**Twenty years of Internet addiction … Quo Vadis?**

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“A person who never made a mistake never tried anything new.”

—Albert Einstein

**THE BEGINNING**

In 1995, when the New York based psychiatrist Dr. Ivan Goldberg posted a sincere-looking but satirical note on the online psychiatric bulletin board PsyCom.net (no longer available now) taking a dig at the rigid diagnostic criteria of the newly released 4th edition of the Diagnostic and Statistical Manual (DSM-IV) of the American Psychiatric Association (APA) by “creating” a fictitious disorder called Internet addiction disorder (IAD) and cooking up its “diagnostic criteria” as per DSM style for substance dependence, little did he know that he had opened the proverbial Pandora’s box.[1] He and his bulletin board were flooded with people narrating their tales of woe of “remaining caught in the Net” and seeking help for their condition. This was one condition he did not intend to create (he himself did not believe that there could be a true “addiction” to Internet but rather excessive or pathological use), but there it was whatever name you gave it!

In 1995, a clinical psychology student Ms Kimberly Young, then in Rochester, USA, got interested in the psychological factors behind computer use and independently conceived of “addictive use of the Internet” as a pathological condition. [2] It is interesting to hear of this story from the author herself 20 years later: “Internet addiction began as a pet project in a young researcher’s one bedroom apartment in Rochester, New York. I was that young researcher. It was in 1995, and a friend of mine’s husband was seemingly addicted to AOL Chat Rooms spending 40, 50, and 60 h online at a time when it was still $2.95/h to dial into the Internet. Not only did they suffer financial burdens but also their marriage ended in divorce when he met women in online chat rooms.”[3]

The rest, as they say, is history, with her first illustrative case report published in 1996 having been cited 755 times, and her first definitive research article titled, “Internet addiction: Emergence of a new clinical disorder,” published in 1998, having been cited a phenomenal 3144 times as on December 15, 2015[4]

In 1995, a clinical psychologist Mark Griffiths, working at Nottingham Trent University, Nottingham, UK, who had been interested in research on gambling, computer use, and use of various machines or technology by humans in general for a few years at that time, published an article named, “Technological addictions.”[5] The next year, in 1996, he published on Internet addiction, conceptualized by him as a subset of the broader term technology addiction.[6]

This was the beginning, 20 years ago. As the freelance writer Michael OReilly, reporting in Canadian Medical Association Journal in 1996, (who, himself, interestingly, declared that “he may be at risk for developing IAD”) titled his article as “Internet addiction: A new disorder enters the medical lexicon,” where he mentioned Young’s still unpublished research on Internet addiction.[7] Truly, a PubMed search on “Internet addiction” pegs this short report as the very first article included in PubMed on the topic.

**THE ACCOLADES…**

Now, in 2015/6, as on December 15, 2015, there are 1561 articles cited in PubMed on “Internet addiction.” What is more interesting is a look at the acceleration rate of publication. While there were only three articles in 1996, there were 32 in 2005, 275 in 2014, and 296 (and still counting) in 2015!

Thus, while the growth rate of publications was not hugely impressive in the first decade of its life, Internet addiction is now a robust young adult in its postteen year with a sizeable growth spurt in its second decade. Not many “new” terms can boast of such growth in just 20 years in the PubMed!

As an aside, it is to be noted that the term “Internet addiction” has many competing contenders; some of the important ones are pathological Internet use, problematic Internet use (PIU), compulsive Internet use, Internet use disorder (IUD), and pathological use of electronic media among others. Pathological Internet use or PIU is often a favored term these days, but we have stuck to the original term because it is still very popular certainly with the social media but also in medical/psychological scientific research, and especially because we wanted to place this editorial in a historical perspective.

