

## The Internet's effect on personality traits: An important casualty of the “Internet addiction” paradigm

ELIAS ABOUJAOUDE\*

OCD Clinic, Stanford University School of Medicine, Stanford, CA, USA

(Received: November 20, 2016; revised manuscript received: December 30, 2016; accepted: December 30, 2016)

---

*Background and aims:* The “Internet addiction” paradigm has been criticized for several shortcomings, including inattention to specific online behaviors, not distinguishing the Internet from other media, insufficient focus on comorbidities, and definitions that do not take into account the constant access now possible. The paradigm’s biggest casualty, however, may be that it has diverted attention away from subtle personality changes that seem to occur online, including in users who cannot be considered “addicted” under any definition. *Methods:* A narrative assessment of the literature was conducted, focusing on the Internet’s effects on personality traits as revealed in studies of Internet users. *Results:* Impulsivity, narcissism, and aggression are some of the personality traits that seem to be nurtured by the Internet, with possible negative offline consequences. *Discussion:* Ignoring the Internet’s subtle effects on personality as we embrace an addiction model that implies severe pathology makes the majority of Internet users feel deceptively immune to the psychological effects of new technologies. It also limits our understanding of the big cultural shifts that are happening as a result. *Conclusion:* The Internet’s potentially negative effect on personality, and by extension on society at large, is a fundamental part of online psychology, one well worthy of further investigation.

**Keywords:** impulsivity, personality, Internet addiction, problematic Internet use, Internet gaming disorder

---

Scholars have increasingly questioned the concept of “Internet addiction” that has dominated research into Internet psychology for nearly two decades. Criticism has targeted the lack of focus on individual problematic behaviors performed online (Griffiths & Szabo, 2014; Starcevic & Aboujaoude, 2016); the confusion between addiction to a medium and addiction to a specific pursuit (Griffiths & Szabo, 2014); the relative insistence on withdrawal and tolerance as defining features (Starcevic & Aboujaoude, 2016); the challenge in defining excessive use as people are increasingly always online (Starcevic & Aboujaoude, 2016); the unrealistic separation between the Internet and myriad gaming and texting platforms now accessible via the same device (Aboujaoude, 2010); and the lack of rigor in ruling out possible proximal causes, such as depression, social anxiety, and attention deficit and hyperactivity disorder (Aboujaoude, 2010; Starcevic, 2010). Such shortcomings have contributed to, and are reflected in, the lack of an agreed upon name among the several that have been proposed [e.g., “Internet addiction” (Shaw & Black, 2008; Young, 2010), “problematic Internet use” (Aboujaoude, 2010; Aboujaoude, Koran, Gamel, Large, & Serpe, 2006; Demetrovics, Szeredi, & Rozsa, 2008; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000; Spada, 2014) “compulsive Internet use” (Greenfield, 1999; van Rooij, Schoenmakers, van den Eijnden, & van de Mheen, 2010), and “pathological use of electronic media” (Pies, 2009)] and the absence of an established definition for what constitutes Internet-related psychopathology. Inclusion of “Internet gaming disorder” in the fifth edition of the Diagnostic and Statistical Manual of

Mental Disorders (DSM-5) (American Psychiatric Association, 2013) as a condition for further research has not provided much direction, in part due to inconsistencies within the text (e.g., confounding Internet- and gaming-related pathology) (p. 796), leading to recommendations for clarity in the field (Kuss, Griffiths, & Pontes, 2016).

Another rarely discussed deficit in research conducted to date is the near total lack of consideration for the psychological effects of the Internet among individuals whose online behavior cannot plausibly be called “addictive,” “problematic,” or “compulsive,” or who do not meet criteria for any proposed definition of problematic use (Aboujaoude, 2011). The focus on addiction, gambling, or obsessive–compulsive disorder models in approaching this problem has had the effect of leaving those users – i.e., the majority of people online – feeling deceptively immune to the psychological impact of this medium. Yet the subtle negative psychological changes they may be undergoing as a result of the Internet can be as pervasive as the medium itself, even if precious little has been written about them beyond the narrow focus on severe psychopathology implied by “Internet addiction” and similar designations.

