[C O M M E N T A R Y]

Should DSM-V Designate "Internet Addiction" a Mental Disorder?

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ABSTRACT

There is considerable controversy with respect to so-called *internet addiction* and whether it ought to be reified as a diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.* The relationship between "addiction" and various compulsive or impulsive behaviors is also a source of confusion. Some psychiatrists have argued that internet addiction shows the features of excessive use, withdrawal phenomena, tolerance, and negative repercussions that characterize many substance use disorders; however, there are few physiological data bearing on these claims. It is not clear whether internet addiction usually represents a manifestation of an underlying disorder, or is truly a discrete disease entity. The frequent appearance of internet addiction in the context of numerous comorbid conditions raises complex questions of causality. In order to make nosological decisions regarding internet addiction, we require a more general model of what counts as "disease," and as a specific disease. Based on a model emphasizing intrinsic suffering and incapacity, as well as data regarding course, prognosis, temporal stability, and response to treatment, it appears premature to consider internet addiction as a discrete disease entity. However, growing research suggests that some individuals with internet addiction are at significant risk and merit our professional care and treatment. Carefully controlled studies are required to settle these controversies.

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PROPOSED DEFINITIONS OF INTERNET ADDICTION

"If every gratified craving from heroin to designer handbags is a symptom of "addiction," then the term explains everything and nothing." —Amanda Heller (Boston Globe, 11/02/08).

It is a truism that psychiatric disorders have proliferated like rabbits in recent years, and there appears to be no end in sight. Many in the general public are convinced that the issue of what counts as a psychiatric "disorder" is settled in the academic equivalent of the "smoke-filled room," by the simple expedient of "vote by committee." Though this popular view is a gross distortion of the careful (if also flawed) process that led to the development of the third and fourth editions of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-III* and *-IV*),[1] public perception matters, in so far as it affects public trust in psychiatry.

There are enduring philosophical controversies regarding fundamental concepts in psychiatry,[2] such as the boundaries between "normal" and "disordered" mental states;[3] and the degree to which certain behaviors represent biologically based disorders as opposed to freely chosen lifestyles.[4] Though these protean issues are far beyond the scope of the present commentary, they do impinge on the narrower question of what constitutes an "addiction" or an "addictive disorder." These issues, in turn, affect our position with respect to so-called "internet addiction" (IA) and whether it ought to be reified as a diagnosis in the upcoming fifth edition of the *DSM*.

The term *addiction* is not used in the *DSM-IV*; rather, the terms *substance dependence* and *substance abuse* are used.[5] The relationship between *addiction* and certain kinds of compulsive or impulsive behavior is also a source of definitional confusion. Thus, one definition of addiction is "…compulsive behaviors that persist despite serious negative consequences for personal, social, or occupational function."[6] As I will discuss below, this use of the term *compulsive* is somewhat different than the classical, psychodynamic understanding of obsessive-compulsive symptoms.

For my purposes, IA may be broadly defined as "…the inability of individuals to control their internet use, resulting in marked distress and/or functional impairment in daily life."[7] Some experts who support inclusion of IA in *DSM-V* describe the condition in terms suggestive of substance-based addiction, even though they conceptualize it in other terms. For example, in a recent editorial, Block wrote, "Internet addiction appears to be a common disorder that merits inclusion in *DSM-V*. Conceptually, the diagnosis is a compulsive-impulsive spectrum disorder that involves online and/or offline computer usage and consists of at least three subtypes: excessive gaming, sexual preoccupations, and e-mail/text messaging."[8]