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Hence, what kinds of articles are being published on Internet addiction over the past decade or so? This is no place (and space) for a comprehensive review on the topic. Suffice it to say that, in addition to individual research articles from America, Europe, Asia, and Oceania, there are now a number of published narrative and even a few systematic reviews on almost every aspect of Internet addiction, including its concept and historical perspective, diagnostic criteria, epidemiology, psychosocial and neuropsychological aspects, neurobiological aspects, and management, both pharmacological and nonpharmacological. It appears that the issue is, at least partly, resolved, and that we have sufficient power in our knowledge base to conceptualize, detect, diagnose, characterize, treat, and prognosticate something called Internet addiction. Twenty years … and we are quite there.

Well, not quite, yet.

... AND THE BRICKBATS

The first jolt came from APA in their widely publicized 5th edition of the DSM (DSM-5) published in May 2013. Although the much-awaited and much-hyped category of “behavioral addictions” was indeed kept in its re-formulated category, “Substance-related and addictive disorders,” the sole diagnostic category kept in its final version under behavioral addictions was gambling disorder, which was a slightly tweaked version of the earlier pathological gambling, shifting its parental home from impulse control disorders of DSM-IV (there is no broad category of impulse control disorders any more in DSM-5) to addictive disorders in DSM-5. Despite early speculations and expectations, Internet addiction did not find a home under behavioral addictions. Instead, and almost as a consolation prize, one particular subtype of Internet addiction, called Internet Gaming Disorder, has been entertained in the DSM-5, but only as a tentative “Condition for Further Study” that “requires further research before they might be considered formal disorders,” in its Section III called Emerging Measures and Models.

The second jolt, and the one more important from an international perspective including India, comes from the forthcoming 11th revision of the International Classification of Diseases (ICD-11) by the World Health Organization (WHO). A recent article from the WHO Working Group on Classification of Obsessive-Compulsive and Related Disorders, while deliberating on this area as a “key controversy,” concluded that, “based on the limited, current data, it would therefore seem premature to include it in the ICD-11.”

Consequent to this stand, the very recently released Beta Draft of the entire ICD-11 (where Mental and Behavioral Disorders is coded as 07) sticks to its previous model of separate groups for “disorders due to substance use” (which has, by definition, no mention of any behavioral addictions but only substance use related disorders), and “impulse control disorders,” which continues to house pathological gambling but has also added “compulsive sexual behavior disorder,” a contender for the behavioral addictions, under impulse control disorders. Internet addiction, in any of its avatars, is nowhere in sight. This is certainly a big disappointment for the advocates and champions of behavioral addictions, technological addictions, including Internet addictions. Let alone classifying it as an addictive disorder, ICD-11 Beta Draft refuses to recognize Internet addiction as a disorder in the first place!

Why is it so? And, what can be done? To our mind, there is a hierarchical series of questions that need to be answered to get a grasp on the issue. Each successive question builds on its predecessor, assuming that the question hierarchically one step above is answered in the affirmative.

THE FOUR CARDINAL QUESTIONS

The first and foremost question: Is Internet addiction better conceptualized as a “disorder” or as a continuum of normal behavior (after all, Internet use is an essential part of everyday life of a vast proportion of people worldwide, and steadily increasing – we all are Internet “dependent” in much the same way we are dependent on so many basic things in life)? Although heavily debated already, the simple answer to this question can be borrowed from ICD-11 Working Group: “Where there is a continuum between normal and pathological behavior, associated impairment may become a key determinant of whether or not behavior is disordered. An additional important consideration, from a public health perspective, is whether efficacious treatments are available.” As abundantly documented in the literature over the past 20 years, excessive, uncontrolled, and inflexible Internet use behavior can indeed lead to severe functional impairment in some persons. Further, consider the definition of a mental and behavioral disorder as espoused in the Beta Draft of ICD-11: “Mental and behavioral disorders are recognizable and clinically significant behavioral or psychological syndromes that are associated with distress or interference with personal functions.” Many (but not all) cases of Internet addiction would satisfy this definition. As in many other psychiatric disorders, there would be a large “gray area,” but that only proves that there is indeed a “white” (“normal”) and a “black” (pathological or disordered) area as well. From a public health perspective, this is an important question because of its policy implications. There is also some evidence that at least nonpharmacological interventions (especially cognitive behavioral therapy for Internet addiction) can be useful though much more research is needed. And that would only be feasible, once we initially and tentatively agree that indeed there can be a disorder for which we are seeking a treatment!
The **second important question** we ask, assuming that some cases of these excessive, uncontrolled, and inflexible Internet use behavior indeed is a mental and behavioral disorder: Is this pattern of behavior an **addictive disorder**?

