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Journal of Affective Disorders





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Research paper

Video game addiction in emerging adulthood: Cross-sectional evidence of pathology in video game addicts as compared to matched healthy controls \star



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ARTICLE INFO ABSTRACT Keywords: Background: The Internet Gaming Disorder Scale (IGDS) is a widely used measure of video game addiction, a Video game addiction pathology affecting a small percentage of all people who play video games. Emerging adult males are sig-

Pathological gaming Emerging adults Internet gaming addiction nificantly more likely to be video game addicts. Few researchers have examined how people who qualify as video game addicts based on the IGDS compared to matched controls based on age, gender, race, and marital status. Method: The current study compared IGDS video game addicts to matched non-addicts in terms of their mental, physical, social-emotional health using self-report, survey methods.

Results: Addicts had poorer mental health and cognitive functioning including poorer impulse control and ADHD symptoms compared to controls. Additionally, addicts displayed increased emotional difficulties including increased depression and anxiety, felt more socially isolated, and were more likely to display internet pornography pathological use symptoms. Female video game addicts were at unique risk for negative outcomes.

Limitations: The sample for this study was undergraduate college students and self-report measures were used. Conclusions: Participants who met the IGDS criteria for video game addiction displayed poorer emotional, physical, mental, and social health, adding to the growing evidence that video game addictions are a valid phenomenon.

1. Introduction

Video games have become a normative part of Western culture. For most video game players, video games are a harmless way to relive stress, socialize with peers, and spend time. Parents of adolescents and young adults frequently joke that their kids are "addicted" to video games, but this is hyperbole for most youth. However, there is evidence that for some individuals, video game play can interfere with social functioning and well-being. There is no universal definition of addiction, but Orford (2001) defined addiction as "a combination of operant reward, usually in the form of some powerful emotional change, plus wide cue elicitation of conditioned responses that assists consumption in one way or the other, operating within diverse social contexts, between them constitute a powerful set of processes responsible for the amplification of a small and unremarkable liking into a strong and potentially troublesome attachment (p.22)." Hellman et al. (2013) further elaborate that a reward in this context can be anything that is pleasurable, and does not limit only to substances, but can include rewards like gambling and video games. Therefore, addiction need not be limited only to substances, but can include any external stimuli that creates a "strong and potentially troublesome attachment." Video game use becomes pathological when this strong attachment damages multiple levels of functioning such as family life, social functioning, school or work performance, or psychological functioning (Gentile et al., 2011).

1.1. Video game addiction

A nationally representative sample of 8-18-year-old youth in the United States found that approximately 8% of video game players displayed pathological patterns of play (Gentile, 2009). In a nationally representative sample of 15-40-year-old participants in Norway approximately 4.6% of video game players displayed pathological patterns of play and .6% met the criteria for true video game addiction (Mentzoni et al., 2011), suggesting that video game addiction is a rare, but valid phenomenon affecting a small percentage of video game players. In fact, formal features of video games may increase the likelihood of developing addictive behaviors, similar to the formal features of slot machines increasing the likelihood of gambling addiction. Previous researchers have argued that video games are exceptional

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http://dx.doi.org/10.1016/j.jad.2017.08.045 Received 17 January 2017; Received in revised form 27 June 2017; Accepted 14 August 2017 Available online 18 August 2017 0165-0327/ © 2017 Elsevier B.V. All rights reserved.

^{*} This research was funded by a LUROP fellowship awarded by the Loyola University Chicago Office of the Provost.

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teachers because they increase in difficulty as players' master game content and technique, present multiple ways of solving or mastering a problem, require repeated practice over multiple days, provide rewards for achievement, increase popularity by achieving success, and provide an adrenaline rush which excite learners (Gentile and Gentile, 2005). These exceptional "teachers" have narrative and identity features such as being able to create an avatar playing in the game that looks like the player or how the player wishes they looked and constant reward and punishment features such as experience points, loss of life, gaining health, repairing items, difficult "bosses" at the end of a level, instant rewards, and the ability to instant replay a level, which all lead to increased difficulty disengaging from video games (King et al., 2010). These formal features which make video games excellent teachers and difficult to disengage from also increase the likelihood of developing addictive behaviors and tendencies.

