

BETWEEN SCIENTIFIC DISCOURSE AND LAY KNOWLEDGE: UNDERSTANDING THE NON-MEDICAL USE OF STIMULANTS

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I. INTRODUCTION

There is a growing and diverse body of literature about the use of stimulants for non-medical purposes.¹ For example, in 2009, Duke University professor David L. Rabiner and his colleagues wrote an article about the problems with college students who use stimulants to increase productivity.² Around the same time, Margaret Talbot, staff writer for *The New Yorker*, wrote an article about the successes of healthy college students who use stimulants to enhance productivity.³ The tone and style of these articles are very different: Dr. Rabiner targets the medical community through data driven scientific writing,⁴ while Talbot targets the

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¹ See, e.g., David L. Rabiner et al., *The Misuse and Diversion of Prescribed ADHD Medications by College Students*, 13 J. ATTENTION DISORDERS 144 (2009); *contra* Margaret Talbot, *Brain Gain: The Underground World of "Neuroenhancing" Drugs*, THE NEW YORKER, Apr. 27, 2009, available at http://www.newyorker.com/reporting/2009/04/27/090427fa_fact_talbot.

² Rabiner, *supra* note 1, at 144–45.

³ Talbot, *supra* note 1.

⁴ See Rabiner, *supra* note 1 at 144.

general population through descriptive personal narratives.⁵ They also have very different views: Dr. Rabiner frames his results in a way that discourages non-medical stimulant use,⁶ while Talbot thinks people should be free to choose whether to use non-medical stimulants.⁷ This contrast exposes scientists and everyday readers to two completely different views on Attention Deficit Hyperactivity Disorder (ADHD) and the use of stimulants, while also helping to set the framework for a public dialogue.

Researchers Cynthia Forlini and Eric Racine studied how different literary mediums differ in their discussion of non-medical stimulants.⁸ They surveyed print media, bioethics literature, and public health literature, and discovered that each type portrayed the non-medical use of methylphenidate for performance enhancement differently.⁹ The authors argue that the dissonance between the issues addressed in each of these three mediums suggest topics of future debate.¹⁰ One way to enrich our understanding of these observed differences is through Social Representations Theory—a theory used primarily in social psychology. Social Representations Theory provides a useful theoretical framework to explain the differences between medical literature and mass media.¹¹ Social representations refer to the group of ideas that constitute common-sense knowledge among a social group;¹² and are the means by which the public—through mass media—translates scientific knowledge into familiar concepts.¹³ Using this framework, narratives like Talbot’s article in *The New Yorker* are mass-culture translations of the medical knowledge originating in scientific studies. The goal of this Note is to explore ADHD and the non-medical use of stimulant medications through the lens of Social Representations Theory. Part II will review the scientific history of

⁵ Talbot, *supra* note 1.

⁶ Rabiner, *supra* note 1, at 151–52.

⁷ Talbot, *supra* note 1 (“In a consumer society like ours, if people are properly informed about the risks and benefits of neuroenhancers, they can make their own choices about how to alter their minds, just as they can make their own decisions about shaping their bodies.”).

⁸ Cynthia Forlini & Eric Racine, *Disagreements with Implications: Diverging Discourses on the Ethics of Non-medical Use of Methylphenidate for Performance Enhancement*, BMC MED. ETHICS, 7 (July 6, 2009), available at <http://www.biomedcentral.com/content/pdf/1472-6939-10-9.pdf>.

⁹ *See id.*

¹⁰ *Id.*

¹¹ *See* Serge Moscovici, *Notes Towards a Description of Social Representations*, 18 EUR. J. OF SOC. PSYCHOL. 211, 211–12 (1988); *see also* Hélène Joffe, *Social Representations and Health Psychology*, 41 SOC. SCI. INFO. 559, 560–62 (2002).

¹² *See id.* at 214.

¹³ *See id.* at 212–17.

ADHD, and Part III will examine the use of stimulants as treatment. Part IV examines the portrayal of ADHD and its treatment in the medical literature. Part V analyzes how mass media portrays this topic, and the Note concludes by synthesizing both the scientific and mass media viewpoints using Social Representations Theory as a framework. An examination of media narratives on stimulant medications reveals that the road from scientific knowledge to social representation is far from a one-way street; medical knowledge changes frequently and is subject to societal pressures.