There are actually three sublevels of criticism or question in this:

a. **How can there be an addiction to something which is not as tangible a thing as drugs?**

b. **Why is it not better explained by simply as a manifestation of other underlying disorders such as depression, anxiety, or social phobia?**

c. **Why is it not better conceived as, say, an impulse control disorder (as done for pathological gambling or the new category of compulsive sexual behavior disorder), or an obsessive-compulsive spectrum disorder?**

As to the response to the first sublevel of this question/critique, our take is: Epistemologically, “addiction” to psychoactive substances was a later development in history. The Latin root of the word “addiction” – *addicere* – simply meant “to adjudge, sentence, doom, assign, confiscate, or – importantly – enslave.” Thus, “addicted” would simply mean “being sentenced, doomed, or enslaved.”

The object of this transitive verb could be theoretically anything, from drugs to playing poker. On a neurobiological note, it is the brain learning or memory of a rewarding experience that is the basis of dopaminergic-based positive reinforcement which defines the early stages of addiction, rather than which specific stimulus (whether cocaine or social networking online) triggered that experience.

Once continued for a while, this early mechanism paves the way for a delayed-onset recruitment of nondopaminergic anti-reward mechanisms that provides negative reinforcement for a particular behavior which perpetuates that behavior in a compulsive manner. Finally, at a behavioral level, addiction (as opposed to pharmacological dependence on a substance) is always with regard to a core behavior. Even in case of substances, what characterizes substance dependence is the pathological pattern of “use” of the substance (please note: Use refers to a particular behavior). For example, take the definition of alcohol dependence as in the ICD-11 Beta Draft:

“Alcohol dependence is a disorder of the regulation of alcohol *use*, arising from repeated or continuous *use* of alcohol. Characteristic features are a strong drive to *use* alcohol, impaired ability to control its *use*, and giving increasing priority to alcohol *use* over other activities. Often individuals develop tolerance and experience withdrawal symptoms when cutting down or stopping, or use alcohol to prevent or alleviate withdrawal symptoms. *Use* of alcohol increasingly becomes a central focus of the person’s life and relegates other interests, activities, and responsibilities to the periphery. Continuation of alcohol *use* despite adverse consequences is a common feature.”\[22\]

Now, let us do a little fun experiment. Try substituting the word “alcohol” with “Internet” in this definition and see what comes out of it!

b. **The second level of this second question/criticism is partly true.** There is a documented large comorbidity between the putative behavioral addictions (including Internet addiction) and other psychiatric disorders, particularly depressive and anxiety and bipolar disorders.\[23\] However, that is true for many psychiatric disorders and certainly true for substance use disorders in general. The fact that alcohol dependence is heavily comorbid with depression does not make the former identical with the latter! If at all, such a pattern lends credence to the similarity of these behavioral disorders with addictive disorders.\[24\] Of course, Internet addiction should not be diagnosed if such behavior is exclusively contained within the boundaries of a bipolar, depressive, or anxiety episode and spontaneously resolves after the resolution of such conditions.

c. **Coming to the third level, the very nature of these behavioral disorders, we land in a debate that goes to the very heart of concept and nosology of psychiatric disorders. Substance use disorders too, from time to time, have been conceptualized as impulse control disorders, obsessive spectrum disorders, compulsive spectrum disorders, or combinations of these.** Impulsivity in decision making and behavior, obsession-like repeated preoccupation, and a compulsion-like quality in repeated use of substances, all are important *components* of the process of addiction, but addiction as a gestalt has characteristics *beyond* each of these individual phenomena; otherwise, all substance use disorders would have been consumed under any of these too.

