

Cosmetic Psychopharmacology and The Risks of Enhancement

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Abstract

The cosmetic psychopharmacology industry focuses on the development of drugs, known as “psychopharmaceuticals”, which can improve cognition, elevate mood, reduce anxiety, etc. in normal individuals. In other words, it is centered around drugs that have the ability enhance certain human characteristics beyond their “normal” capabilities. These are uncharted waters for humanity, and the looming possibility of widespread availability of these drugs has led to many questions regarding the safety and ethics of their use- especially considering their mind-altering capabilities. It is our duty, as a global society, to become educated on these new drugs from both a safety and ethics perspective in order to form a regulatory policy based on universally agreed upon guidelines.

Introduction

In the past few decades, a few popular psychopharmaceutical drugs have dominated the pharmaceutical industry, and led to the emergence of the new industry of cosmetic psychopharmacology. These drugs include the popular antidepressant Prozac, a selective serotonin reuptake inhibitor (SSRI) which has had more success in the treatment of depression and other mental illnesses than any other prescription drug. Prozac’s great success, however, undoubtedly has led to “millions of people in the U.S. turning to [Prozac] just to pull themselves out of the dumps” (Cooper, 1994). In addition to antidepressant drugs, powerful cognition-enhancing stimulant drugs such as modafinil (Provigil) and Adderall have become very popular.

These drugs have already had great success in improving functionality of sufferers of ADHD and other attention deficit disorders. This success, along with the success had by individuals using these drugs to enhance themselves rather than treat a disorder, has led them to become increasingly popular for college students and businessmen looking for a cognitive edge in order to meet deadlines or gain a competitive advantage over their peers. In addition to antidepressants and cognition-enhancing stimulants, anti-anxiety medication such as alprazolam (Xanax) is another example of a psychopharmaceutical drug that is gaining momentum in the industry for personal enhancement. The mass popularity of these drugs being used by people looking to enhance themselves by taking a Prozac to elevate their mood or an Adderall or Provigil to improve their cognitive functioning, or even popping a Xanax to take the edge off in a nerve wracking social situation raises several questions pertaining to the safety and ethical implications of using psychopharmaceutical drugs as a means of self-enhancement.

Cognition Enhancing Drugs

The first category of psychopharmaceuticals I will cover will be that of the cognition-enhancing stimulant drugs, sometimes referred to as “nootropics”, that have become increasingly popular in recent years. Along with a few other, less popular alternatives, these nootropic drugs include what *High Times* has referred to as “America’s Favorite Amphetamine”: Adderall. Adderall, which became available in 1996, is a powerful stimulant mixture of amphetamine salts intended for the treatment of narcolepsy and ADD/ADHD- for which it proved to be highly effective. Adderall gained so much popularity that just five years later, in 2001, they released their “extended release” version of the drug- which releases a small dose

over a longer period of time, and in 2010 the military spent over \$39 million dollars on prescription stimulants for active-duty soldiers (Adderall: America's Favorite Amphetamine, 2013). Due to its stimulant nature, Adderall and many of its alternatives have a high potential for addiction and abuse- "between 2005 and 2010, emergency room visits related to ADHD stimulant medications used non-medically tripled 5,212 visits to 15,585 visits. In young adults, the number almost quadrupled" (Zadrozny, 2013). Despite the drugs Schedule II classification and the recent mass increase of ADHD stimulant medication related ER visits, only 2% of students classify use of the drug as "very dangerous" (Desantis, Hane, 2009). Additionally, in a recent (2013) *Huffington Post* article, Emily Cohn reports that over 3.5 million American children currently take Adderall or similar ADHD medications to treat their ADHD- almost a 500% increase since 1990. It is safe to assume that the reason for this increase is not due to more kids having ADHD, but rather the marketing strategies being employed by large pharmaceutical corporations- including targeting children and appealing to those who have the desire to enhance themselves *beyond* normal functioning. The latter of these two consumer groups consists primarily of college students and business professionals using drugs to increase productivity and efficiency in an increasingly competitive society, meet deadlines, or pull an all-nighter to study for their exam in the morning. Although there have not been clinical trials of Adderall use in normal functioning humans to support these claims, students commonly refer to Adderall as a "wonder-drug" or even the "Limitless pill", referring to the 2011 movie *Limitless*, which follows a struggling writer whose lifestyle is drastically improved when he is introduced to a new cognition-enhancing drug which allows users to utilize their brain to its full capacity. However, Adderall's status as a Schedule II controlled substance with a high potential

