Psychosocial causes and consequences of pathological gaming

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ABSTRACT

Pathological use of computer and video games has been associated with indicators of psychosocial well-being, such as loneliness, low self-esteem, low social competence, and low life satisfaction. However, few studies have decisively demonstrated whether these indicators of psychosocial well-being are causes or consequences of pathological gaming. To address this gap in the literature, we conducted a two-wave panel study among 851 Dutch adolescents (543 gamers). Causal relations were analyzed using autoregressive structural equation models. These analyses indicated that social competence, self-esteem, and loneliness were significant predictors of pathological gaming six months later. Thus, lower psychosocial well-being can be considered an antecedent of pathological gaming among adolescent gamers. Our analyses further indicated that loneliness was also a consequence of pathological gaming. This suggests that displacement of real-world social interaction resulting from pathological use of video games may deteriorate existing relationships, which could explain the increase in adolescent gamers' feelings of loneliness.

1. Introduction

Over the last decade, many studies have found associations between low psychosocial well-being and excessive, compulsive and/or pathological use of computer and video games. For instance, studies have shown that pathological gamers show less satisfaction with daily life (Wang, Chen, Lin, & Wang, 2008), less self-esteem (Ko et al., 2005), less social competence (Lo, Wang, & Fang, 2005), and more loneliness (Seay & Kraut, 2007) than non-pathological gamers. However, because longitudinal research on pathological gaming is scarce, there is little evidence that decisively demonstrates whether these indicators of psychosocial well-being are causes or consequences of pathological gaming. Specifically, we do not know whether (a) pathological gaming decreases well-being; (b) low well-being leads to pathological gaming; or (c) pathological gaming and well-being are reciprocally related. To address this gap in the literature, we performed a longitudinal study using four common indicators of psychosocial well-being (i.e., loneliness, social competence, life satisfaction, and self-esteem) that have empirically established relations with pathological gaming.

Pathological gaming has been defined as persistent and excessive involvement with computer or video games that cannot be controlled despite associated social and/or emotional problems (Lemmens, Valkenburg, & Peter, 2009). Although the terminology is still under debate, the general concept of pathological gaming has gained widespread acceptance among researchers as a legitimate behavioral disorder (e.g., Gentile, 2009; Young, 2009). Studies have consistently shown that a small group of players spend excessive amounts of time on games while displaying numerous symptoms of pathological behavior, such as withdrawal, preoccupation, loss of control, and interpersonal or intrapersonal conflicts (e.g., Charlton & Danforth, 2007; Gentile, 2009; Grüsser, Thalemann, & Griffiths, 2007). In general, adolescents are more likely to show signs of pathological gaming than older age groups (Griffiths, Davies, & Chappell, 2004; Griffiths & Wood, 2000; Ha et al., 2007). Because of its relatively high prevalence among adolescent gamers, this group is considered particularly vulnerable to any effects pathological gaming may have on the psychosocial well-being of players.

Psychosocial well-being can be defined as a dynamic concept encompassing a wide array of constructs that reflect the quality of intrapersonal and interpersonal functioning (Lent, 2004). Previous research has used the underlying constructs loneliness, life satisfaction, self-esteem and social competence as indicators of well-being (e.g., Halpin & Allen, 2004). Specifically, these four constructs have been used in research on the relation between psychosocial well-being and problematic computer use (Caplan, 2002). Because these constructs are indicators of well-being, they are interrelated. For instance, social incompetence and low self-esteem result in avoidance of social interaction (e.g., Sletta, Valas, & Skaalvik, 1996), which may eventually lead to loneliness (Dill & Anderson, 1999; Parker & Asher, 1993). Furthermore, diminished social interaction and less satisfying relationships are related to lower satisfaction with life (Jarvinen & Nicholls, 1996). Psychosocial

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well-being is of particular importance among adolescents because adolescence is a pivotal time in which youth face many developmental tasks, including strengthening and expanding self-concepts, forming stable intimate relationships, making career decisions, and achieving independence from parents. Low psychological well-being during this stage can lead to poor psychosocial functioning, lower life and career satisfaction, more interpersonal difficulties, greater need for social support, more comorbid psychiatric conditions, and increased risk of suicide (Paradis, Reinherz, Giaconia, & Fitzmaurice, 2006).

Because of the importance of psychosocial well-being during adolescence, and adolescents' vulnerability to pathological use of video games (Griffiths & Wood, 2000; Ha et al., 2007), most research on the relation between well-being and pathological gaming has focused on adolescents (e.g., Chiu, Lee, & Huang, 2004; Gentile, 2009; Salguero & Morán, 2002). Despite the consistent cross-sectional correlations that were found between low well-being and pathological gaming, very few studies have compellingly demonstrated a causal direction between these concepts. It is important to examine whether low psychosocial well-being is a cause or consequence of pathological gaming, because this may provide physicians, care workers, parents, and gamers confronted with problems associated with pathological gaming with an indication of where to focus their interventions. Furthermore, controlling or preventing pathological gaming among adolescents seems especially poignant because previous research has indicated that all addictions and dependencies identified in adults commonly start in adolescence or young adulthood (e.g., Wagner & Anthony, 2002).

