A vacation from your mind: Problematic online gaming is a stress response

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ARTICLE INFO

ABSTRACT

We present ethnographically-informed survey and interview data suggesting that problematic online gaming in the *World of Warcraft* (*WoW*) can be conceptualized as a response to pre-existing life stress, which for highly stressed individuals magnifies rather than relieves their suffering. In particular, we explore how relaxing and arousing in-game experiences and activities provide forms of cognitive diversion that can lead to problematic play among more highly stressed individuals. Our research supports what has been called a "rich get richer" model of problematic Internet use. In this instance, less stressed individuals manage to play *WoW* so as to enhance their offline lives. By contrast, more highly stressed players further magnify the stress and suffering in their lives by playing problematically the online game within which they sought refuge from their offline problems.

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1. Introduction

In the present study of the widely popular online game *World of Warcraft* (*WoW*), we use ethnographically-informed survey and interview data to analyze whether problematic online gaming, sometimes viewed as a form of "addiction," emerges as a response to life stress. We build on previous work suggesting problematic Internet use (PIU) is a behavioral manifestation of perceived life stress (Griffiths, 2005; Widyanto & Griffiths, 2006). We also draw on research showing that massively multiplayer online role-playing games (MMOs) in particular can provide relaxation and thus stress relief (Snodgrass et al., 2012; Snodgrass, Dengah, Lacy, & Fagan, 2013; Yee, 2006a, 2006b, 2006c). Combining insights from these two bodies of research, we examine whether in-game experiences of stress relief mediate between perceived offline life stress and problematic online gaming experiences. This pattern of relationship has yet to be demonstrated in the PIU and MMO literature. Illuminating these potential causal chains is useful, as it helps in understanding how structural features of MMO play are implicated in the pathogenesis of problematic online gaming, as well as how such features might connect to life

stress to shape individual players' vulnerability and resilience to such problematic play.

In our study, we focus on both relaxing and also stimulating forms of MMO play, for example, the relatively mindless and thus relaxing performance of simple and repetitive in-game tasks (such as killing lower-level monsters or simply leisurely exploring *WoW's* virtual landscapes), and highly stimulating collaborative group events (such as "raids" in which a group of players attempt to defeat some of the most challenging of *WoW's* monsters or "bosses").[1] In the analysis that follows, we treat both relaxing and arousing *WoW* play experiences as sources of cognitive "diversion." By distracting gamers' attention from offline problems, these experiences can serve a stress-management function, providing, in one respondent's phrasing, a "vacation from your mind." Working from that perspective, we explore the idea that players with more stress in their lives may over-use that cognitive diversion, with attendant problematic consequences, thus treating problematic play as a "stress response." Here, environmental stressors produce various psychological and somatic "strains," from which players escape into the cognitive diversions of *WoW* and similar games, but which can ultimately lead to problematic online gaming.

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[1] These *WoW* activities are described in greater depth elsewhere (Snodgrass, Lacy, Dengah, Fagan, & Most, 2011; Snodgrass et al., 2012).

In these terms, we explore what has been called a "rich get richer" model of problematic Internet use (Kraut et al., 2002). As revealed in our initial qualitative interviews, individuals with higher levels of offline well-being can experience online activities like *WoW* gaming as either a relaxing or an arousing "therapeutic" escape from offline life and its problems. By contrast, more stressed and distressed individuals suggested in interviews that they were less able to control their online pleasures and experiences, seeming to need them more. As a result, enjoyable and even potentially therapeutic play became instead compulsive and thus disruptive to offline lives, potentially ultimately amplifying rather than minimizing these gamers' initial stress and distress. Based on these insights and others, we hypothesized that players might end up playing excessively in an attempt to manage and minimize the stress in their lives, if often unsuccessfully, given that these sometimes compulsive efforts could eventually lead to even greater stress and suffering.

We test these ideas in an online Web survey, clarifying the revealed relationships between offline stress, in-game cognitive diversion, and problematic gaming through further analysis of interview data. The following pages first lay out the theoretical underpinnings of our own research model and hypotheses related to problematic online gaming and stress, followed by a presentation of our survey and interview results, which are subsequently discussed within the context of both our ethnography and a body of research on problematic online play.