In Block's view, all three subtypes of IA show the features of excessive use, withdrawal phenomena, tolerance, and negative repercussions—features that characterize many substance use disorders, such as opiate or sedative-hypnotic abuse. However, to my knowledge, putative *withdrawal* and *tolerance* have not been established in IA subjects using physiological measures comparable to those used in, say, patients dependent on opiates or barbiturates. For example, we do not have systematic data on autonomic nervous function in subjects diagnosed with IA who are prohibited from using the internet; and thus, in a putative *withdrawal* state. Furthermore, if *tolerance* is taken to mean the need, over time, for increasingly intense or frequent internet-based stimuli to produce the same specified psychological effect, I am not aware of any studies providing objective measures of *tolerance* in IA-diagnosed individuals. Thus, applying the terms *withdrawal* and *tolerance* to IA appears to involve either metaphorical use of these terms, or else the use of fairly coarse behavioral criteria, such as the patient's complaints of feeling irritable or anxious. Nonetheless, we should not dismiss clinical reports of intense distress, and perhaps physiologic hyperarousal, in some IA-diagnosed patients who have been denied use of the internet. For example, Block notes many consistent descriptions of patients reporting nausea, tremor, sweating, shakiness, fatigue, anger, and irritability "…when immediately coming off a computer 'binge'" (J. Block, personal communication 12/03/08). It would be instructive and important to obtain physiological measures (e.g., blood pressure, pulse rate) of IA patients experiencing such symptoms.

Whatever the essential nature or putative pathophysiology of IA, those who receive the diagnosis appear to be at substantial risk. For example, Block[8] cites recent data from South Korea and China,[7,9] pointing not only to a high prevalence of IA, but also to significant public health consequences (e.g., in South Korea, as many as 24% of children diagnosed with IA required hospitalization).[9] Ha et al[7] note a plethora of problems associated with IA, including conflicts with family and friends; impairment in social and vocational activities; depression, anxiety, or obsessive-symptoms; and psychophysiological problems, such as insomnia, tension headache, and

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dry eyes. Futhermore, as Block notes, unrecognized IA as a comorbid process in depressed or anxious patients may lead to treatment resistance and poor outcome (J. Block, personal communication 12/03/08).

ON THE OTHER HAND...

Notwithstanding these findings, there is no universal agreement as to the specific diagnostic criteria for IA, whether it is a discrete mental disorder, or, indeed, whether it is a disorder at all. Thus, Ha et al[7] observe that IA is variously construed as "…a genuine diagnosis, a new symptom manifestation of underlying disorders; or psychosocial problems in adjusting to a new medium."

Furthermore, the issue of psychiatric comorbidity raises other diagnostic dilemmas. Using Young's Internet Addiction Scale (IAS) and several structured assessment tools, Ha et al[7] found that of 12 adolescents with IA, three had major depressive disorder, one had schizophrenia, and one had obsessive compulsive disorder. These findings raise complex difficulties regarding cause, effect, and primary vs. secondary diagnoses. For example, Ha et al[7] opined that, "…behaviors related to internet addiction may be a *symptom* of depressive disorders in adolescents."[7] (italics added) Somewhat against theoretical expectations, Ha et al[7] did not find high comorbidity between IA and substance-related problems; however, given the small number of subjects in this study, its conclusions must be viewed cautiously.

In a German study of 30 subjects with "pathological internet use" (PIU), Kratzer and Hegerl (2008)[10] found that fully 27 had some comorbid or underlying psychiatric disorder (anxiety disorders were seen in half of these subjects). In control subjects without PIU, only 7of 31 were diagnosed with a psychiatric diagnosis. The high rates of other psychiatric disorders prompted the authors to voice skepticism that IA is an "independent disease."

Indeed, some critics of IA argue that excessive use of the internet is a secondary manifestation of depression or a personality disorder and may represent adaptive "self soothing" or avoidance of interpersonal discomfort associated with these underlying disorders. Other critics of IA as a discrete disorder point out that "the internet" is merely a communications medium—not a substance, like cocaine, or an intrinsically rewarding behavior, such as kleptomania or pathological gambling. These critics argue that the pathological need to "game" or view pornography on the internet merely represents underlying psychopathology or defense mechanisms that would be manifest in some other way, if the internet were not available. These concerns cannot be dismissed lightly.

