

Pathological Video Gaming and Self Concept in Canadian Adolescents

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Abstract

This paper presents a comprehensive literature review on the topic of pathological video gaming (PVG) and its effects on adolescent self-concept. The historic development and subsequent cultural acceptance of video game technologies has presented young Canadians with appealing opportunities to escape, grow, and develop within multifaceted virtual worlds. These offerings have fundamentally shifted the way that adolescents interact, play, and think about themselves and others. This paper examines the complex relationship between PVG and self-concept with a specific emphasis on the numerous personal meanings (i.e., their utility as coping strategies or for identity-development opportunities) that underly this practice. Within this review, an investigation of PVG's global cultural characteristics, motivational theories, and current trends and characteristics will be explored through academic literature. Further to that, this paper will incorporate a second component that includes implications for counsellors and clinicians, a reflexive self-statement, areas for research, and recommendations for future practice.

Introduction

The concept of ‘video gaming’ often evokes a polarized set of thoughts, beliefs, and assumptions towards the subject. Some see video games as childish time-sinks for those without any ambition or purpose. For others, they are mystical worlds filled with opportunity and possibility. With video games recently becoming the number one pastime (for people of all ages) there is no question that at some point, the modern counsellor will encounter clients who are significantly impacted by gaming (Bean, 2020). Unfortunately, there has been little consensus in terms of evidence-based best practices that may be used to help guide clinicians and clients in therapy.

To bridge this gap, I offer the following paper, which includes two parts. The first section is comprised of a self-positioning statement and literature review investigating the lived experiences of adolescents involved in PVG (problematic/pathological video gaming) practices, with a focus on shedding light on the various personal meanings that underly its development and maintenance. To this end, the specific research area is focused on the developmental relationship between PVG and self-concept within the Canadian cultural context. The second portion of the paper examines PVG in the context of: (a) implications for counselling, (b) next steps for research, and (c) recommendations for future practice. Finally, the paper will conclude with a reflexive self-statement that has been updated and revised to align with the author’s research trajectory and current views on the subject.

Part One: Introduction and Review

Self-Positioning Statement

If I am being honest, I should begin this section by saying that I have a difficult time positioning myself anywhere on the continuum that separates video game advocates from its

critics. In fact, I do not feel as though viewing the subject in this overly polarized way would be useful in this review. Doing so would only skew my interpretations of the subject, and I am quickly learning that this subject is already complicated enough. A more useful way to look at my relationship with video games is through my own lived experiences growing up with them, and now, working with children who play them.

I grew up during a very interesting time for video games (and digital media in general). Like many others, I was swept up in the thrill of each new development and release: the first four player video game console, the first Gameboy, the first iPod, and the first widespread release of dial up internet that made online chat and gaming possible. My childhood and transition into adolescence was littered with periods of excitement and noise about the next greatest release. Even then I think that I knew that each of these progressions would change the world that I was a part of, and at the time, I could not have been happier.

One of the first memories about video games and identity that comes to mind is being gifted a new first-generation Xbox with the popular James Bond game *Goldeneye 007*. Before I even opened the gift, I had spent months discussing it with my friends: how long we would have to save to buy one, what features it might have, and how many controllers could connect to it (and who we would choose to occupy those coveted devices). When I finally unwrapped the Xbox, the buzz around it was palpable. I was the first kid in my neighbourhood to own one, and by extension, this meant that I was suddenly well-liked and accepted simply by virtue of owning one. Everyone wanted to come over to play. If there were not enough controllers for them to play (and there frequently were not), then they were just as happy to come over to watch. Video games were the most valued social currency at our middle school, and for that brief amount of time, I held somewhat of a popular status at school because of them. That changed very quickly

after the school shootings at Columbine in 1999. Following the direction of other parents in our school council, my parents took away my games (and by extension, my social status) because they feared that video games contributed to that sort of violence. My new friends were no longer allowed to come to play video games, and slowly, I realized that I had to contend with the difficult task of figuring out who I really was outside of those virtual arenas. Unfortunately, I did not have a good answer to that question at that time. Instead of pivoting into a new hobby or seeking out real life responsibilities and relationships, I anxiously retreated into my games and stayed there for (what I now realize was) far too long. Some friends moved on by partying, getting girlfriends, or taking their academics more seriously, but by then, doing any of the three were too daunting for me to even attempt. In many ways, I still feel a great deal of shame and loneliness for not having spent those years more productively. I also still wonder how my life would have turned out if my social status was not artificially propped up by those games. The only thing that seemed to keep my head above water was sports. I played competitive soccer and lacrosse throughout that time, and although I was quite good, I was always too shy and awkward to be viewed as a real athlete. I was caught between two very different worlds; one hyper-masculine and physical and the other quite ‘nerdy’ and heavily stigmatized. I think that this was the first time that I truly felt the dichotomy between the visible and immediately apparent ‘real’ world, and the mysterious and unrecognized ‘online world’. These two worlds, with all their advantages and imperfections, have both deeply affected who I am in relation to this research area.