II. THE HISTORY OF ADHD

The first diagnosis of ADHD was made in 1902 by Dr. George Still.¹⁴ Dr. Still, a British pediatrician, described forty-three children with “abnormal defect[s] of moral control,” or impaired abilities to act with “the idea of the good of all.”¹⁵ Dr. Still’s original observations in these children echo the symptoms seen in children with ADHD today: difficulty controlling impulses, incapacity for sustained attention, irritability, and trouble with peers.¹⁶ Many of Dr. Still’s discoveries have been confirmed in the past few decades; for example, the disorder occurs predominantly in males¹⁷ and usually causes oppositional behavior and related symptoms prior to the age of seven.¹⁸

Ultimately, Dr. Still surmised that “an actual physical abnormality” probably caused ADHD, and numerous scientists agreed.¹⁹ Their presumption that ADHD derived from an underlying brain dysfunction was based on the fact that brain trauma and many brain diseases, such as

¹⁴ HimaBindu K. Krishna, *Attention Deficit Hyperactivity Disorder*, SERENDIP, <http://serendip.brynmawr.edu/bb/neuro/neuro98/202s98-paper1/Krishna.html> (last visited Apr. 13, 2013).

¹⁵ G.F. Still, *Some Abnormal Psychological Conditions in Children: Excerpts From Three Lectures*, 10(2) J. OF ATTENTION DISORDERS 126, 126 (Nov. 2006).

¹⁶ *Attention Deficit/Hyperactivity Disorder*, AM. SPEECH-LANGUAGE-HEARING ASS’N, <http://www.asha.org/public/speech/disorders/adhd.htm> (last visited Apr. 13, 2013).

¹⁷ *Attention-Deficit/Hyperactivity Disorder (ADHD): Data and Statistics*, CTR. DISEASE CONT. & PREVENTION, <http://www.cdc.gov/ncbddd/adhd/data.html> [hereinafter *ADHD Data*] (last visited Apr. 13, 2013).

¹⁸ *ADHD Data*, *supra* note 17.

¹⁹ René Helmerichs, *Historical Definitions and Nomenclatures of the Label ‘ADHD’: An Investigating into Attention-deficit and Hyperactive Behavior through Time* 26 (Dec. 2002) (unpublished M.S. thesis, University of Wisconsin-Stout) (on file with Wisconsin-Stout Library system), available at <http://www2.uwstout.edu/content/lib/thesis/2002/2002helmerichsr.pdf>.

encephalitis,²⁰ often cause changes in behavior.²¹ Dr. Alfred Tredgold's research supported this presumption when he traced children's inattentiveness to brain damage; his theories were seemingly corroborated when survivors of the 1918 influenza epidemic subsequently developed behavioral issues.²² Thus, children with hyperactive behavior and problems with attention were deemed to have a type of brain damage called "minimal brain damage" and later "minimal brain dysfunction" (MBD).²³ The concept of MBD generated considerable debate within the medical community.²⁴

Since most MBD cases contained little neurological evidence of brain damage, eventually, the notion of a brain damage as the root of these behavioral problems lost appeal.²⁵ Dr. Stella Chess, a pioneer in the field of child psychiatry, published a paper in 1960 highlighting the hyperactive component of what is now called ADHD. Dr. Chess's work shifted researchers' focus from ADHD causes to ADHD symptoms, specifically hyperactivity.²⁶

The disorder finally received formal diagnostic nomenclature in 1968 with the second edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-II), however at the time, the condition was called Hyperkinetic Reaction of Childhood disorder.²⁷ In the 1970s and 80s, Dr. Virginia Douglas and her colleagues clarified the cognitive impairments of children with the disorder and helped define the disorder's major symptoms, which were then incorporated into the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III)—the first diagnostic manual to introduce the term "ADHD."²⁸ The portrayal of

²⁰ *Encephalitis*, PUBMED HEALTH, <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0002388/> (last visited March 13, 2012) (encephalitis is an inflammation of the brain usually the result of an infection).

²¹ RUSSELL A. BARKLEY, ATTENTION-DEFICIT HYPERACTIVITY DISORDER: A HANDBOOK FOR DIAGNOSIS AND TREATMENT 4–10 (Guilford Press, 3d ed. 1949).