Some experts in addiction medicine appear particularly skeptical of IA as a discrete disorder. Thus, addiction specialist Stuart Gitlow MD observes, "…the medical term *addiction* should not be applied to anything other than addictive drug use and gambling. The public uses the term [addiction] as an equivalent of *overuse* but the medical definition is based on 'use despite one's best interest,' and quantity of use has nothing to do with that… I suspect that [the people]…we're worried about have some underlying disease—perhaps they have major depression or OCD or Asperger's or something other than addictive disease. Or perhaps they really do have addiction, in which case that will become clear as time passes and research is conducted." (S. Gitlow, personal communication, 11/20/08).

Even those who advocate recognition of IA do not necessarily endorse the term *internet addiction*. Block, for example, notes that the underlying issue is not the internet, but rather, "…the abnormal relationship and reliance on technology…" Furthermore, Block notes that whereas drug addictions can directly or indirectly cause death during the intoxicated state, "…the behavioral addictions don't seem to carry such a risk, at least early on." (J. Block, personal communication 12/03/08).

A CASE WORTH NOTING

Recently, Bostwick and Bucci[11] reported a case of internet sex addiction that raised intriguing questions as to the specific pathophysiology of IA. Their patient was 24 when he first sought psychiatric help for "sexual addiction," which involved marked preoccupation with internet pornography, as well as "…extended masturbation sessions and occasionally meeting cyber-contacts in person for spontaneous, typically unprotected sex."[11] Over the next seven years, the patient was prescribed antidepressants and underwent both individual and group psychotherapy, as well as participation in Sexual Addicts Anonymous. However, it was not until the opiate antagonist, naltrexone, was added to his ongoing sertraline that the patient showed significant improvement. The authors note that "…when he discontinued naltrexone, his urges returned. When he took naltrexone again, they receded."[11]

Obviously, a single case report cannot sustain any sweeping claims or hypotheses, regarding the pathophysiology of IA. Nonetheless, Bostwick and Bucci provide plausible arguments suggesting that this patient's addictive syndrome may have involved dopaminergic, gabaergic, and opiatergic mechanisms, which are believed to operate in other addictive behaviors. Indeed, evidence for striatal dopamine release during video game playing was detected in a positron emission tomography study.[12]

Recently, genetic polymorphisms of the serotonin transport gene have also been found in a group of male adolescents with "excessive internet use (EIU)."[13] Compared with controls, EIU subjects also showed higher scores on the Beck Depression Inventory and a measure of "harm avoidance," suggesting to

TABLE 1. Pros and cons of including IA in *DSM-V*

ARGUMENTS IN FAVOR OF INCLUDING IA AS *DSM-V* DIAGNOSIS	ARGUMENTS AGAINST INCLUDING IA AS *DSM-V* DIAGNOSIS
Those diagnosed with IA show pattern similar to that of other addictive disorders, such as excessive use, withdrawal, tolerance, and negative social repercussions, including impaired vocational and academic performance.	Genuine physiological withdrawal and tolerance have not been demonstrated in controlled studies of IA. Impairments in social and vocational realms are probably due to underlying disorders, such as depression or OCD.
Preliminary evidence points to an opiatergic component to IA, possibly treatable with opioid receptor blockers. This is consistent with general mechanisms known to underlie addictive disorders.	This claim is based on a single case report. Large-scale, randomized, controlled studies using PET and other neuroimaging techniques are needed before IA may be assimilated into the realm of addictive disorders based on pathophysiology.
By classifying IA as a psychiatric disorder, we will encourage those with IA symptoms to seek help and treatment, thus reducing morbidity and mortality, hospitalization, and legal and psychiatric complications. Classification of IA as a bona fide disorder may also reduce unnecessary barriers, stereotypes, and discrimination associated with public perceptions about excessive internet use.	By classifying IA as a "disorder," we will pathologize what is probably a developmentally "normal" (even if disapproved of) behavior, further expanding an already mushrooming catalogue of supposed "disorders." This will further undermine the public's trust in psychiatric diagnosis. Receiving a diagnosis of IA will increase, not decrease, unnecessary barriers, stereotypes, and discrimination.
A discrete diagnostic category for IA will focus clinical attention on a severely impaired, at-risk population to a degree not possible if IA were incorporated into existing *DSM* categories or relegated to the Appendix of *DSM-V*. Research and teaching efforts will also be stimulated if IA is an official *DSM-V* diagnosis. If such research fails to support IA as a discrete disorder, it can be dropped from the revised *DSM-V*.	IA symptoms should be subsumed under existing *DSM* categories, such as OCD or various impulse control disorders. Creating a separate category for IA will open the door to all kinds of new "disease" categories, as new technologies develop (e.g., iPhone addiction, holograph addiction, virtual reality addiction).

