Psychiatry Research 255 (2017) 341–346

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Suicidality, psychopathology, and the internet: Online time vs. online behaviors

Keith M. Harris[a,b,*], Vladan Starcevic[c], Jing Ma[d], Wei Zhang[e], Elias Aboujaoude[f]

[a] School of Medicine, University of Tasmania, Hobart, TAS, Australia
[b] School of Psychology, University of Queensland, St Lucia, QLD, Australia
[c] Sydney Medical School – Nepean, Discipline of Psychiatry, University of Sydney, Sydney/Penrith, NSW, Australia
[d] MBA School, Henan University of Economics and Law, Zhengzhou, Henan, P.R. China
[e] School of Medicine and Health Management, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, P.R. China
[f] Stanford University School of Medicine, Department of Psychiatry and Behavioral Sciences, Stanford, CA, USA

ABSTRACT

This study investigated whether several psychopathology variables, including suicidality, could predict the time people spend using the internet (hours online). Next, we examined a specific at-risk population (suicidal individuals) by their online behaviors, comparing suicidal individuals who went online for suicide-related purposes with suicidal individuals who did not go online for suicide-related purposes. An anonymous online sample of 713 (aged 18–71) reported hours online, psychiatric histories, and completed several standardized scales. After accounting for age and education, hierarchical regression modeling showed that the assessed psychopathology variables, including suicidality, did not explain significant variance in hours online. Hours online were better predicted by younger age, greater willingness to develop online relationships, higher perceived social support, higher curiosity, and lower extraversion. Suicidal participants, who did or did not go online for suicide-related purposes, did not differ on hours online. Multiple regression modeling showed that those who went online for suicide-related purposes were likely to be younger, more suicidal, and more willing to seek help from online mental health professionals. These findings revealed that hours online are not a valid indicator of psychopathology. However, studying online behaviors of specific at-risk groups could be informative and useful, including for suicide prevention efforts.

1. Introduction

It is a truism that the internet has become an indispensable part of everyday life. However, it is also apparent that people become attached to the internet in different ways, for different purposes – and for very different periods of time. While some use the internet relatively briefly or mainly for work-related purposes, others regularly spend many hours a day online for recreational, communication, information-seeking or other purposes.

There has been a tendency to associate the length of time spent online with the severity of psychiatric symptoms and psychopathology (e.g., Yang et al., 2005), including symptoms of anxiety and depression (Rosen et al., 2013; Tonioni et al., 2012; Yang et al., 2005), and dissociative symptoms (Bernardi and Pallanti, 2009). Some researchers interpreted associations between high levels of depression and the concept of 'internet addiction' as suggesting a relationship between depression and 'excessive' time spent online (e.g., Young and Rogers, 1998). However, it has been difficult to quantify excessive use of the internet, considering an ever-increasing reliance on information technologies. Accordingly, individuals with self-identified internet addiction reported that their mean number of weekly hours spent online was 8.5 in 2000 (Morahan-Martin and Schumacher, 2000), 21.2 in 2007 (Yang and Tung, 2007), and 47.8 in 2012 (Tonioni et al., 2012). Moreover, it has become apparent that the amount of time spent online could not serve as a sufficient predictor of problematic or 'addictive' use of the internet and that it could not reliably distinguish between normal and pathological online use (Baggio et al., 2016; Charlton and Danforth, 2007; Czincz and Hechanova, 2009; Griffiths, 2010; Van Rooij and Prause, 2014; Wallace, 2014).

The internet is an environment, a medium for interpersonal communications and other behaviors (Bell, 2007; Yellowlees and Marks, 2007). Therefore, time spent online can vary greatly in meaning and outcomes. Instead of postulating arbitrary time-based cut-offs that would distinguish pathological from normal internet use, it might be

* Corresponding author at: School of Medicine, University of Tasmania, Hobart, TAS, Australia.
E-mail addresses: K.Harris@utas.edu.au, esensei@yahoo.com (K.M. Harris).

http://dx.doi.org/10.1016/j.psychres.2017.06.012
Received 31 July 2016; Received in revised form 23 January 2017; Accepted 5 June 2017

more illuminating to examine the purposes of going online. In other words, various online activities (e.g., gaming, watching pornography, looking for health-related or suicide-related information, or social networking) might relate to various populations, and time spent online might be predicted by variables of particular relevance to these populations.

1.1. Online populations: suicidal internet users

Suicidal internet users may represent a unique online population. Qualitative analyses have revealed that suicidal people engage in a variety of online behaviors that range from self-help to self-harm, with equally conflicting motivations (Ma et al., 2016; Wiggins et al., 2016). Research also demonstrated the value of differentiating between suicidal internet users who go online for suicide-related purposes (suicide-related online users) and those who do not use the internet in relation to their suicidality (Harris et al., 2009). Harris and colleagues' research found suicide-related online users reported more online hours and greater suicidality than suicidal individuals who did not go online for suicide-related purposes. Further examination of suicidal internet users could better illuminate associations between hours spent online on one hand and suicide-related online behaviors and psychopathology on the other.