Popular culture abounds with examples of individuals acting in more impulsive, narcissistic, and aggressive ways online. The Internet and related technologies seem to nurture

---

\* Corresponding address: Elias Aboujaoude, MD, MA, Clinical Professor, Director; OCD Clinic, Stanford University School of Medicine, Stanford, CA 94305 USA; Phone: +1 650 498 9111; Fax: +1 650 724 3144; E-mail: [eaboujaoude@stanford.edu](mailto:eaboujaoude@stanford.edu)

these psychological traits, perhaps due to an “online disinhibition effect” that has been postulated to explain the less controlled behavior that many people display online (Suler, 2004). These traits are easily recognizable to most Internet users, even if very little empiric data are available about their true extent, or whether they are transposed into real life, potentially “re-designing” the offline individual in the image of his avatar. Still, some findings from studies conducted so far raise concerns about a rise in impulsivity, narcissism, and aggression due to the online lifestyle.

Internet-related technologies exacerbate impulsivity (Aboujaoude & Starcevic, 2016), as suggested, in part, by their effect on gambling disorder and compulsive buying disorder, both of which have been conceptualized as impulse control disorders (Aboujaoude, 2014; Kuzma & Black, 2005). As early as 2001, the American Psychiatric Association recognized an enabling effect of the Internet on gambling, leading it to issue an advisory warning to highlight its concerns (American Psychiatric Association, 2001). Since then, data on online gambling prevalence rates have proven these concerns to be justified (Brunelle et al., 2012; Griffiths, Wardle, Orford, Sproston, & Erens, 2009; Ladd & Petry, 2002; Wood & Williams, 2011;). While the use of online designs and self-selected samples limits the conclusions of several studies, one international study followed a weighted approach to analyze data from a large sample of gamblers ( $N = 12,521$ ) (Wood & Williams, 2011). Among Internet gamblers, 16.4% were moderate or severe problem gamblers, compared with 5.7% among non-Internet gamblers. When “at risk” gamblers are included, 39.9% of Internet gamblers were considered non-problem gamblers compared with 82.1% of non-Internet gamblers.

It was initially thought that the Internet might help curb the effects of compulsive buying by allowing price comparisons, protecting against in-store marketing, and saving people time by freeing them from the need to go to stores (Aboujaoude, 2011, p. 137). Unfortunately, data from studies of online shopping suggest a different outcome. For example, in a study of 314 customers (mean age = 53 years) of an online retail store, 17.7% were found to meet criteria for compulsive buying (Kukar-Kinney, Ridgway, & Monroe, 2009). Compared to those with non-pathological buying, compulsive buyers were more motivated to buy online, and their motivation was linked to the immediate gratification following an Internet purchase and the ability to shop unobserved and without company. Another study of compulsive online buying involved 200 French university students (mean age = 20.2 years) and found a similar rate (16%) of compulsive online buying (Duroy, Gorse, & Lejoyeux, 2014). Compared with non-compulsive online shoppers, compulsive shoppers preferred online buying for the immediate positive gratification (63.8% vs. 32.6%,  $p < .0001$ ). Importantly, the rates of compulsive buying among online shoppers in these studies exceed the prevalence estimates from studies that were conducted either before the advent of online retail or that did not focus solely on it. Among those, the largest US population-based survey estimated prevalence at 5.8% (Koran, Faber, Aboujaoude, Large, & Serpe, 2006).

One cannot commit suicide online the way one can gamble or make a purchase, but suicide rates have also

risen in recent years, as revealed in recent US food and drug administration data (Curtin, Warner, & Hedegaard, 2016). Impulsivity has long been recognized as a risk factor for suicide across diagnoses, and the rise in suicide rates has been linked to an Internet effect that may be making self-harm impulses more difficult to resist via providing an “encouraging” environment that softens and circumvents offline deterrents (Aboujaoude, 2016). From gambling to shopping and suicide, while the biological underpinnings of the specific impulsivity manifestation have yet to be explored, imaging and neuropsychological research may provide some explanations in the form of altered behavioral task performance and amygdala gray matter density (Ko et al., 2015) or changing activation levels in the ventral anterior cingulate cortex, dorsolateral prefrontal cortex, and left orbitofrontal cortex (Dong, Lin, & Potenza, 2015).