Even fifteen years after I quit playing video games, the lived-experiences I had accumulated during that time continue to affect my assumptions about this topic. That said, attempting to conceptualize these personal assumptions in a “simultaneously minimal,

existential, autoethnographic, vulnerable, performative, and critical way” has not been a straightforward process for me as noted by Denzin and Lincoln (2000, p. 1048). On one hand, I cannot ignore the value of gaming that once underpinned my close relationships and my interests in fantasy and escapism. On the other (and perhaps more so), I am extremely nervous about how instantly gratifying video games are today, and the ways in which they may persuade others to avoid fulfilling their responsibilities.

I witness similar difficulties in the lives of the students who I interact with daily in my work as a behaviour strategist today. One of my responsibilities in this role is to search for patterns within children’s play and to help to shape those patterns so that they are more functional and pro-social. When I interact with these 10-18 year old students (who frequently report that they play upwards of seven hours per day on school nights) it is easy to notice how the effects of their online play behaviours ripple through their lives. The most noticeable of these effects are the game-specific language and behaviour (e.g., celebrating using dance moves from the popular video game *Fortnite*).

For the purpose of this research project, I feel that it is important for me to acknowledge that these (predominantly negative) experiences with gaming naturally affect my reflexivity towards the more cautionary attributes of video game playing today.

Overall, I have learned that play is like a dance, and throughout this dance, it is important for all members to have a good time while doing it. If that happens successfully, play becomes increasingly sophisticated and complex, and a catalyst for many other forms of self-exploration.

In modern society, are video games part of that dance? Or should they be? Unfortunately, I do not have any good answers to those questions. Because of this, I believe that it is important for us all to better understand the virtual dimensions of play and how those constructs might

interact with an individual's self-concept and personal meanings over time. In conducting this review, I am attempting to leverage the pluralistic strengths of the narrative process to better understand the complex relationship between PVG and self-concept. I have also tried to synthesize the current literature on the subject and offer new understandings that add to our collective knowledge on the topic. Beyond that, and with the full admission that I am not a truly objective researcher, I hope to offer those marginalized and underrepresented populations more compassion, more support, and more of a voice within the mainstream cultural discourse.

Literature Review Overview

The ability to play constitutes such a vital role in healthy human development that the United Nations High Commission for Human Rights has recognized it as a fundamental right of every child (United Nations, 1989). Play behaviours have endured as a fundamental part of our development (and survival) because they provide us with opportunities to adapt our physical, cognitive, and emotional capacities to the world beyond ourselves. Although the practice of play has remained relatively constant across time, the recent surge in internet gaming has vastly altered its context, nature, and the developmental impact for adolescents. Historically, this population developed their identities in physical spaces through activities like sports and social groups (Martin et al., 2014). More recently, however, that physical landscape of play has rapidly turned virtual. When the first video arcades became popular in the late 1970s a new scene emerged where players could congregate in person to socialize and test their skills. In less than a decade these machines became small enough for home use, and with that, the first generation of console gaming entered mainstream culture. By the 1990s, affordable broadband internet allowed these mobile consoles and personal computers to connect, and a new era of 'internet gaming' was born.

This new era of gaming also brought the integration of ‘browser games’ (games that can be played on a web page or app) into social media sites like Instagram. Recently these types of games have grown exponentially. These web-based ‘browser games’ rely on user’s social networks (many of them adolescents) to ‘invite’ their friends to play; for example, *Cityville* attracted over 100 million users per month for several months after its release (Kushner, 2011). These web-based games are different from the console games discussed earlier because they are initially free to play, and do not require a game-specific console. Instead, they primarily profit from in-game purchases of digital items or costumes, sometimes in the form of loot boxes, where players pay for the chance to win rare items or ‘skins’ (outfits) for their character (Kushner, 2011).

Today, nuanced digital subcultures have emerged out of these spaces, creating rich and low-risk environments for billions of users to fluidly interact, play, and grow within these new mediums. Working to better understand this complex landscape and the equally complex individual effects it may have on its (estimated) 1.2 billion users will be an important goal for this review (Chiu, He & Ho, 2019). Within these vast networks of interconnected individuals, a growing population of users have been engaging in what has recently been termed ‘excessive or problematic/pathological video gaming’. This pattern of behaviours has been codified in the *Diagnostic and statistical manual for mental disorders* (DSM-5) within the behavioural addiction subtype: internet gaming disorder (IGD) (5th ed.: DSM-5, American Psychiatric Association [APA], 2013, p. 795). In this context, The DSM-5 defines IGD as the: “persistent and recurrent use of the internet to engage in games, often with other players, leading to clinically significant impairment or distress” (2013, p. 795). This inclusion of IGD within the

DSM-5 represented a significant step towards creating a unified understanding of PVG; legitimizing it as a disorder that is worthy of study, support, and treatment.

