

Acting on Impulse:

What's New About Impulse Control Disorders and Why Would We Consider Them Forms of Behavioral Addiction?

By Eric Hollander, MD

This issue of *CNS Spectrums* is guest edited by my good friend and colleague Stefano Pallanti, MD, PhD, of the University of Florence in Italy and the Mount Sinai School of Medicine in New York City. Dr. Pallanti has made important contributions to the conceptualization and understanding of the neurobiology and treatment of impulsivity as a symptom domain across various impulse-control disorders, such as pathological gambling. He has described a common endophenotype—mediating factors between genes and behavior—that may be shared among impulse-control disorders and other conditions, such as bipolar disorder. Dr. Pallanti has highlighted the rich complexity of these conditions at the Tuscany School of Psychiatry, an annual conference that he leads and is held in Florence, Italy, and the surrounding villages in late August.

Recent issues of *CNS Spectrums* have examined behavioral addictions and have drawn parallels to the chemical addictions. Behavioral and substance addictions have been postulated to share similar phenomenology and brain circuitry. Each are characterized by impulsive choice: decisions that result in small, immediate reward despite long-term negative consequences.

This issue of *CNS Spectrums* highlights several new perspectives and findings regarding impulse-control disorders. Jon E. Grant, MD, and colleagues find that behavioral addictions, including pathological gambling, kleptomania, pyromania, compulsive buying, and compulsive sexual behavior, represent significant public-health concerns and are associated with high rates of morbidity and mortality. They highlight

concepts like motivation, reward, and addiction may have an underlying pathophysiologic basis, and that this understanding may ultimately help improve prevention and treatment strategies for these conditions.

Daniela S.S. Lobo, MD, PhD, and James L. Kennedy, MD, critically review findings of family and molecular genetic studies on behavioral addictions, focusing on pathological gambling. This will be an area of rapid growth, and future directions for genetic studies in this field are suggested.

Thomas M. Mick, MD, and Eric Hollander, MD, highlight one new condition, impulsive-compulsive sexual behavior, which is surprisingly common in the general population. The authors present information regarding its diagnostic criteria, epidemiology, the types of behavior involved, relationship to hypersexuality, comorbidities, treatment, and etiology. Gaps in the knowledge that may limit classification are highlighted.

Pallanti and colleagues studied Internet addiction via a survey of high-school students in Florence. A finding of interest is that an equal ratio of males to females are afflicted. Also, subjects with Internet addiction also tended to have a broad grouping of other behavioral addictions, such as caffeine abuse, sexual compulsions, relationship addictions, gambling, food addictions, and substance abuse. This is consistent with the concept that impulsivity as a symptom tends to be expressed across a spectrum of related conditions, and that the underlying etiology and pathophysiology may be shared across behavioral and substance addictions. Pallanti and colleagues also present new data to clarify altered

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serotonin metabolism in pathological gamblers and controls. In their study, pathological gamblers had an increased prolactin response and increased sense of "high" to the partial serotonin agonist meta-chlorophenylpiperazine, and greater pathological gambling severity correlated with increased neuroendocrine responsiveness to meta-chlorophenylpiperazine, suggesting greater serotonin dysregulation. This conceivably may be a marker of vulnerability to both behavioral and substance addictions.

Patients with bipolar disorder experience high levels of impulsivity prior to the onset of their first manic episode. High impulsivity persists even when bipolar patients are euthymic. This suggests that impulsivity, if fundamental to bipolar disorder, lends itself to the developmental trajectory of affective instability. However, managing bipolar disorder can be challenging and combination treatment with mood stabilizers may be the rule rather than the exception in bipolar disorder.

James R. Redmond, MD, and colleagues examine combination treatment of lamotrigine with either divalproex or lithium, and report good efficacy and tolerability with both combinations, especially in combination with valproate for depression.