2. Theoretical background and research model

2.1. Review of previous research

2.1.1. Literature on addictive and problematic online gaming

Problematic or "addictive" online play—the outcome of interest here—has been conceptualized in varying ways in the literature, and we wish first to clarify our own usage, particularly in relation to contemporary concepts of addiction. Following Goodman (1990), we define "addiction" as the inability to control and curtail a behavior despite negative consequences (Goodman, 1990). In contrast to this view, prevalent medical perspectives often frame addiction neurobiologically, as a chronic, relapsing brain disease involving problems of reward, motivation, memory, and other neurological circuitry (Goldstein & Volkow, 2002; Kalivas & Volkow, 2005; Smith, 2012; Volkow, Fowler, & Wang, 2003). However, it would be more accurate to describe the dominant addiction frame as "biopsychosocial" (Donovan & Marlatt, 2005; Marlatt & Donovan, 2005), in the sense that the substance use that alters brain reward and related circuitry is embedded within and patterned by environmental and sociocultural contexts (Duka, Crombag, & Stephens, 2011; Leshner, 1997). In this dominant view, then, addiction is thought to be caused by complex, mutually reinforcing networks of mechanisms spanning biological, psychological, and contextual/environmental levels of explanation (Kendler, 2011; Kendler, Zachar, & Craver, 2011).

Of particular relevance to the current analysis is research suggesting that similar patterns of continued behavior despite adverse consequences can develop in relation to non-substance related activities—such as gambling—to produce states referred to as "behavioral addictions" (Grant, Brewer, & Potenza, 2006; Grant, Potenza, Weinstein, & Gorelick, 2010; Holden, 2001, 2010). Some scholars have proposed "Internet addiction" as characterized by excessive or poorly controlled behaviors, preoccupations, and urges regarding computer use and Internet access that leads to distress or impairment (Block, 2008; Shaw & Black, 2008). They suggest that distressful patterns of Internet use, like other behavioral addictions, can be usefully classified with alcohol and drug use

disorders, as they share common characteristics related to salience, mood modification, tolerance, withdrawal, conflict, and relapse (Griffiths, 1999). In fact, some neuroimaging studies have found functional and structural brain abnormalities in individuals classified as "addicted" to the Internet, patterns which resemble those among individuals with other substance-related addictions (Kuss & Griffiths, 2012; Yuan, Qin, Liu, & Tian, 2011).

However, others question whether problematic Internet use (PIU) shares the "dependency" symptoms characteristic of substance addiction such as increasing tolerance and withdrawal (Davis, 2001). Further, recent reviews urge caution in suggesting certain forms of Internet use—related to online or other forms of gaming—might rewire users' brain circuitry into "addicted" patterns, including transformed dopaminergic reward circuitry (Bavelier et al., 2011). Other scholars have suggested that Internet use disorders are "compulsions" without attendant reward, rather than addictions (Shaw & Black, 2008). Or, patterns of Internet misuse might best be classified as "impulse control disorders"—in that individuals fail to resist temptations, urges, or impulses that may harm oneself or others, though still bringing at least short-term pleasures and thus contrasting to more purely "compulsive" activities—leading to debates about what DSM or other psychiatric nosological category provides the best prototype for these problematic forms of Internet usage (Block, 2008; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000; Treuer, Fábián, & Füredi, 2001; Young, 1998).

Rather than analyzing all problematic online activity similarly, some researchers also suggest that each form may have a distinct etiology and consequences (Davis, 2001; Yee, 2006c; Yellowlees & Marks, 2007). That is, the Internet provides users with diverse activities with "addictive" potential, including gambling, pornography, social networks, and games, which challenges the idea that one could be addicted to the Internet per se, as compared to one of the pleasures of which it is a portal. Thus, an expanding body of research examines uncontrollable and distressful use of online games, studied more narrowly apart from such problematic Internet use conceived as a general phenomenon (Caplan, Williams, & Yee, 2009; Davis, 2001; Davis, Flett, & Besser, 2002; Seay & Kraut, 2007; Yee, 2006c; Yellowlees & Marks, 2007). Likewise, U.S. psychiatrists have yet to reach consensus on exactly what to call or how to parse—or even whether to recognize as a mental disorder—uncontrollable and distressful online activity. In the DSM-5, the sole recognized "behavioral addiction" is "gambling disorder," grouped with other formerly classified substance "abuse" and "dependence" disorders into a single "substance-related and addictive disorders" category. However, "Internet gaming disorder"—like all Internet-related problems—has yet to gain such a recognized status, instead being identified in an appendix of this manual (Section 3) as a condition warranting more clinical research before potentially being included in the main book as a formally recognized disorder (American Psychiatric Association, 2013).

Given the disputed status of Internet-related use problems, we follow Griffiths and take a "components" approach to such forms of activity and distress (Griffiths, 2005). For our current purposes, we make no definitive claim that PIU is an "addiction" as compared to, for example, a compulsion or an impulse dysfunction. Further, we prefer a more neutral reference to "problematic play" rather than to "addiction." Overall, we agree with Griffiths and others that problematic usage comprises distinct but interrelated forms of distress, which can meaningfully be summed into a scale that includes diverse experiences of self-reported distress related to Internet activity (or, in our case, more narrowly to online gaming) (Caplan, 2010; Davis et al., 2002; Griffiths, 2005; Young, 1999). Such a conceptualization avoids connoting substance abuse and more narrowly defined underlying neurological reward cycles