1.2. Study aims

Time spent online appeals as a relatively objective and easily measurable variable. When 'excessive,' it is sometimes invoked as a reflection of problematic online behaviors and of associated psychopathology symptoms. Therefore, the first aim of this study was to investigate whether a number of psychopathological and psychiatric variables (levels of depression, anxiety and suicidality, personality traits and histories of psychiatric disorders, treatment and admissions) could predict the amount of time spent online. We then examined a specific internet-related interest (i.e., going online for suicide-related purposes). We compared suicidal suicide-related online users with suicidal internet users who did not go online for suicide-related purposes. Suicide-related online users were predicted to report more online hours, be more suicidal, and more likely to seek interpersonal relationships and help online (Harris et al., 2009). We also explored the relevance of previously untested variables (e.g., personality traits) as predictors of suicidal individuals going online for suicide-related purposes.

2. Method

2.1. Target population and recruitment

To gain a better understanding of relationships between total hours spent online and psychiatric symptoms including suicidality, we required a sample that included individuals covering a wide spectrum of both time spent online and psychopathology symptoms (e.g., DeVellis, 2012; Rothman et al., 2012). Our inclusion criteria were: English speaking, aged over 18 years (a requirement of the ethics board), and access to the internet. The survey also aimed to ensure greater participation by suicidal individuals by specifying that it addressed suicide (Harris et al., 2009). An anonymous online survey was chosen as it is appropriate for study questions. Online surveys are highly advantageous for these studies, partly due to ensuring that all participants are active internet users – by virtue of their participation in the online survey. Also, anonymous surveys have been shown to reduce error (social desirability bias and other motivations for inaccurate responses) when assessing stigmatized or sensitive topics such as psychopathology (Tourangeau and Yan, 2007). To obtain the desired sample we created very brief advertisements for Google and Facebook. These stated "volunteers needed for an anonymous survey on personality, suicidality and the internet." In addition, researchers posted an identical message by email to known associates, and a request to forward the survey link, resulting in a snowball effect. The Google and Facebook advertising was not targeted to specific demographic groups, with the exception that the Facebook ad was only available to users in countries where English is the primary language. Google users who searched for terms that included "suicide" had the possibility of seeing the advertisement, which included a link to the survey. Facebook users were more randomly exposed to the ad. Data was not collected on how many participants completed the survey from these sources, however, based on the timing of the three methods it appeared the snowballing approach yielded few participants.

2.2. Measures

2.2.1. Online and psychopathological factors

Psychopathology was assessed with the self-report instruments listed below. There were three items on psychiatric history: "Have you ever been diagnosed (by a doctor/professional) with a mental disorder (for example: anxiety, depression, ADHD, etc.)?"; "Have you ever been prescribed medication for your mental health (for example: Prozac, Ritalin)"; and "Have you ever been placed in a hospital for any mental health reasons?" To group suicidal participants by their history of online suicide-related behaviors we replicated previous study (Harris et al., 2009) by asking participants "Have you ever gone online for any suicide-related reason? (for example: searching for information, to talk with someone, to visit suicide prevention sites)," "yes," "no," or "not sure." Not sure responses (3.6%) were recoded as "no." To obtain an approximation of the typical number of hours participants spent online, the survey included the item "About how many hours do you spend online each week?" (1–100).

2.2.2. Suicidal Affect-Behavior-Cognition Scale (SABCS; Harris et al., 2015)

The SABCS assessed participants' suicidality and consisted of six self-report items on affective, behavioral, and cognitive suicidal attributes, loading strongly on one factor. Items are summed, with higher scores indicating greater suicidality (range = 5–44). Scores > 9 indicated at least low suicidality, which was used as the basis for grouping participants as suicidal. The SABCS has demonstrated strong psychometric properties and clinically meaningful predictive abilities (Harris et al., 2015). For this study, Cronbach's $\alpha = 0.93$, McDonald's $\omega_h = 0.95$.

2.2.3. Depression, Anxiety and Stress Scales (DASS-21; Antony et al., 1998)

The DASS-21 evaluated participants' self-reported symptoms of depression, anxiety and stress on three eponymous subscales. The anxiety subscale of the DASS-21 assesses autonomic arousal symptoms, situational anxiety, and subjective experience of anxious affect, whereas the stress subscale assesses difficulty relaxing and being easily upset or agitated, irritable, over-reactive and impatient. Each subscale consists of seven items (scored 0–3) with higher total scores indicating greater symptom severity. For this study, $\alpha = 0.88$–0.96.

2.2.4. International Personality Item Pool (IPIP; Goldberg, 1992)

The IPIP consists of five subscales that assess five personality traits: emotional stability, extraversion, agreeableness, conscientiousness, and curiosity (intellectual curiosity, openness to experience). There are ten items (scored 0–3) in each subscale. Higher scores indicate greater attributes on each trait. Emotional stability has shown negative associations with psychopathology (Lamers et al., 2012), and for this study was strongly correlated with the SABCS and DASS scales ($r = -0.61$ to -0.74, $ps < 0.001$). For this study, $\alpha = 0.84$–0.92.