Thus, we take on this matter at the moment (admittedly incomplete and one that will require a lot more research to settle) is that pathological or PIU, after a certain threshold of severity and functional impairment, can be conceptualized as an addictive disorder. However, we suggest that the name of the condition be changed to **“Internet Use Disorder (IUD).”** This term retains the three cardinal characteristics: First, it is a *disorder*; second, it is concerned with a particular core behavior of *using* the Internet as a medium (for whatever purpose); and third, Internet) the target “object” (in a metaphorical sense, not as a substance but as a vehicle or medium) of use.

The **third question**, assuming that the two above have been answered, is: If PIU is indeed best conceptualized as an addictive disorder (i.e. IUD, as a behavioral addiction), what is the person addicted to? Is it the Internet as a medium,
any of the many actions using the software applications of the Internet (e.g., online gambling, gaming, social networking, relating, watching a particular content such as pornography or scientific literature search, buying, etc.), or to a particular gadget of technology that hosts the Internet (e.g., smartphones, tablets, laptop, or desktop computers)? Many authors now contend that there are two distinct forms of IUD – one specific (where the addictive behavior is predominantly focused on a particular application of the Internet) and another generalized (where there is no such focus). Some researchers even have theorized about the different psychological and neurobiological pathways of these two subtypes.

In this regard, we would reiterate that it is the pathological use of the Internet that is the main concern at hand, not what specific purpose it is used for. Much more commonly, users of the Internet (both “normal” and “pathological”) use it for a narrow set of specific purposes. Indeed, normal users use the Internet for much more varied purposes, while pathological users tend to narrow down their focus on specific activities (gaming, gambling, sex, chat, buying, etc.) to the exclusion of others. This is reminiscent of the “narrowing of repertoire” characteristic originally espoused for a “dependence syndrome” by Edwards and Gross. Only a handful of persons with IUD do not have any predominant focus; however, even in them, an apparently aimless surfing of the Internet itself is an activity which, however, “useless” in the value-laden sense it may be, is actually a use of the Internet!

Thus, the conceptualization of IUD obviates the question of whether one is addicted to the Internet as a source for gratifying other needs or addicted to the Internet as a medium (or to a gadget that hosts that medium), so long as the use of the Internet is the object of the addictive behavior. This view suggests that there is one IUD, with varied subtypes or specifiers based on the specific applications or even lack of any specific one (which may be thought of as “not otherwise specified” in the standard nosological tradition).

The fourth question, assuming that we conceptualize IUD as a unifying concept with varied “subtypes” based on specific applications of the Internet, is: How to diagnose such a condition? There is a plethora of screening and diagnostic instruments (21 instruments as mentioned in reference 11) based upon the authors’ own theoretical understanding of the issue. Unfortunately, these instruments often provide very different estimates of Internet addiction or PIU, ranging from <1% to 27%.[11] Of course, sample nature and sample selection also play a significant role in explaining such wide intervals. However, coupled with such heterogeneous instruments, such figures undermine the confidence in the concept and diagnosability of the condition. The answer to this question has to build on at least partial resolution of the above questions.

**INDIAN SCENE: A SKETCHY VIEW**

There is a trickle of Indian research in this area. Although the first published article was published more than a decade ago,[20] not many published articles are available in peer-reviewed journals. It is beyond the scope and space of this article to critically review all these, but two characteristics are commonly seen: First, often the samples are self-selected or convenience samples, likely to be drawn from accessible college students; second, an almost exclusive use of Young’s Internet Addiction Test.