²² *Id.* at 5.

²³ Rick Mayes & Adam Rafalovich, *Suffer the Restless Children: The Evolution of ADHD and Pediatric Stimulant Use, 1900-80*, 18 HIST. PSYCHIATRY 435, 435–57 (2007), available at https://facultystaff.richmond.edu/~bmayes/ADHD_Mayes_Rafalovich_HistoryofPsychiatry.pdf.

²⁴ *Id.*

²⁵ *Id.* at 10–11; see also Stella Chess, *Diagnosis and Treatment of the Hyperactive Child*, 60 N.Y. ST. J.MED. 2379, 2379–85 (1960) (refuting the idea that the hyperactive child's behavior is the result of brain damage).

²⁶ Barkley, *supra* note 22, at 8–9.

²⁷ *Id.* at 9.

²⁸ *Id.* at 13.

the history of ADHD is subject to some critique.²⁹ For example, sociologist Adam Rafalovich argues that the progressive narrative of the history of ADHD rests on the questionable belief “that persistently deviant childhood behaviors represented psychological pathology,” which is how the medical institution legitimizes control over deviant behaviors.³⁰ The science of ADHD stems from a turn-of-the-century concern about social morality,³¹ demonstrating that “science,” and especially scientific consensus, does not emerge in a vacuum but rather is perhaps socially informed. Accordingly, the development of stimulant medications in the present may have been motivated by a desire to restore children with ADHD to “normal.”

III. STIMULANT MEDICATIONS

Today, stimulants are the primary medical treatment for ADHD.³² Their effectiveness, however, was discovered by accident.³³ In 1933, Dr. Charles Bradley, a Harvard-trained pediatrician, became the director of a home for neuro-psychiatrically disturbed children.³⁴ Initially, Bradley sought to use Benzedrine to treat some of his patients’ headaches.³⁵ Nevertheless, he discovered that the medicine improved behavior and performance in the classroom.³⁶ He then started a new study to analyze the effects of Benzedrine on children who had behavioral problems “severe enough [to warrant] hospitalization.”³⁷ Fourteen of the thirty children studied, immediately showed a dramatic increase in effort and motivation in school; they also displayed better emotional reactivity and less aggression.³⁸ Furthermore, their symptoms returned once the Benzedrine

²⁹ Adam Rafalovich, *The Conceptual History of Attention Deficit Hyperactivity Disorder: Idiocy, Imbecility, Encephalitis and the Child Deviant, 1877-1929*, 22 *DEVIANT BEHAV.* 93, 93–96 (2000).

³⁰ *Id.* at 112.

³¹ *Id.* at 98–105.

³² *Attention-Deficit/Hyperactivity Disorder (ADHD): Treatment*, CTR. DISEASE CONT. & PREVENTION, <http://www.cdc.gov/ncbddd/adhd/treatment.html> [hereinafter *ADHD Treatment*] (last visited Apr. 13, 2013).

³³ See Madeleine P. Strohl, *Bradley’s Benzedrine Studies on Children with Behavioral Disorders*, 84 *YALE J. BIOLOGY & MED.* 27, 27 (2011).

³⁴ *Id.* at 28.

³⁵ *Id.* at 29.

³⁶ *Id.*

³⁷ Charles Bradley, *The Behavior of Children Receiving Benzedrine*, 94 *AM. J. PSYCHIATRY* 576, 577–78 (1937).

³⁸ *Id.* at 578.

wore off.³⁹ Although Benzedrine was a known stimulant, its calming effect was surprising.⁴⁰

Despite Dr. Bradley's striking findings, Benzedrine was not initially used for hyperactive children, rather, the drug was first used to treat congestion, and later, around 1937, used to treat narcolepsy and depression.⁴¹ The widespread use of stimulants for ADHD is a more recent phenomenon. From 1987 to 1996, there was a fourfold increase in stimulant use for children eighteen years and younger.⁴² Their increase in popularity, however, has sparked concern because amphetamine abuse is rampant.⁴³ Amphetamines were often abused by American fighter pilots in World War II, and today is frequently overprescribed for weight loss, depression, anxiety, and "ambiguous" purposes.⁴⁴ In response, Congress passed the Comprehensive Drug Abuse Prevention and Control Act of 1970, which established five schedules of drugs which created the ability to control their distribution.⁴⁵ Since 1972, amphetamines have been classified as a Schedule II drug,⁴⁶ meaning that they have a high potential for abuse and are available only through a prescription that cannot be refilled.⁴⁷

IV. CHARACTERIZING ADHD IN MEDICAL LITERATURE

Many people are skeptical about ADHD.⁴⁸ Critics typically argue that the disorder is over-diagnosed and that stimulant medications are over-

³⁹ *Id.*

⁴⁰ *Id.* at 582.