for addiction and abuse ultimately makes it an unlikely candidate to ever be sold for cosmetic psychopharmacology purposes.

The effectiveness- or perceived effectiveness- and increasing popularity of the use of cognition-enhancing drugs such as Adderall or Modafinil in normal individuals has given a lot of steam to the cosmetic psychopharmacology industry. Modafinil (Provigil) is a stimulant used for the treatment of narcolepsy, yet many users have found that it gives them a cognitive edge even better than the other popular cognition-enhancers such as Adderall and Ritalin.

Furthermore, according to the Drug Enforcement Administration (DEA), Modafinil doesn't have as high of a potential for addiction and abuse as its alternatives. One study found that modafinil use increased by almost ten times from 2002-2009, from 57,768 to 555,691 (Penaloza, Sarkar, Clam, 2013). The same study found that 89% of the patients did not have an on-label diagnosis, which suggests that the majority of modafinil use is for off-label purposes, one of which is cognitive enhancement (Penaloza, et al., 2013).

Recently, researchers have begun conducting studies of how some of these cognition-enhancing drugs work in healthy, normally functioning individuals. Researchers from University of Cambridge and University of Oxford recently conducted a study on the effectiveness of Modafinil. The study concluded that the stimulant drug Modafinil improved cognition with tasks such as working memory as well as creativity and motivation. Additionally, when subjects were asked to rate how pleasurable the tests they were administered were, the subjects in the modafinil group rated the tasks as significantly more pleasurable than those in the placebo group (Mohamed, Muller, Lewis, Rowe, Rittman, Robbins, & Sahakian, 2012). While the drug is still not perfect, and may not yet be ready to be put on the market for cosmetic purposes, the

results of this study are promising- they prove that these drugs have the ability to enhance human cognitive function with little to no side effects. At the very least, the effectiveness of this drug shows progress in the development of safer alternative drugs with fewer, more benign side effects.

Antidepressants

The second type of psychopharmaceutical drugs I will cover are antidepressants, in particular, Prozac. Prozac is a selective serotonin reuptake-inhibitor that was made to treat depression by inhibiting the reuptake of serotonin at the synapse- ultimately balancing serotonin levels in the brain. Prozac was made available to the public and officially approved for treatment of clinical depression in 1987 (Prozac would later be formally approved to treat obsessive-compulsive disorder (OCD) and bulimia). Prozac immediately found huge success, soon becoming the best-selling antidepressant on the market by a landslide. According to the National Health and Nutrition Examination Survey, anti-depressants were already the third most popular prescription medication for Americans from 2005 to 2008, which is their most recent period of data collection (Wehrwein, 2011). This illustrates the meteoric rise of the SSRI in today's society. As of 2014, the CDC reports that 12.7 percent of individuals ages 12 and older took antidepressants in the last month (Pratt, Brody, Gu, 2017). Prozac's effectiveness in curing people of their depression with minimal undesirable side-effects certainly did not go unnoticed, which caused the drug to grow even more in popularity. Before too long, clients without the severe symptoms that characterize clinical depression began asking for prescriptions of Prozac just because they *wanted* to improve their mood- even though it may

not be necessary- and physicians are allowed to prescribe it for these uses as they see fit. Many patients who did this found that taking the drug to treat minor symptoms greatly improved their quality of life and helped them to manage difficult situations such as family disputes with significant ease (Cooper, 1994). However, Prozac is not without side effects. Soon, reports that patients were becoming violent or suicidal on the drug began coming in, followed by a wave of lawsuits and bad publicity. Perhaps the most troubling fact about this scenario is that as long as the FDA approves a drug, physicians (not psychiatrists) can prescribe that drug whenever they see fit- whether the patient is in traditional therapy (as recommended by psychiatrists) or not, and without requiring follow-up appointments to monitor the effects of the drug (Cooper, 2004). This essentially means that a drug with the potential to drive someone to such extremes as murder and suicide is being handled with about the same security measures as the antibiotics prescribed for an ear infection.