It is interesting to note that two Indian studies compared the prevalence of Internet addiction by using two different diagnostic questionnaires from different constructs of Internet addiction. One study compared questions derived from ICD-10 substance dependence criteria with Young’s questionnaire,[21] another recent one compared a more conservative and validated diagnostic criteria set with the latter.[22] Both the studies found a wide disparity between prevalence figures for Internet addiction as estimated by different instruments. The prevalence figures varied widely, from 1.2% to more than 50%! This demonstrates the important point raised in the fourth question above.

Why is this issue important for India? India is a country with rapidly increasing Internet connectivity. Starting from August 14, 1995, when Videsh Sanchar Nigam Limited first launched India's first full Internet service for public access,[23] interestingly, again 20 years later as of September 2015, there were 350 million active Internet users, fuelled by the rapid spread of smartphones and other Internet-enabled gadgets.[24] In fact, by 2016, India is poised to become the second largest Internet-using country, overtaking the USA and second only to China.[24] With this astounding numbers and growth rate, even a conservative estimate of just 5% prevalence of PIU, IUD, or Internet addiction, by whatever name it is called, will peg the number of pathological Internet users to around 1.5–2 lakh. This is a number to reckon!

Thus, there is a clinical utility and public health perspective to the whole question of IUD, which are mentioned as the primary guiding principles in formulating ICD-11.[25] Keeping this in mind, the recently published volume of Clinical Practice Guidelines on Newer and Emerging Addictions, an official publication of the Indian Psychiatric Society (IPS), prepared by the IPS Specialty Section on Substance Use Disorders, devoted an entire section on behavioral addictions.[26] Some may contend that it is a mistake to formulate clinical practice guidelines on conditions that are, till date, nosological orphans or, at best, nosological immigrants.
NEVER MAKE A MISTAKE?

In 2008, a “Periscope” series article in the Indian Journal of Psychiatry wittingly and somewhat sarcastically titled as “Internet addiction disorder: Fact or fad? Nosing into nosology” concluded:

“Though sufficient research data might over time validate IAD, at present it seems a fad illness. True, the Internet contributes to the answering of many questions, but “Internet addiction” as of now raises more questions than can be answered.”[37]

Nearly a decade later, with DSM-5 and an ever burgeoning scientific literature in hand, we are in agreement with the second sentence but no longer with the first. There are people out there who are suffering because of their dysfunctional use of the Internet. They need help, and at least some of them can be helped. There is enough evidence to suggest that Internet addiction (or what we prefer to call IUD, in line with substance use disorders of DSM-5) can no longer be considered a fad. True, there are still many questions to be answered, and it is the nature of science to answer a few questions while raising more. We entirely agree that we need to defend against the populist use of the term as opposed to its scientific use, and to defend against inflated spurious estimates of the condition by casual use of “diagnostic” instruments of questionable psychometric properties. This is to guard against the genuine concern of medicalization, pathologization, or “labeling” of any behavior pursued with passion or interest as a medical disorder. At the same time, however, letting this concern override our duty and responsibility to diagnose and care for those who are indeed in need of it would be like throwing the baby out with the bathwater. In this arduous process, there is bound to be some mistakes this way or that way before we can strike the right balance between sensitivity and specificity. That is why we need to remind ourselves of the famous saying attributed to Albert Einstein quoted in the beginning.

TWENTY YEARS ON AND... QUO VADIS?

There is nothing inherently new that we are proposing here – each one of the “cardinal” questions posed above has been asked, documented, and extensively debated, with variable results, often depending upon the seeker’s perspective. The detailed deliberations on these issues will require a series of critical reviews. What we intended to do instead was to arrange the key questions in a hierarchical manner, highlight the relevant controversies, and make our stand, however, incorrect or controversial it may be, with the clear disclaimer that we would happily accept to be proven wrong. The purpose is to generate further interest in this important area, to lay some sort of a roadmap, and to ask the famous question that St. Peters asked the resurrected Jesus: QUO VADIS, Domine?

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