⁴¹ *Uses Drugs of Abuse—Origins and Effects—Stimulants*, LIBRARY INDEX, <http://www.libraryindex.com/pages/2338/Drugs-Abuse-Origins-Uses-Effects-STIMULANTS.html> (last visited Apr. 13, 2013).

⁴² Samuel H. Zuvekas, Benedetto Vitiello & Grayson S. Norquist, *Recent Trends in Stimulant Medication Use Among U.S. Children*, 163 AM. J. PSYCHIATRY 579, 579 (2006).

⁴³ See Harold Koplewicz, *Why "Ritalin Gone Wrong" Is Wrong*, HUFFINGTON POST (Jan. 31, 2012), http://www.huffingtonpost.com/dr-harold-koplewicz/ritalin-gone-wrong_b_1244935.html.

⁴⁴ Nicolas Rasmussen, *America's First Amphetamine Epidemic 1929-1971, A Quantitative and Qualitative Retrospective with Implications for the Present*, 98 AM. J. PUB. HEALTH 974, 974-77 (2008).

⁴⁵ See Comprehensive Drug Abuse and Control Act of 1970 §§ 101-1016, 21 U.S.C. §§ 801-971 (2006).

⁴⁶ Schedules of Controlled Substances, Amphetamine, Methamphetamine and Optical Isomers, 36 Fed. Reg. 12734, 12734 (July 7, 1971).

⁴⁷ See 21 U.S.C. § 812(b) (2006).

⁴⁸ JAN STRYDOM & SUSAN DU PLESSIS, *THE MYTH OF ADHD AND OTHER LEARNING DISABILITIES: PARENTING WITHOUT RITALIN* 13 (2001).

prescribed.⁴⁹ Some critics even suggest that ADHD is merely a behavior problem attributable to a problematic childhood.⁵⁰ Although these arguments have been challenged,⁵¹ they raise some important points: ADHD may have many different causes and presents different degrees of severity.

Diagnosing ADHD is difficult because there is no reliable diagnostic test, such as a blood test or medical imaging.⁵² In response, the medical establishment has tried to delineate the boundaries of mental illness through scientific studies. From 1998 to 2006 alone, nearly 1,000 new ADHD studies have been published,⁵³ with important contributions from the field of genetics.⁵⁴ For example, numerous ADHD studies involving twins have indicated that ADHD is the most heritable of all neuropsychiatric disorders.⁵⁵

These studies help shape the diagnosis of ADHD. Like all mental illnesses in outlined by the Food and Drug Administration (FDA) in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV), ADHD must cause “clinically significant impairment in social, school, or work functioning.”⁵⁶ Also, a child’s symptoms must occur in at least two different settings; therefore, physicians typically evaluate input from both caregivers and teachers—one source is not enough.⁵⁷ Physicians also use psychiatric rating scales, such as parent and teacher questionnaires, to determine if symptoms are severe enough to constitute “a disorder.”⁵⁸

Medical studies indicate that stimulants are likely the most

⁴⁹ *Id.* at 14–15.

⁵⁰ See, e.g., Koplewicz, *supra* note 43.

⁵¹ *Id.*

⁵² See *ADHD Data*, *supra* note 17. Some critics argue that the DSM category of Social Anxiety Disorder is an attempt by the pharmaceutical industry and psychiatrists to pathologize normal behavior. See, e.g., CHRISTOPHER LANE, SHYNESS: HOW NORMAL BEHAVIOR BECAME A SICKNESS 104–05 (2008).

⁵³ See L. Cinnamon Bidwell et al., *Cognitive Enhancers for the Treatment of ADHD*, 99 PHARMACOLOGY BIOCHEMISTRY & BEHAV. 262, 262–64 (2011).