Prozac has seen great success as a treatment for a variety of different mental illnesses, including depression, OCD, and bulimia. The drug has even had great success in treating not-so-severe disorders, including just being a little “bummed out”. However, the side effects, although uncommon, seem to be too severe for the current regulations surrounding the drug. Prozac shows great promise that it- or a safer alternative- could one day be very successful in the cosmetic psychopharmacology industry. Before this happens, however, the side effects must be studied more closely, and patients should be required to go to periodical follow up sessions to monitor the effects of the drug over time.

Anti-Anxiety Medications

The third and final category of psychopharmaceutical drugs that I will cover in this report are the anti-anxiety medications, or benzodiazepines. Benzodiazepines are intended for treatment of anxiety and panic disorders and include popular drugs such as Xanax (alprazolam), Valium (diazepam), or Ativan (lorazepam). In the years from 1996 to 2013, the number of adults on benzodiazepines increased approximately 67%, from 8.1 million to 13.5 million (Bachhuber, Hennessy, Cunningham, Starrels, 2016). Xanax, the original benzodiazepine- and the one that I will primarily focus on in this section, was released in 1981 (MacLaren, 2016). Xanax works by activating GABA receptors in the brain, decreasing overall brain activity and effectively reducing symptoms of anxiety and panic (Maclaren, 2016). Xanax, like the previously discussed psychopharmaceuticals, quickly found great success in the American pharmaceutical market. Over the next 30 years, Xanax continued to grow in popularity, eventually becoming the most prescribed psychopharmaceutical (Miller, 2012). In her article *Listening to Xanax (2012)*, Miller offers a quote from Stephen Staal, a psychiatrist and consultant to pharmaceutical companies as well as chairman of the Neuroscience Education Institute. Staal gushes “[Benzodiazepines] are the greatest things since Post Toasties. They work well. They’re very cheap. Their effectiveness on anxiety is profound”. It wasn’t long before people realized that, in addition to their effectiveness in treating severe anxiety, the drugs were also very effective in coping with the sometimes-excessive stress of everyday life. This undoubtedly contributed to their massive success. However, when taken in higher doses, these drugs have the ability to produce euphoria- which led users to begin abusing them. Although they were originally intended to be a safer alternative to other tranquilizer drugs such as barbiturates and alcohol (they achieved this to a degree), it is now known that benzodiazepines still have a frightening potential for

addiction and abuse (MacLaren, 2016). According to the American Journal of Public Health, routine use of benzodiazepines is not recommended due to their high risk of abuse and addiction as well as overdose, especially when taken in conjunction with other medications (Bachhuber et al., 2016). Although there are some benefits to cosmetic use of benzodiazepines, they are far outweighed by the risks; benzodiazepines should therefore not be used for cosmetic or enhancement purposes.

Ethical Implications of Enhancement

In addition to arguments over the safety and effectiveness of psychopharmaceuticals as a means of self-enhancement, there has also been a fiery debate on the ethicality of using the medications for this purpose. In this section I will aim to illuminate some of the most important points in the debate over the ethicality of the use of different psychopharmaceutical drugs for self-enhancement purposes.