Narcissism is another trait that often characterizes online behavior. Cultural criticism (Aboujaoude, 2011) has focused on websites as vehicles for self-promotion (e.g., “Façade”-book), social networks that imply popularity via the number of one’s “friends” or “followers,” and the emphasis on “I” in naming sites and Internet-powered gadgets. One study attempted to explore the issue empirically in 129 undergraduate Facebook users (Buffardi & Campbell, 2008). Researchers administered the Narcissistic Personality Inventory (NPI), a scale designed to detect narcissistic traits by asking test takers to choose between statements such as “My body is nothing special” versus “I like to look at my body.” Separately, independent evaluators who did not meet the subjects analyzed their Facebook pages according to preset objective and subjective criteria. Objective criteria included the number of friends listed, the number of groups the person belonged to, the number of lines of text in the “About Me” section, and the number of Wall posts. Subjective criteria included the content of the “About Me” section (rated as self-absorbed, self-important, self-promoting, or self-conscious) and the clothing worn in the main photo (rated as attractive, self-promoting, sexy, vain, or modest). The scores on objective and subjective measures of narcissism were then tallied and compared with NPI scores.

Results showed that independent raters were able to accurately detect the subjects’ narcissism level based on their profile content, as higher NPI scores were linked to more Facebook interactions and to profile photographs that were judged as sexier and more self-promoting. The authors conclude that “because narcissists have more social contacts on Facebook than the non-narcissists, the average user will experience a social network that over-represents narcissists. . . [This] raises the possibility that . . . norms of expression on social networking sites will be pulled in the direction of greater self-promotion.” In other words, when it comes to narcissistic traits, the Internet can act as a magnet and a magnifier.

Besides impulsivity and narcissism, Internet users can demonstrate more gratuitous aggression, as any visit to an anonymous blogging bulletin or chat room quickly demonstrates. Unbound by the rules and norms that govern offline life, online interactions too often devolve to an base, instinct-driven mode of behaving that ignores the standards of ethics and civility. Online shaming and name-calling, cyberbullying, and the voicing of racist and ideologically

radical opinions are only a few examples (Aboujaoude, 2011). Real concern exists as to whether such violent online discourse may lead to a more hostile, less cohesive society (Aboujaoude, 2011). While research has yet to answer this question, some studies on the long-term effects of violent online games have generated worrisome results. For example, a large meta-analysis that involved over 130,298 participants tested the effect of video game violence in a cross-cultural sample drawn from Western (mostly US) and Eastern (mostly Japanese) societies (Anderson et al., 2010). Results strongly suggested that exposure to gaming violence was a causal risk factor for offline aggression, aggressive cognition, aggressive affect, decreased empathy, and decreased prosocial behavior. Furthermore, when data allowed it to be tested, there was no clear moderator effect by gender or culture on these outcome measures. As far as the consequences on personality and behavior of some online pursuits, then, it would seem as though people are all more alike than different.

Besides impulsivity, narcissism, and aggression, traits such as regression and grandiosity have been described as integral parts of the online experience and of the online personality (Aboujaoude, 2011). The child-like writing style that many adopt online, heavy on emoticons, contractions and bitmojis (expressive personal cartoon avatars), and the very high popularity among adults of online games might be seen as a sign of devolution to less mature stages of development (Aboujaoude, 2011). Similarly, the “Wild West” metaphor, present at the origin of the Internet when it implied that anything was possible in this new uncharted world, remains relevant and still causes many to approach the Internet with limitless optimism and somewhat deceptive self-empowerment (Aboujaoude, 2011). Whether these traits are resulting in a less mature or more grandiose society is a question that has yet to be seriously asked and answered.