⁵⁴ See Barbara Franke et al., *Genome-Wide Association Studies in ADHD*, 126 HUM. GENETICS 13, 14 (2009).

⁵⁵ See *id.*

⁵⁶ AM. PSYCHIATRIC ASS’N, QUICK REFERENCE TO THE DIAGNOSTIC CRITERIA FROM DSM-IV-TR 66 (2000), available at <http://www.cdc.gov/ncbddd/adhd/diagnosis.html>.

⁵⁷ *Id.*

⁵⁸ See Thomas Spencer et al., *Assessment and Treatment of Attention-Deficit Hyperactivity Disorder*, in PEDIATRIC PSYCHOPHARMACOLOGY: PRINCIPLES AND PRACTICE 437, 438 (Andres Martin et al. ed., 2011) (providing detailed explanation of assessing and evaluating ADHD).

appropriate treatment for ADHD. Researchers have found that stimulants “reduce excessive inattention, impulsivity and hyperactivity so [children with ADHD] are able to function better in every part of their lives.”⁵⁹ One notable example is from a Multimodal Treatment Study of Children with ADHD (MTA).⁶⁰ The study involved 579 children who were randomly assigned to one of four treatment methods: medication, intensive behavioral treatment, the two combined, or standard community care (the control group).⁶¹ After fourteen months, children who received medication or the combined treatment showed significantly greater improvement than those who received either intensive behavioral treatment alone or standard community care.⁶² In contrast to the MTA study, the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) study found that those participants who took medication, only demonstrated about a thirty-three percent response to the treatment (and a fifty percent reduction in symptoms).⁶³ Contrasting these studies demonstrates that stimulant treatment for ADHD symptoms is among the most effective pharmacotherapy options.⁶⁴

However, in order to make sure that stimulants are used properly, and are therefore, effective, a physician must: (1) identify the illness correctly; (2) perform adequate medical screening; (3) prescribe the right medication, and; (4) ensure the patient uses the medication.⁶⁵ Unfortunately, there are several possible areas of conflict.⁶⁶ For example, physicians sometimes diagnose illnesses incorrectly⁶⁷ and patients sometimes fail to take their medication as prescribed—these themes populate medical literature on non-medical use of stimulants.⁶⁸

⁵⁹ Koplewicz, *supra* note 43.

⁶⁰ The MTA Cooperative Group, *A 14-Month Randomized Clinical Trial of Treatment Strategies for Attention-Deficit/Hyperactivity Disorder*, 56 ARCHIVES GEN. PSYCHIATRY 1073, 1073 (1999).

⁶¹ *Id.* at 1073.

⁶² *Id.* at 1076–79.

⁶³ Bradley N. Gaynes et al., *What Did STAR*D Teach us? Results From a Large-Scale, Practical, Clinical Trial for Patients with Depression*. 60 PSYCHIATRY SERV. 1439, 1439–45 (2009).

⁶⁴ The MTA Cooperative Group, *supra* note 60, at 1076–79.

⁶⁵ See Carlo G. Carandang et al., *Running a Pediatric Psychopharmacology Clinic: Practical Aspects*, in PEDIATRIC PSYCHOPHARMACOLOGY: PRINCIPLES AND PRACTICE 379, 380 (Andres Martin et al. ed., 2011) (listing multiple principles for the use of psychotropic medication in children and adolescents).

⁶⁶ *Id.* at 387.

⁶⁷ *Id.* at 387.

⁶⁸ See, e.g., Christiane Poulin, *Medical and Nonmedical Stimulant Use Among Adolescents:*

Furthermore, physicians' attitudes towards non-medical use of stimulants may be colored both by their desire to help their patients, and by their desire to control the public's access to stimulants. This is due to the fact that stimulants are Schedule II drugs, and therefore are among the most strictly regulated medications.⁶⁹ Consequently, physicians may be less likely to believe a patient really needs a stimulant and they become hesitant to prescribe one because the physician may believe the patient is only requesting a stimulant in order to obtain a highly controlled substance.⁷⁰ Furthermore, physicians may limit prescribing stimulants because they have a general duty to alleviate suffering, which is frustrated when healthy patients take stimulants; in fact, stimulant use in non-ADHD populations may worsen academic performance.⁷¹ Moreover, stimulants sometimes cause detrimental side effects, which physicians try to avoid.⁷²

