in those practices and highlights the health risks and potential for dependence associated with the non-medical use of drugs like methylphenidate. However this paradigm has a number of important drawbacks such as applying the harsh language of illicit drug abuse to pharmaceuticals while some of the actors and contexts involved are markedly different. For example, a black market does exist for prescription drugs but students also resort to feigning symptoms of attention deficit/hyperactivity disorder (ADHD) in order to obtain methylphenidate from doctors. Further, the strong stance against non-medical prescription use in the abuse paradigm may not fully convey the ambivalence in the medical and bioethics communities as well as in the general public regarding the ethics of this practice. In fact, competing paradigms (reviewed below) express some enthusiasm for the beneficial effects of non-medical use of pharmaceuticals [2, 3].

### The Cognitive Enhancement Paradigm

In the bioethics literature the term “prescription drug abuse” is rarely encountered and much of the discussion surrounding the non-medical use of pharmaceuticals is based on descriptions of the phenomenon as “cognitive enhancement” or “performance enhancement” (e.g., President’s Council on Bioethics in the US; discussion paper of the British Medical

Association [2, 14]). In contrast to the first paradigm, this one incorporates the potential benefits of increasing cognitive function beyond ordinary or average capacities [1]. Because of this focus, the enhancement paradigm has highlighted the potential impact on the individual per se addressing issues related to identity and personhood (are we the same with or without performance-enhancement drugs), autonomy (will we be coerced into abusing prescription drugs to compete with others if enhancement practices become widespread), and the meaning of medicine (is it within the purview of medicine to enhance and not only treat). However, from a medical and scientific perspective, describing the phenomenon as “enhancement” does not resonate with the unknown risks of long term non-medical use of prescription drugs. Accordingly, this paradigm has generated many polarized debates framed as “to enhance or not to enhance” while paying less attention to the conditions under which enhancement of function could become ethically acceptable (e.g., obtaining evidence about long-term side-effects; assessing risks of dependence). Strikingly, the interdisciplinary bioethics community is not in tune with the more critical public health perspectives and this perhaps partly reflects why some enthusiastic portrayals of non-medical prescription drug use are encountered in the bioethics literature.

### The Lifestyle Use of Pharmaceuticals Paradigm

Finally, the “lifestyle” paradigm constitutes a third and less technical paradigm employed occasionally in the scientific literature but with greater emphasis in the public domain. The description of the non-medical use of prescription drugs as a “lifestyle choice” transforms “prescription drugs” into “lifestyle drugs”. The lifestyle paradigm expresses the optimistic belief that pharmaceuticals can not only help individuals face illness but help them “be all that they can be” based on their own decisions and goals. Instances of this paradigm are found in the media where the non-medical use of stimulants like methylphenidate, for example, are designated as “better living through chemistry” [19] and methylphenidate dubbed a “study aid” [13], a “brain steroid” [5], and a “smart drug” [5, 13]. This paradigm thus expresses lay understandings of non-medical use of drugs and illustrates the current ambivalence regarding the medical and ethical nature

of this practice. This is reflected in the provocative comparison of Ritalin to, “study tools, just like tutors and caffeine pills” [8]. The lifestyle paradigm suggests that the emerging non-medical uses of pharmaceuticals reflect an individual choice of citizens living in liberal democratic societies marked by medical consumerism. Accordingly, it is no longer necessary to “frequent the dark corners of campuses to come across a student drug that is fast growing in popularity” [13]. Though the lifestyle paradigm expresses the social acceptance that non-medical drug use is gaining outside the medical community, referring to pharmaceuticals using metaphors like “miracle drug” [9] in the media is likely to convey inappropriately that non-medical prescription use is a safe and acceptable practice in spite of unknown risks. Hence, this paradigm is perhaps the most challenging for the medical and ethics communities because its view of the role of pharmaceuticals for self-achievement deviates from the common understanding of pharmaceuticals as treatment prescribed for illness.

### Divergence between Paradigms Create Ethics Blind Spots

The existence of distinct paradigms for approaching the non-medical use of pharmaceuticals clearly shows the lack of consensus on the acceptability of the practice. However, paying attention to diverging paradigms can help identify some important “ethics blind spots”. On the one hand, favorably describing non-medical prescription use as “enhancement” and the use of methylphenidate as a “study aid” or a “lifestyle choice” may lead to the unintended dissemination of non-medically approved practices based on misinterpretations. The media in particular has adopted sensationalist language to describe the lifestyle impact of non-medical prescription use while bioethics scholarship has already heavily and optimistically labeled the practice “enhancement” without clear scientific evidence and knowledge of long-term risks. On the other hand, the lack of acknowledgment of growing public enthusiasm for non-medical prescription use could lead public health interventions astray. This is likely to happen if such interventions are based solely upon the prescription drug abuse paradigm and neglect the social acceptance of non-medical prescription use found in the enhance-

ment and lifestyle paradigms. Indeed, what may be viewed as problematic from a public health perspective (i.e., viewed as prescription abuse) may have already started becoming legitimate in the public domain (i.e., viewed as “cognitive enhancement” or a lifestyle choice). To better understand the ethics of performance-enhancement drugs at a social level, further research will be needed to determine which paradigm or which combination of paradigms reflects the views of stakeholders such as students, lay citizens, healthcare professionals, and public health authorities.

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