2. Casual relations between psychosocial well-being and pathological gaming

2.1. Psychosocial well-being as an outcome

There is considerable concern that excessive or pathological use of computer and video games may have a detrimental influence on the psychosocial well-being of players. This concern is based on the idea that excessive (online) gaming displaces activities that serve to maintain and improve healthy relationships (e.g., Kraut et al., 1998). Research confirms that playing video games can fulfill some of the needs that are otherwise met through friendships, thereby reducing the need for real-life contacts with friends (Colwell & Kato, 2003). Furthermore, playing violent video games can reduce feelings of empathy (Bartholow, Sestir, & Davis, 2005) and may foster the development of aggressive problem-solving skills (Anderson & Bushman, 2001). Reduced empathy and aggressive problem-solving skills may hinder the maintenance of healthy friendships or romantic partnerships, thereby decreasing players' psychosocial well-being (Colwell & Payne, 2000). Although theoretically plausible, there is little empirical support for the notion that pathological gaming decreases players' psychosocial well-being.

2.2. Psychosocial well-being as a cause

An effect of well-being on pathological gaming implies that adolescents who are socially incompetent, low in self-esteem, lonely and/or generally dissatisfied with their life are more likely to develop signs of pathological gaming. In general, individuals with low self-esteem or unsatisfactory personal relations may use video games to escape reality, find friendship, or attain a sense of achievement that they are unable to attain in real life (e.g., Leung, 2004; Williams, Yee, & Caplan, 2008). In that regard, *online* multiplayer games seem particularly suited as a substitute for

real-life social interaction because they enable large-scale social interaction within the anonymity of the internet (Morahan-Martin & Schumacher, 2000; Peters & Malesky, 2009). Therefore, games in general, and online games in particular, should appeal more to adolescents with low psychosocial well-being because they tend to avoid real face-to-face social situations in which they may lack the proper skills to foster good relationships. One longitudinal study partially supports the assumption that low well-being, specifically loneliness, is an antecedent of pathological gaming (Seay & Kraut, 2007).

2.3. Reciprocal relationships

Given the lack of empirical validation for the causal direction between pathological gaming and well-being, a reciprocal relation between the two may also be possible. For instance, for lonely and socially incompetent people, online games may provide a welcome alternative to uncomfortable everyday offline interactions. At the same time, excessive playing may lead to social problems, which could subsequently increase their loneliness, or decrease their life satisfaction. A recent study by Kim, LaRose, and Peng (2009) provided evidence of such a reciprocal relationship between loneliness and problematic internet use (including online games) among adolescents. However, since that study was based on cross-sectional data, the causal predictions were not rigorously tested. The longitudinal design of the present study allows us to investigate the exact causal relations between pathological gaming and indicators of psychosocial well-being. Moreover, it allows us to single out which of these variables are the most important antecedents or consequences of pathological gaming. In the following paragraphs, we will briefly discuss the four indicators of psychosocial well-being and, when available, empirical evidence of the causal relation with pathological gaming.

2.4. Satisfaction with life

Life satisfaction refers to a general cognitive assessment of a person's subjective well-being (Diener, Emmons, Larsen, & Griffin, 1985). Cross-sectional survey studies have shown that lower satisfaction with daily life is related to online game addiction (Ko et al., 2005; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000). Research has also shown a positive correlation between addiction to online games and depression (Seo, Kang, & Yom, 2009). Life satisfaction and depression are related concepts and very low life satisfaction can predict the onset of depression up to two years prior to diagnosis (Lewinsohn, Redner, & Seeley, 1991). Regarding causality, it has been argued that online games may provide addicted players a means of channeling their real-life dissatisfaction (Wan & Chiou, 2006). Furthermore, some longitudinal evidence indicated that heavy use of video games during adolescence did not increase chances of depression in adulthood (Primack, Swanier, Georgiopoulos, Land, & Fine, 2009). Although this finding alone does not necessarily indicate opposite causality, combined with arguments put forth by Wan and Chiou (2006) we expect that dissatisfied individuals are more likely to become pathologically involved with games.

2.5. Loneliness

Loneliness has been defined as an unpleasant experience that derives from important deficiencies in a person's network of social relationships (Peplau & Perlman, 1982). Feelings of loneliness may result from an unfulfilled desire to have friends, a gap between actual and desired social status, and a lack of affective bonding. Thus, loneliness is a complex emotion that is heavily dependent on peer influences (Bauminger & Kasari, 2000). Cross-sectional studies have consistently confirmed the relation between loneliness and