A 2007 publication by Dr. Timothy Wilens and his colleagues provides a comprehensive view of medical literature on the topic of non-medical use of stimulants.⁷³ The authors reviewed twenty-one studies with a total of 113,104 participants to examine the extent and characteristics of people who misuse stimulants.⁷⁴ The title of the article, *Misuse and Diversion of Stimulants Prescribed for ADHD* itself represents the medical establishment's black-and-white of view of stimulant use. In their view, stimulant use is acceptable to treat ADHD and unacceptable when used for non-medical purposes.⁷⁵ This dichotomy is reiterated in the authors' note that "[b]ecause the definitions of the inappropriate use of stimulants differed among studies and for general discussion, we collapsed preexisting definitions such as the illicit use of stimulants, nonmedical use of stimulants, and other similar definitions (stimulant misuse or abuse) of the term *misuse*"⁷⁶ Here, the use of non-medical stimulants is

From Sanctioned to Unsanctioned Use, 165 CAN. MED. ASS'N J. 1039, 1039-40 (2001) (discussing links between medical use, nonmedical use and diversion of stimulants when noting how often medication is not taken as prescribed).

⁶⁹ See 21 U.S.C. §§ 801-971 (2006).

⁷⁰ See Poulin, *supra* note 68, at 1039-43.

⁷¹ *Prescription Stimulants*, SCHOLASTIC.COM, <http://headsip.scholastic.com/articles/prescription-stimulants/> (last visited March 13, 2013).

⁷² See *id.*

⁷³ Timothy E. Wilens et al., *Misuse and Diversion of Stimulants Prescribed for ADHD: A Systematic Review of the Literature*, 47 J. AM. ACAD. OF CHILD & ADOLESCENT PSYCHIATRY 21, 21 (2008).

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.* at 22.

subsumed under the larger rubric of “misuse,” and the article thus fails to consider that stimulants might have legitimate, non-medical uses. This narrow-mindedness exemplifies what researchers Forlini and Racine, discussed in Part II, believe to be the dominant view in public health: “[N]on-medical use of neuropharmaceuticals [are] illicit and a public-health problem.”⁷⁷

Furthermore, scholarly medical articles usually discuss issues from physicians’ perspectives, which discourages the non-medical use of stimulants.⁷⁸ For example, Dr. Wilens “highlights the need to carefully monitor high-risk individuals for the use of non-prescribed stimulants and educate individuals with ADHD as to the pitfalls of the misuse and diversion of the stimulants.”⁷⁹ But there is actually no apparent consensus about the effects of stimulants on individuals without ADHD.⁸⁰ Moreover, some studies suggest that stimulants improve the attention span of individuals without ADHD.⁸¹ Bioethics literature questions the use of ADHD stimulants for “enhancement rather than therapeutic purposes”⁸² as well as the safety and fair use of such stimulants.⁸³

V. SOCIAL REPRESENTATION IN POPULAR MEDIA

Most scientists—including Dr. Barkley, the foremost expert on ADHD—believe that ADHD is a legitimate disorder supported by science.⁸⁴ However, there is some tension between “mainstream scientific views” and mass media’s view of ADHD.⁸⁵ This statement is illustrative of the tension between the scientific institution and those that would purportedly seek to distort this knowledge with “inaccurate stories.”⁸⁶ For

⁷⁷ See Forlini & Racine, *supra* note 8, at 7.

⁷⁸ See generally Wilens, *supra* note 73.

⁷⁹ *Id.* at 21.

⁸⁰ See *id.* at 30.

⁸¹ See *id.* at 29.

⁸² Peter B. Reiner, *Cognitive Enhancement Without Drugs*, NEUROETHICS AT THE CORE (Oct. 22, 2010), <http://neuroethicscanada.wordpress.com/2009/10/22/cognitive-enhancement-without-drugs>.

⁸³ See Maxwell J. Mehlman, *Cognition-Enhancing Drugs*, 82 MILBANK Q. 483, 483–502 (2004) (arguing that the use of drugs to enhance cognition is not inherently unethical, but safety steps must be taken).