1.2. Risk factors for video game addiction

Young adult males have been shown to be at the greatest risk for video game addiction possibly due to the flexible work/study hours associated with the higher education typical during this age range, living outside of the home for the first time, and increased autonomy (King et al., 2012b; Young, 1998). Time spent playing video games, poor social competence (Gentile et al., 2011), poor impulse control, increased sensation seeking, increased narcissistic personality traits (Griffiths et al., 2012), high state and trait anxiety (Mehroof and Griffiths, 2010) and previous truancy and few leisure activities (Rehbein et al., 2010) are all risk factors to developing video game addictions and in fact are risk factors to most addictive behaviors. In adolescents, being from a single parent home is a risk factor for developing a video game addiction (Rehbein and Baier, 2013), likely due to lack of monitoring and increased time spent playing video games. A series of studies by Dong et al., (2010, 2013) found executive functioning problems in response to a color word stroop task in video game addicts, further reflecting the importance of poor impulse control and behavioral inhibition in video game addiction.

1.3. Outcomes of video game addiction

Video game addiction has been associated with a variety of negative psychological and social outcomes including decreased life satisfaction, loneliness, social competence (Lemmens et al., 2009), poorer academic achievement, increased impulsivity (Gentile, 2009), increased aggression (Griffiths et al., 2012), and increased depression and anxiety (Mentzoni et al., 2011). It is important to note that time spent playing video games alone was not associated with these negative social, emotional, and psychological outcomes and that these negative outcomes are specifically related to video game addiction (Brunborg et al., 2014). Some research suggests that some of the negative consequences of pathological gaming can be negated if gamers are able to disconnect from the gaming world. For example, Gentile et al. (2011) found that depression, anxiety, and social phobias all improve when adolescents stop being a pathological gamer. Similarly, Cognitive Behavioral Therapy (CBT), a therapeutic approach that teaches people to recognize emotions and thought processes associated with addictions and learn coping skills to correct these cognitions, has been relatively effective at treating and preventing relapse of video game addictions (Griffiths and Meredith, 2009).

1.4. Purpose of the current study

Though much research has examined the risks and outcomes of video game addiction, all of the previously mentioned studies failed to compare video game addicts to age and gender matched healthy controls and instead compare addicts to the general population. Comparing video game addicts to the general population fails to take into account subtle differences in mental, social, physical, and emotional health outcomes that vary by gender, ethnicity, age, and marital status. For example, racial-ethnic minority populations display significantly higher rates of obesity (Carroll et al., 2008; Paeratakul et al., 2002) and married people display lower rates of depression (Inaba et al., 2005). Thus, comparing a racial-ethnic minority or married video game addict to the general population may compound outcomes and falsely attribute differences in health outcomes to video game addiction. Similarly, the previous studies did not use measures of social and psychological functioning recommended by leading health organizations. This study seeks to further lend support to the potential validity of the IGDS as a measure of video game addiction by assessing the relationship between participants whose IGDS scores would qualify them as video game addicts and how this classification is associated with poorer emotional, social, mental, and physical health. Therefore, the goal of the present study is to compare video game addicts to healthy controls that are matched on age, race, gender, and marital status on measures of physical, social, mental, and emotional health recommended by the National Institute of Mental Health, the U.S. Department of Health and Human Services, and the World Health Organization. This study will also assess comorbidity between IGD video game addiction, substance use, and other online addictions. Previous researchers have shown high comorbidity between substance addiction and addictions to other substances (Dani and Harris, 2005), gambling addiction and tobacco use (McGrath and Barrett, 2009), and gambling addiction and substance use and abuse (Lorains et al., 2011), and the comorbidity between addiction and psychiatric disorders (Kessler et al., 2008; Stein et al., 2001). However, few researchers have examined video game addiction and potential comorbidity with substance use, gambling, and internet pornography use.

We hypothesize that IGD video game addicts will display poorer social, emotional, physical, and mental health than matched non-addicts. We also hypothesize that IGD video game addicts will display increased comorbidity between video game addiction and other addictive behaviors as compared to matched non-addicts.

2. Method

2.1. Participants

1205 young adults (mean age = 20.32, SD age = 4.17; 48.85% male, 50.15% female, all participants reported their gender) who reported playing video games were recruited from two large universities in the United States, one in a large urban setting in the Midwest and one in the Mountain West. Of the 1205 young adults screened, 87 met the criteria for video game addiction (approximately 7%). The 87 video game addicts (mean age = 20.80, SD age = 2.18; 68% male, 15% female; 78.3% Non-Hispanic White, 6.6% African American, 2.8% Latino, 5.7% Asian, and 8.5% Other; 85% single, 15% married) were matched on geographical location, age, sex, ethnicity, and marital status to non-addicts.

2.2. Procedures

Participants were recruited through university online systems for introductory psychology courses and were given class credit required for course completion for completing an online study. Participants completed an online survey through Qualtrics which took approximately one hour to complete. They were specifically told that the purpose of the study was to examine media and behavior and that they must have played video games to participate. All participants gave implied consent and all procedures and materials were approved by both universities internal review boards. Download English Version:

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