KEY: IA—internet addition; *DSM-V—The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; OCD—obsessive compulsive disorder; PET—positron emission tomography

the authors that EIU subjects may have genetic and personality traits similar to depressed patients. This interpretation, of course, does not support the notion that EIU or IA is a discrete and autonomous mental disorder.

On the other hand, it is particularly interesting that, in the Bostwick and Bucci report, the patient's maladaptive sexual behaviors were not greatly modified by antidepressant treatment or psychotherapy alone. This might argue against the objection that the patient's IA was merely an epiphenomenon of underlying depression. Clearly, much more systematic research involving large numbers of carefully defined subjects with IA will be needed to clarify these issues.

WHAT COUNTS AS "DISEASE?" WHAT CONSTITUTES A DISCRETE DISEASE?

In an earlier essay on whether *bigotry* ought to be considered a mental disorder, I argued, "…our concept of *disease* grew out of an ancient tradition based on the recognition of suffering and incapacity. Disease is not diagnosed, in the first place, by medical specialists using high-tech imaging devices or laboratory tests—though these may help determine the specific disease entity. In psychiatry, as in general medicine, it is often a family member or the soon-to-be patient who first recognizes that something is terribly wrong. This is based on our ordinary perception of suffering and incapacity in the absence of an obvious external cause (such as a knife wound)."[14]

In short, *disease* is fundamentally a condition of substantial and prolonged *dis*-ease (suffering), accompanied by significant degrees of physical, social, or vocational impairment (incapacity). I qualified my argument regarding "suffering" by specifying that it must not arise solely as a consequence of society's punitive responses to the patient's behavior. Rather, at least some of the suffering must be intrinsic to the condition itself—epitomized in what I call, "The Desert Island Test." For example, a patient with psychotic depression would likely experience suffering, even if marooned alone on a desert island. Someone with strongly held racist ideas would likely not suffer so, all other things being equal. On these grounds, I argued that only in certain very restricted instances should *bigotry* be regarded as an instantiation of disease.

Now, how might this line of reasoning apply to IA? In essence, if a patient diagnosed with IA (by some specified set of criteria) experienced both suffering and incapacity, and further, if the suffering were due at least in part to intrinsic experiential aspects of the manifest condition, then that individual would be experiencing clinical disease. On the other hand, if the patient diagnosed with IA experienced distress or suffering only when society applied punitive sanctions (e.g., prosecuting the patient for soliciting sex using the internet) or only when the internet was not available, the "intrinsic suffering" criterion would not be met. In such cases, we might

agree that the individual exhibited socially and vocationally maladaptive behaviors, but not that he or she was experiencing disease (*dis*-ease).

In my view, the literature on IA is not yet precise enough to allow such fine-grained determinations. That is, it is not clear whether most patients with IA typically experience suffering as an intrinsic part of their condition or whether their dyphoria and distress occur only—or primarily—when the individual is denied access to the internet or is punished in some way for "bad behavior." In short, we do not yet have enough data to conclude that IA is usually an instantiation of *disease*, as I have defined that term. Indeed, we are unlikely to obtain such data until we have agreed on precise, research-oriented criteria for IA. Nonetheless, we should not dismiss the possibility that some individuals with IA (however diagnosed) do experience true disease. Indeed, Dr. Block's research and that of researchers in other countries suggest that some individuals who meet criteria for IA are both suffering and incapacitated.