⁸⁴ See Russell A. Barkley, *International Consensus Statement on ADHD*, 5 CLINICAL CHILD & FAM. PSYCHOL. REV. 89, 89–111 (2002) (“We cannot overemphasize the point, that, as a matter of science, the notion that ADHD does not exist is simply wrong.”).

⁸⁵ *Id.* at 89.

⁸⁶ *Id.*

example, the media has portrayed that “behavior problems associated with ADHD are merely the result of problems in the home, excessive TV or video games, poor diet, lack of love and attention, or teacher/school intolerance.”⁸⁷ The statement argues that the media’s inaccurate portrayal has contributed to the public sentiment that ADHD is benign, even though it causes “devastating problems.”⁸⁸ The statement concludes that to deny the existence of ADHD is “tantamount to describing the earth flat, the laws of gravity debatable, and the periodic table in chemistry a fraud.”⁸⁹ The tone of the statement is one of indignant outrage and the message is clear: to doubt ADHD is to doubt scientific progress itself.

Using the framework of Social Representations Theory⁹⁰—which suggests that science is translated into familiar, socially shared meaning—the consensus statement can be seen both as an attempt to forestall misrepresentations of science; primarily the claim that ADHD does not exist, and as a tool to combat the social misrepresentation that ADHD medications enhance normal functioning. The forceful tone of the statement also reflects the fact that there is a past and current struggle to validate ADHD.⁹¹ These various social representations of ADHD come to color the thinking about ADHD in segments of the population and become folk wisdom. For example, some associate sugar in the diet with hyperactivity. Social psychologist Caroline Howarth observed that social representations “become what reality is . . . agreed to be.”⁹² In other words, social representations can change established beliefs.⁹³ A recent example of this phenomenon is the public adoption of the notion that vaccines may cause autism, which led to thousands of parents worldwide refusing to vaccinate their children.⁹⁴

The scientific community wanted to disseminate “accurate” scientific knowledge to the general public. Margaret Talbot, staff writer for *The New Yorker*, in turn provides a counter-narrative to influence the public’s view

⁸⁷ *Id.* at 90.

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ See *supra* text accompanying notes 11–14.

⁹¹ See, e.g., *ADHD Does Not Exist*, CHILD THERAPY AND MENTAL HEALTH BLOG (May 28, 2008), <http://ctamh.wordpress.com/2008/05/28/adhd-does-not-exist/>.

⁹² Caroline Howarth, *A Social Representation is Not a Quiet Thing: Exploring the Critical Potential of Social Representations Theory*, 45 BRIT. J. SOC. PSYCHOL. 65, 69 (2006).

⁹³ See *id.*

⁹⁴ Fiona Godlee et al., *Wakefield’s Article Linking MMR Vaccine and Autism Was Fraudulent*, 342 BRIT. MED. J. 64, 64–66 (2011).

of stimulants.⁹⁵ Her article was published in *The New Yorker*, which has a wide circulation: in the last six months of 2012 it produced 1,047,337 copies.⁹⁶ Talbot's article serves a dual function of presenting the narratives (social representations) of various individuals using stimulant medications for "enhancement," and disseminates this world-view, by allowing this social representation to become part of the readership's common sense knowledge. Based on *The New Yorker's* circulation numbers alone, much of how the public learns about and conceptualizes new scientific information is from media like this. The article is a well-researched, informative, and entertaining piece because of the narratives it portrays.⁹⁷ For example, she writes of Alex, who used stimulants at Harvard to stay up all night studying, and Paul, a professional poker player who used stimulants to help him focus for fourteen-hour periods.⁹⁸ These narratives highlight the use of stimulants to improve productivity and downplays their use to simply treat ADHD.⁹⁹ Essentially, these individuals are creating a social representation of the treatment of ADHD that is divorced of the notion of illness, and concentrated fully on the aspect of enhancing attention, concentration, and productivity. This concept of cognitive enhancement becomes an anchoring point for the layperson's understanding of the science behind ADHD. In Social Representations Theory:

Anchoring, which occurs early in the construction of a social representation, involves a process of reducing unfamiliar ideas to ordinary categories and images. For a social group to come to an understanding of some novel or unfamiliar phenomenon, it is necessary for the members to identify characteristics about the phenomenon that are familiar.¹⁰⁰

While people might not understand the science behind ADHD,¹⁰¹ they do understand what it feels like to be unproductive, tired, or distracted. Consequently, the article promotes the belief that stimulants

⁹⁵ See Talbot, *supra* note 1.