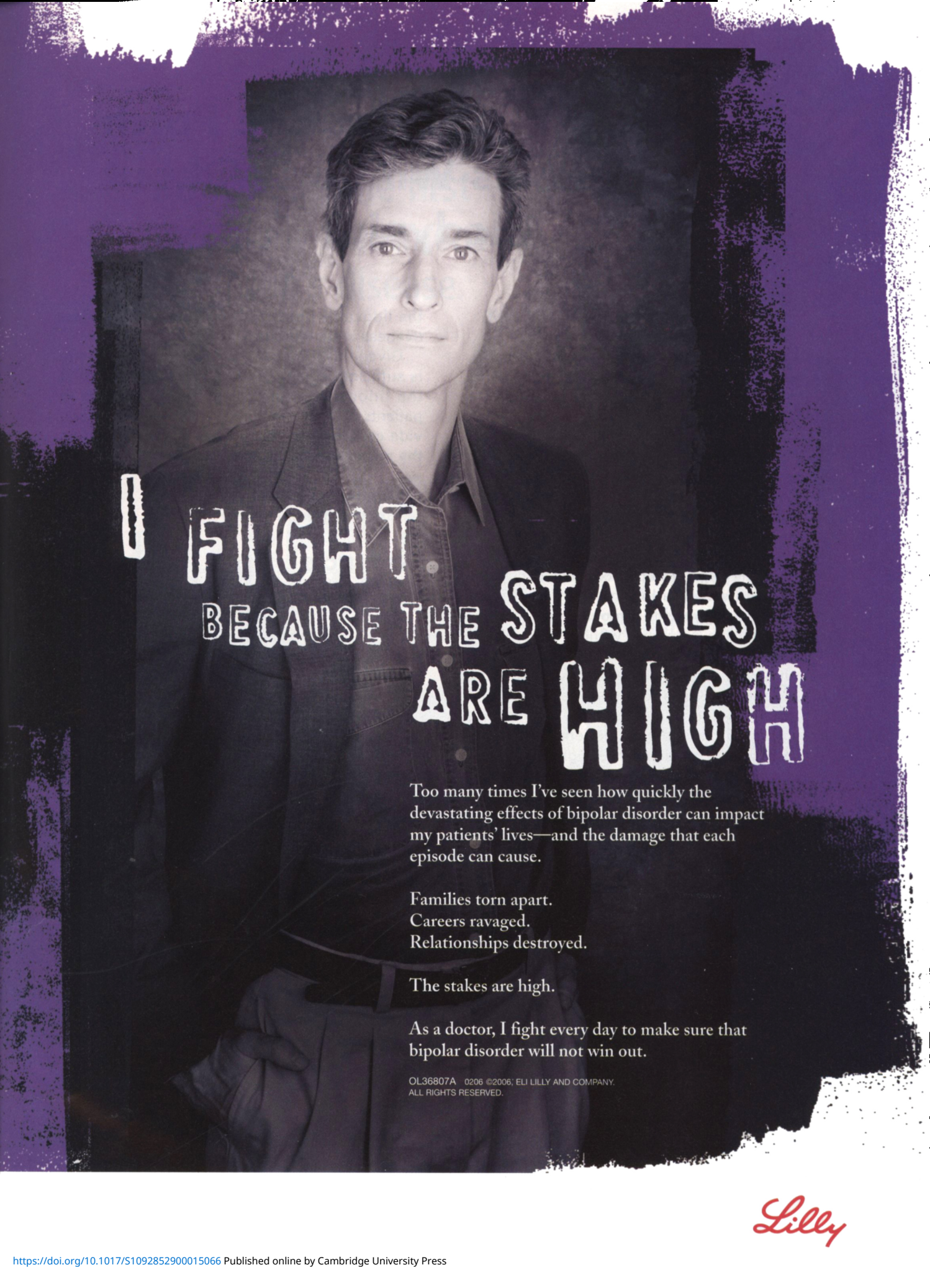
In conclusion, it is worth noting that behavioral addictions and the newer impulse-control disorders are certainly worthy of being included within the *Diagnostic and Statistical Manual of Mental Disorders* given that they are surprisingly common, may be associated with considerable morbidity and even mortality, and that, if appropriately diagnosed, such patients may be effectively treated with targeted medication, and behavioral and self-help techniques. Further, the National Institute on Drug Abuse might consider these behavioral addictions as being within their funding domain, given that understanding the causes and treatments of behavioral addictions may help inform us further about chemical addictions. **CNS**

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