Finally, simply because someone does not fit criteria for *disease,* (however defined), does not mean that he or she is unworthy of our professional aid and support. The "V" codes of DSM-IV clearly recognize that conditions such as "parent-child relational problem" may justifiably be the focus of clinical concern, without reaching the threshold of disease or disorder. This is fully consistent with medical practice in general: a person seeking cosmetic facial surgery to "improve my appearance" might not qualify as having disease, but would appropriately be the focus of medical attention and possibly treatment.

See Table 1 for pros and cons of including IA in *DSM-V*.

IF IA IS A DISEASE, WHAT KIND IS IT?

But now, let's stipulate that an individual diagnosed with IA is indeed suffering as a direct result of the condition (i.e., experiences intrinsic suffering) and is also incapacitated to a significant degree (e.g., he or she is unable to fulfill normal social or vocational roles, unable to concentrate, unable to obtain adequate sleep). If this constitutes disease in the generic sense, what kind of disease or disorder might it be? Here, in my view, we need to investigate an area of psychodynamic theory that is barely acknowledged in *DSM-IV*, though to some degree, it is subsumed in the *DSM-IV* construct of obsessive compulsive disorder (OCD).

In psychoanalytic theory, it is important to distinguish between so-called ego-alien and ego-syntonic thoughts, desires, and impulses. In the classic formulation of OCD, the patient experiences obsessional thoughts or impulses as "intrusive" and "inappropriate"—in some sense, as alien to one's sense of self. These features are actually retained in the *DSM-IV* criteria for OCD. This "sense of the alien" is not described in most impulse-control disorders, such as pathological gambling. Whereas, according to *DSM-IV* criteria, the pathological gambler may feel "restless" or "irritable" when trying to cut down or stop gambling,[5] thoughts about gambling *per se* are largely ego-syntonic (i.e., they are experienced as "self").

There are insufficient psychodynamic studies of IA to know what percentage of patients experience their preoccupations as ego-alien versus ego-syntonic. Anecdotally, Dr. Block has observed that "…gaming use (porn is less clear) is always strongly ego-syntonic until the moment when they stop using…then there is disgust/anger…" (J. Block, personal communication 12/03/08). Based on largely anecdotal information, I would hypothesize there may be both obsessive compulsive/ego-alien and impulsive/ego-syntonic subtypes of IA—and perhaps forms that show mixed features. This hypothesis requires more investigation and has implications for our placement of IA within existing *DSM-IV* categories. It also seems likely that—just as we speak of "secondary mania"—there may be many instances of "secondary IA," in which the primary condition is actually a mood, anxiety, or personality disorder.

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CONCLUSIONS AND RECOMMENDATIONS FOR *DSM-V*

A constellation of related signs and symptoms—essentially, a syndrome—may ultimately be understood as a specific disease entity when at least one of the following criteria are met:[15,16]

1. A pattern of genetic transmission is discovered, sometimes leading to the identification of a specific genetic locus.
2. The syndrome's etiology, pathophysiology and/or pathologic anatomy become reasonably well understood.
3. The syndrome's course, prognosis, stability, and response to treatment are seen to be relatively predictable and consistent across many different populations.

Notwithstanding the impressive research on IA emerging from Asia, I do not believe that what is termed *internet addiction* reaches the threshold of specific disease entity, based on any one of these criteria. It is not even clear that IA typically reaches the threshold of "disease" in the clinical sense of pronounced intrinsic suffering and incapacity that I have defined. At present, IA remains a label for a syndrome that most likely represents numerous etiological pathways and diverse

clinical manifestations. This conclusion may change over the coming years, and our diagnostic system may someday reflect that. But in my view, it is too early to reify IA as a discrete *DSM-V* diagnosis.