⁹⁶ *eCirc for Consumer Magazines*, AUDIT BUREAU OF CIRCULATIONS, <http://abcas3.auditedmedia.com/ecirc/magtitlesearch.asp> (last updated Dec. 31, 2012).

⁹⁷ See Talbot, *supra* note 1.

⁹⁸ *Id.*

⁹⁹ See *id.*

¹⁰⁰ Mark F. Schmitz, Prema Filippone & Elaine M. Edelman, *Social Representations of Attention Deficit/Hyperactivity Disorder, 1988-1997*, 9 CULTURE & PSYCHOL. 383, 384-85 (2003).

¹⁰¹ See Barkley, *supra* note 84, at 89-90.

can be used by anyone who wants to be more productive.¹⁰² By doing so, it also promotes the belief that ADHD is not a real disorder. Hence, media representations like Talbot's article, create popular folklore about stimulant use and ADHD.¹⁰³

Alternatively, the "non-medical" use of stimulants might be read as an act of taking ownership and control over what one assimilates into the body. Cultural theorist Michel de Certeau conceives of acts of consumption as a type of subversive, as opposed to passive, activity.¹⁰⁴ For example, the act of reading is "cultural bricolage through which readers fragment texts and reassemble the broken shards according to their own blueprint, salvaging bits and pieces of found material in making sense of their own social experience."¹⁰⁵ This notion is similar to how social representations form,¹⁰⁶ but adds an element of personal empowerment because it helps us understand non-medical use of stimulants as a subversion of medical authority as well as an assertion of ownership over one's body.

VI. CONCLUSION

The history of ADHD outlined in this paper serves to highlight the conflicts within the medical/scientific community over the definition, nomenclature, and etiology of ADHD, which suggests that the process of creating medical knowledge is fraught with conflict and competing "representations." This notion echoes Dr. H el ene Joffe's observation that "other researchers who use the social representations framework have found that the processes that operate in scientific circles, at least at the point of assimilation of new, threatening health issues, are similar to those found in the medial and lay realms."¹⁰⁷ Ultimately this medical knowledge surrounding ADHD consolidated and took an authoritative, cohesive form, which was embodied by the International Consensus Statement.¹⁰⁸ Within the framework of Social Representation Theory, texts such as Talbot's

¹⁰² See Talbot, *supra* note 1.

¹⁰³ See *id.*

¹⁰⁴ MICHEL DE CERTEAU, *THE PRACTICE OF EVERYDAY LIFE* (Steven F. Rendall trans., University of California Press, 1988).

¹⁰⁵ Henry Jenkins III, *Star Trek Rerun, Reread, Rewritten: Fan Writing as Textual Poaching*, in *GENDER, RACE, AND CLASS IN MEDIA: A CRITICAL READER* 57, 58 (Gail Dines & Jean M. Humez eds., 3d ed. 2011).

¹⁰⁶ Moscovici, *supra* note 11, at 211–16.

¹⁰⁷ See Joffe, *supra* note 11, at 563.

¹⁰⁸ See Barkley, *supra* note 84, at 89–90.

article in *The New Yorker* can be read as both the embodiment and dissemination of a social representation of medical knowledge about stimulants.¹⁰⁹ However, social representations, read through de Certeau, are more than just common sense conceptualizations of scientific knowledge, but are both sites of resistance against the hegemony of the medical industry and the location where new knowledge transpires.¹¹⁰

The conceptualization of ADHD and stimulant medications by the media and lay public reveals the act of ingesting a pharmacologic agent to be an intensely personal experience, which is informed by subjective notions of inadequacy and fantasies of enhancement. The individual ingests a stimulant in an attempt to elicit a desired effect, such as cognitive enhancement or the alleviation of symptoms, and in the process becomes the subject of a private experiment: a clinical study with an N of one. At this level, treatment guidelines, consensus statements, and legal prohibitions lose their authority, and the act of swallowing a pill has taken on a uniquely individual meaning.

¹⁰⁹ Talbot, *supra* note 1.

¹¹⁰ See *supra* text accompanying notes 107–09.