Internet-related technologies have important psychological effects that manifest online and that may remain relevant offline, too, after the person has logged off. The focus on “Internet addiction” has diverted attention away from such “everyday” psychological experiences that can be said to affect, to varying degrees, most users, even if these users cannot be considered addicted to the medium under any proposed definition of pathological use. Much has been written to challenge the addiction paradigm in approaching the Internet, but the lack of attention to the more subtle personality changes that occur as a result of interactions with new technologies represents another serious, broadly relevant but rarely discussed cost to this approach. Yet, as a crucial part of online psychology, how technology and personality interact is well worthy of serious research attention and exploration.

---

*Funding sources:* The author received no funding for researching and writing this article.

*Conflict of interest:* The author reports no conflict of interest pertaining to this article.

---

## REFERENCES

- Aboujaoude, E. (2010). Problematic Internet use: An overview. *World Psychiatry, 9*(2), 85–90. doi:10.1002/j.2051-5545.2010.tb00278.x
- Aboujaoude, E. (2011). *Virtually you: The dangerous powers of the e-Personality*. New York, NY: W. W. Norton.
- Aboujaoude, E. (2014). Compulsive buying disorder: A review and update. *Current Pharmaceutical Design, 20*(25), 4021–4025. doi:10.2174/13816128113199990618
- Aboujaoude, E. (2016). Rising suicide rates: An under-recognized role for the Internet? *World Psychiatry, 15*(3), 225–227. doi:10.1002/wps.20344
- Aboujaoude, E., Koran, L. M., Gamel, N., Large, M. D., & Serpe, R. T. (2006). Potential markers for problematic Internet use: A telephone survey of 2,513 adults. *CNS Spectrums, 11*(10), 750–755. doi:10.1017/S1092852900014875
- Aboujaoude, E., & Starcevic, V. (2016). The rise of online impulsivity: A public health issue. *Lancet Psychiatry, 3*(11), 1014–1015. doi:10.1016/S2215-0366(16)30231-0
- American Psychiatric Association. (2001). *APA advisory on Internet gambling*. Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Publishing.
- Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., Rothstein, H. R., & Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in eastern and western countries: A meta-analytic review. *Psychological Bulletin, 136*(2), 151–173. doi:10.1037/a0018251
- Brunelle, N., Leclerc, D., Cousineau, M. M., Dufour, M., Gendron, A., & Martin, I. (2012). Internet gambling, substance use, and delinquent behavior: An adolescent deviant behavior involvement pattern. *Psychology of Addictive Behaviors, 26*(2), 364–370. doi:10.1037/a0027079
- Buffardi, L. E., & Campbell, W. K. (2008). Narcissism and social networking Web sites. *Personality and Social Psychology Bulletin, 34*(10), 1303–1314. doi:10.1177/0146167208320061
- Curtin, S. C., Warner, M., & Hedegaard, H. (2016). *Increase in suicide in the United States, 1999–2014*. Retrieved from <http://www.cdc.gov/nchs/products/databriefs/db241.htm>
- Demetrovics, Z., Szeredi, B., & Rózsa, S. (2008). The three-factor model of Internet addiction: The development of the problematic Internet use questionnaire. *Behavior Research Methods, 40*(2), 563–574. doi:10.3758/BRM.40.2.563
- Dong, G., Lin, X., & Potenza, M. N. (2015). Decreased functional connectivity in an executive control network is related to impaired executive function in Internet gaming disorder. *Progress in Neuro-Psychopharmacology & Biological Psychiatry, 57*, 76–85. doi:10.1016/j.pnpbp.2014.10.012
- Duroy, D., Gorse, P., & Lejoyeux, M. (2014). Characteristics of online compulsive buying in Parisian students. *Addictive Behaviors, 39*(12), 1827–1830. doi:10.1016/j.addbeh.2014.07.028
- Greenfield, D. N. (1999). Psychological characteristics of compulsive Internet use: A preliminary analysis. *CyberPsychology & Behavior, 2*(5), 403–412. doi:10.1089/cpb.1999.2.403
- Griffiths, M., Wardle, H., Orford, J., Sproston, K., & Erens, B. (2009). Sociodemographic correlates of Internet gambling: Findings from the 2007 British gambling prevalence survey.