Before IA is considered a discrete disorder or disease, I believe we need extensive prospective investigation, using a specific, albeit provisional, set of criteria for IA. Such research-diagnostic criteria would help us determine (1) inter-rater reliability of the criteria themselves; (2) usual course of illness; (3) stability of illness over time (i.e., does it "morph" into other, more traditional disorders over months or years?); (4) familial and genetic pattern; (5) biomarkers, such as neurotransmitter metabolites, PET scan findings, and neuroendocrine parameters; and (6) response to pharmacological and psychosocial treatments. If such investigations began to point toward a coherent and discrete disorder, I would then favor including IA as a diagnosis, perhaps in the expected revision of *DSM-V*. Whether IA would best be placed among the "impulse control disorders not elsewhere classified" or in another existing *DSM* category (e.g., mood or anxiety disorders) would depend on the nature of the emergent research data.

In my view, the term *pathological use of electronic media* (PUEM) is less emotionally "loaded" and more encompassing than *internet addiction*. PUEM would permit incorporation of problems related to new electronic technologies without endlessly multiplying psychiatric diagnoses. At present, PUEM should not be considered a discrete diagnosis. However, in my view, a detailed description of PUEM should be added to the *DSM-V* appendix, as a "condition for further study." There may also be several places within the text of *DSM-V* to indicate that PUEM is indeed a maladaptive and potentially harmful condition, perhaps best understood as an impulse control disorder with a prominent affective component.

In the mean time, PUEM-type symptoms, including those corresponding to IA, could be categorized under the current *DSM-IV* category of "impulse-control disorder not otherwise specified (NOS)" (312.30).

Despite the disadvantages of "NOS" designations—arguably a kind of nosological wasteland in *DSM-IV*—I believe this is a better solution than creating a discrete diagnosis of IA or PUEM at this time.

In the longer term, we may need to revise our entire classification to reflect more sophisticated genetic and pathophysiological data. For example, Blum et al[17] present a review of what they term *reward-deficient aberrant behavior* (RDAB), which they persuasively link to abnormal dopaminergic function in the nucleus accumbens.[17] These authors argue that RDABs include not only conventional substance-use disorders, but also excessive internet gaming and related activities that stimulate excessive dopamine release. Perhaps subsequent editions of the DSM will use the category of "RDAB" to encompass conditions we now allocate to several seemingly diverse diagnostic categories.

CLINICAL IMPLICATIONS

In clinical terms, psychiatrists should first decide if the patient's IA or PUEM symptoms represent expressions of a well-recognized, existing diagnosis, such as bipolar disorder, major depressive disorder, schizophrenia, or OCD. Careful attention should be paid to "which came first" (e.g., did the patient first develop depressive symptoms, followed by symptoms of PUEM? Or did the depression begin only after PUEM symptoms were well established?) Family history may also be a clue (e.g., if there is a strong family history of mood disorder, the clinician might suspect a form of "secondary PUEM.") Similarly, if there is a strong family history of impulse control problems or OCD, the patient's PUEM symptoms might be evaluated in this light. Some mild cases of excessive internet use, especially in young patients with developmental adjustment problems, might best be considered under the "V" code of "phase of life problem" (V62.89). In my view, treatment ought to "track" with the primary or underlying disorder, whenever possible. Adjunctive approaches, such as 12-step programs, may be useful in some cases, but definitive recommendations for treatment must await controlled studies of well-defined cohorts with PUEM symptoms.

So-called *internet addiction* should not be written off as another attempt by psychiatry to "medicalize" unfortunate or self-destructive behaviors. We already know that some individuals exhibiting severe overuse of the internet are in danger of serious emotional and physical[18] complications. However, in my view, it is too soon to consider IA a full-fledged and discrete mental disorder. I believe our patients will benefit in the long run by a conservative approach to both diagnosis and treatment of PUEM-like behavior. This should be accompanied by rapid development of uniform diagnostic criteria and a vigorous research effort aimed at understanding the nature of this condition.

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