Prozac has had great success in the growing industry of cosmetic psychopharmacology, despite concerns over its effectiveness as well as the risks that use carries; however, there are many questions regarding the ethics of the use of the drug as a means for self enhancement. One of the most polarized ethical debates concerning Prozac revolves around the idea of authenticity. Those opposed to the use of pharmaceuticals for enhancement argue that using Prozac as a means to change or enhance one's personality would be considered "inauthentic" because the new personality wouldn't be the same as the old, and therefore it would not be considered one's own (Degrazia, 2000). However, Degrazia, an advocate for enhancement and author of *Prozac, Enhancement, and Self-Creation* (2000), argues that "one can be true to oneself even as one deliberately transforms and, to some extent, creates oneself". He bases

this claim on his belief that the self is not something that is static, but it is something that changes over time. When our conceptualization of the 'self' shifts from being something that is given and static to something that is malleable and changing, the debate becomes more about the ethics of the *means* of enhancement rather than of enhancement itself. It is worthwhile to note that there are several other means of enhancement that humans have partaken in for centuries, including exercise and education. Ultimately, Degrazia argues that the means of enhancement are irrelevant; if an individual is properly educated on the risks and benefits, it should be up to the individual if they should choose the pharmaceutical route for personal enhancement because it is up to them to determine what counts as one's "true self" and what are just undesirable traits obscuring the true self. This same dilemma is present when the discussion shifts to the anti-anxiety medications- If one's personality changes as a result of anti-anxiety medication taking effect, is the resulting personality really ones own?

Those against pharmacological enhancement also argue that Prozac is a shortcut to personal development which blunts some of the pains that come with it. What is lost with the numbing of this pain? Are we losing out on an essential part of the human experience in favor of less emotional pain? Are we losing out on an essential part of the human experience in favor of less emotional pain? In her book *Technology and Religion* (2009), Dr. Noreen Herzfeld notes "The maturing of the individual necessitates some pain" (Herzfeld, 2009). If a person bypasses emotional pain by taking Prozac, do they lose the ability to *really* empathize with other people? Recent studies have found that observing someone who is in pain activates the same neural pathways that are activated when one experiences pain themselves. This means that one must truly feel pain to understand and empathize with it. Based on this, we can determine that

painful experiences are necessary in developing empathy, and therefore a vital part of the human experience is lost when Prozac is used to dull emotional pain (Chatterjee, 2006).

The issue of authenticity also comes into play when the debate shifts to Cognition-Enhancing drugs. As Dr. Noreen Herzfeld puts it, “As with the question [raised by Prozac] of where a person’s true personality lies, Ritalin (a common cognition enhancer) use raises the question of what is a true measure of one’s mental abilities, those measured on or off Ritalin” (Herzfeld, 2009). Those in opposition of enhancement argue that use of drugs like Adderall and Ritalin to gain a cognitive edge is a form of cheating. According to the President’s Council on Bioethics, engineered improvements in performance are not authentic, not earned, and therefore not morally commendable” (Caplan, 2004). Whether the improvement is “morally commendable” or not, cognition enhancing drugs undoubtedly provide somewhat of a “shortcut” to knowledge, and many who are in opposition argue that the parts of learning which are cut out by them are actually essential parts of the human experience. Albert Einstein once said “Any fool can know. The point is to understand”. This understanding is what some fear will be lost with the use of shortcuts on the path to enhancement, and there is little that can be done to dispel this concern. Some also fear that use of Cognition Enhancing drugs, which are known to increase motivation, prevents users from learning how to self-motivate. If one’s motivation comes from a drug, where is that person left when the drug runs out? Dr. Herzfeld provides an analogy to explain this: “Just as taking an aspirin might alleviate a headache without getting at the initial cause of the headache, so taking Ritalin or Prozac changes an individual’s behavior or emotions without addressing the cause of that behavior or those emotions” (Herzfeld, 2009). This means that when a user goes off the drug, their personality

may revert to what it previously was, or their motivation may decrease back to their 'normal' levels, however, now these individuals may not be properly equipped to handle life without the assistance of pharmaceuticals because they never learned how.