- CyberPsychology & Behavior*, 12(2), 199–202. doi:10.1089/cpb.2008.0196
- Griffiths, M. D., & Szabo, A. (2014). Is excessive online usage a function of medium or activity? An empirical pilot study. *Journal of Behavioral Addictions*, 3(1), 74–77. doi:10.1556/JBA.2.2013.016
- Ko, C. H., Hsieh, T. J., Wang, P. W., Lin, W. C., Yen, C. F., Chen, C. S., & Yen, J. Y. (2015). Altered gray matter density and disrupted functional connectivity of the amygdala in adults with Internet gaming disorder. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, 57, 185–192. doi:10.1016/j.pnpbp.2014.11.003
- Koran, L. M., Faber, R. J., Aboujaoude, E., Large, M. D., & Serpe, R. T. (2006). Estimated prevalence of compulsive buying behavior in the United States. *American Journal of Psychiatry*, 163(10), 1806–1812. doi:10.1176/ajp.2006.163.10.1806
- Kukar-Kinney, M., Ridgway, N. M., & Monroe, K. B. (2009). The relationship between consumers' tendencies to buy compulsively and their motivations to shop and buy on the Internet. *Journal of Retailing*, 85(3), 298–307. doi:10.1016/j.jretai.2009.05.002
- Kuss, D. J., Griffiths, M. D., & Pontes, H. (2016). Chaos and confusion in DSM-5 diagnosis of Internet Gaming Disorder: Issues, concerns, and recommendations for clarity in the field. *Journal of Behavioral Addictions*, 7, 1–7. doi:10.1556/2006.5.2016.062
- Kuzma, J. M., & Black, D. W. (2005). Disorders characterized by poor impulse control. *Annals of Clinical Psychiatry*, 17(4), 219–226. doi:10.1080/10401230500295347
- Ladd, G. T., & Petry, N. M. (2002). Disordered gambling among university-based medical and dental patients: A focus on Internet gambling. *Psychology of Addictive Behaviors*, 16(1), 76–79. doi:10.1037/0893-164X.16.1.76
- Pies, R. (2009). Should DSM-V designate "Internet addiction" a mental disorder? *American Journal of Psychiatry*, 6, 31–37.
- Shapira, N. A., Goldsmith, T. D., Keck, P. E., Khosla, U. M., & McElroy, S. L. (2000). Psychiatric features of individuals with problematic Internet use. *Journal of Affective Disorders*, 57(1–3), 267–272. doi:10.1016/S0165-0327(99)00107-X
- Shaw, M., & Black, D. W. (2008). Internet addiction: Definition, assessment, epidemiology and clinical management. *CNS Drugs*, 22(5), 353–365. doi:10.2165/00023210-200822050-00001
- Spada, M. M. (2014). An overview of problematic Internet use. *Addictive Behaviors*, 39(1), 3–6. doi:10.1016/j.addbeh.2013.09.007
- Starcevic, V. (2010). Problematic Internet use: A distinct disorder, a manifestation of an underlying psychopathology, or a troublesome behaviour? *World Psychiatry*, 9(2), 92–93. doi:10.1002/j.2051-5545.2010.tb00280.x
- Starcevic, V., & Aboujaoude, E. (2016). Internet addiction: Reappraisal of an increasingly inadequate concept. *CNS Spectrums*, 22, 7–13. doi:10.1017/S1092852915000863
- Suler, J. (2004). The online disinhibition effect. *CyberPsychology & Behavior*, 7(3), 321–326. doi:10.1089/1094931041291295
- van Rooij, A. J., Schoenmakers, T. M., van den Eijnden, R. J. J. M., & van de Mheen, D. (2010). Compulsive Internet use: The role of online gaming and other Internet applications. *Journal of Adolescent Health*, 47(1), 51–57. doi:10.1016/j.jadohealth.2009.12.021
- Wood, R. T., & Williams, R. J. (2011). A comparative profile of the Internet gambler: Demographic characteristics, game-play patterns, and problem gambling status. *New Media and Society*, 13(7), 1123–1141. doi:10.1177/1461444810397650
- Young, K. (2010). Internet addiction over the decade: A personal look back. *World Psychiatry*, 9(2), 91. doi:10.1002/j.2051-5545.2010.tb00279.x