This possibility becomes especially frightening when data on the use of cognition enhancing drugs on children is analyzed. According to the National Institute of Mental Health, prescribed stimulant use in children aged 19 and under increased from 2.4 percent in 1996 to 3.5 percent in 2008 (NIMH, 2011). The NIMH also found that the percentage of ADHD-diagnosed children aged 4-17 increased from 7.8 percent to 9.5 percent in the years from 2003-2007 (NIMH, 2011). This means that ADHD is becoming increasingly more diagnosed. This poses an issue, due to the fact that ADHD is diagnosed based on symptoms. Some doubt that ADHD is really a disease at all, and instead believe that it is just "a diagnosis for a collection of normal childhood behaviors" (Herzfeld, 2009). Others suggest that the increase in diagnoses comes from children's hyperactivity as a result of the ever-present sensory stimulus we experience with the current state of technology (Herzfeld, 2009). In either case, there is the issue of misdiagnosis. *If* ADHD is, in fact, as commonly misdiagnosed as some suggest, it begs the question of what effect the unnecessary use of cognition-enhancers could have on children and their development. It is particularly frightening to think that we could be depriving our children of vital parts of the human experience that are necessary to develop and mature in favor of a quick fix to the child's excessive fidgeting or difficulty staying focused. Not only would this be detrimental to a child's development, but it would represent a major breach of the trust of children. It is the responsibility of Adults to decide what is best for their children with nothing but the children's interests in mind. Paul McHugh, a member of the President's Council on

Bioethics, fears that for some, the temptation to enhance their children will take precedent over the child's best interests. In this scenario, there is a substantial risk that children who do not *really* need the assistance of cognition-enhancing drugs will be prescribed them for no reason other than to fulfill their parents' expectations of them. This would be a massive mistake. Children are the future, and if we fail to raise them properly and give them the tools necessary to succeed without pharmaceutical help, future generations will be left to deal with the consequences.

Another major concern of the cosmetic psychopharmacology industry that is worth mentioning is centered around justice and equality. If use of these drugs for enhancement were to become widespread, it would raise several questions, including of who would have access to them, and how would we ensure that everyone has an equal opportunity to decide whether or not to use these drugs, and that some groups aren't at an advantage over others due to access to psychopharmaceuticals.

Final Thoughts

The emergence of the cosmetic psychopharmacology industry has been accompanied by a variety of questions demanding to be answered. The questions generally fall into one of two categories: safety and effectiveness, or ethics. In this paper, I have analyzed data on three different psychopharmaceutical drugs currently available. First, I discussed cognition-enhancing drugs, and my conclusions lead me to believe that although recent developments show progress with alternative drugs such as modafinil, we still don't *really* understand the effect the drugs have on an individual. This leads me to draw the conclusion that the drugs are still not safe enough for cosmetic use, and the risks of using them for enhancement far outweigh the

benefits. Second, I analyzed the third most commonly prescribed medication in America: antidepressants. I found that although many “patients” who sought out these drugs experienced great benefits, there is still enough of a risk of severe side effects to reserve use of these drugs only to those who *really* need them, not for mere enhancement of the already-normal individual. Third, I examined the popular family of anti-anxiety medications known as benzodiazepines. I found that they also carry far too high of a risk for addiction, abuse, and overdose to be considered for enhancement purposes.

Since it is fair to assume that new drugs will continue to be developed which are more effective and carry less risk, it is important that we consider the ethical implications of cosmetic psychopharmacology. My research into the ethical debates surrounding the cosmetic psychopharmacology industry- especially those concerning authenticity of an individual’s personality and the use of psychopharmaceuticals on children- have led me to the conclusion that even if drugs were developed with one-hundred percent safety and effectiveness rates, the ethical implications would still be too mammoth to overcome. There is no place in our society for the cosmetic use of psychopharmaceutical drugs, and the ethical dilemmas which they present should serve as sufficient justification for a regulatory policy which does not allow for cosmetic use of psychopharmaceuticals; at least until we have a much greater understanding of how they interact with the human body and mind.

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