The scope and depth of research on this subject has expanded dramatically over the past ten years, and from this new literature, several important research areas have emerged. One important research focus involves the addictive properties and effects of the games and their similarities to other behavioural addictions (e.g., gambling disorder), the biological basis for this disorder, and the neurological impacts on various brain structures. A second part of the academic discussion centres around understanding the motivational undercurrents that predict gaming behaviours and the potential effects that these behaviours may elicit. On this topic, developing a cohesive understanding of these effects has proven to be quite difficult, as the studies are often quite contextually specific. Described broadly, the contextual dimensions that have attracted the most research include mental illness and comorbidities, self-concept and identity formation, individual functions and outcomes, culture and digital subcultures, and policy and treatment implications.

Each of these dimensions are important within this review's scope of research, as the traditional narrative lens tends to highlight the intuitive, experiential, and explicit perspectives of experts within focused topics (Pae, 2015). This narrower focus may capture details that are missed within comprehensive/meta-analytic focused systematic reviews. Additionally, this type of review (and future study) is useful for its emphasis on longitudinal and contextually 'thick' data, which may prove to be relevant within a research area that has broadly focused on the specific question that asks how PVG impacts the thoughts and behaviours of individuals, especially in regard to risk taking behaviours and health related consequences (Forsyth et al., 2017). All told, the following literature review builds upon previous recommendations for

research proposed by Kuss, Griffiths, and Pontes (2017), who suggested that understanding the process of virtual identity formation will be an important future area for study in the field.

Purpose

In conducting this review I have used the pluralistic strengths of the narrative process to better understand the relationship between PVG and self-concept. This approach was chosen for its capacity to produce multiple understandings of this complex phenomenon, while also maintaining the contextually rich data that is necessary to study this topic on both individual and societal levels. I have attempted to synthesize the current literature on the subject and offer new understandings that add to our collective knowledge on the topic. Beyond that, and with the full admission that I am not a truly objective researcher, I hope to offer those marginalized and underrepresented populations more compassion, more support, and more of a voice within the mainstream cultural discourse.

The Prevalence and Context of Problematic Video Gaming

Video game disorders belong to a cluster of behavioral addictions that appear to share common brain activities with substance use disorders (Gros et al., 2019). The prevalence of problematic gaming is not fully understood, but it is seemingly highest amongst adolescents. Surveys conducted globally have reported that problematic gaming symptoms occur in adolescents as high as 13% in China (Yang et al., 2020) to 20% in Southeast Asia (Chia et al., 2020) to nearly 40% in Brazil (Severo et al., 2020). In Canada, the prevalence rates of PVG are reported to be closer to 9.4% in youth, and 3.2% in adults (importantly, these figures are based on dated data sets, namely due to a comparative lack of academic interest and funding) (Sanders et al., 2017; Turner et al., 2012). When interpreting these statistics, it is important to consider how cultural differences may affect how problematic gaming is diagnosed, which highlights the

need for caution when drawing comparisons (Chung et al., 2018). These cultural factors are important to consider when discussing behavioural disorders because cultural differences have been shown to significantly impact the expression and presentation of IGD (Beard et al. 2019). In Eastern societies, for instance, activities that are not educationally or family-oriented are often pathologized within mainstream culture (Griffiths et al., 2016). In places where excessive gaming has a low degree of cultural consonance (e.g., acceptability) within the mainstream cultural discourse, these practices become increasingly stigmatized.

Asia provides an interesting example of this push and pull between video games and their cultural consonance/acceptance because, although a section of Asia is one of the most technology-centric economies in the world, there are significant stigmas around using that technology for anything other than utilitarian (for instance, family and educational) pursuits (Griffiths et al., 2016). This poignant dichotomy within Japanese culture has led to an estimated 600,000 individuals practicing *Hikikomori* or a ‘pulling inward’ until affected individuals completely withdraw from real-life society (Kato et al., 2018, p. 105). Numerous studies have shown that the Hikikomori of Japan (as well as those with acute social withdrawal elsewhere in the world) appear to engage in PVG practices (Sachiko, 2015). By withdrawing from the world in real life, those affected by PVG may play to compensate for unfulfilled emotional desires to belong, and to communicate and connect with others in the physical world around them (Krieg & Dickie, 2011). Other substitutes for these connections (i.e., robotic companionship and socialization by way of virtual reality) are commonly used to account for the lack of direct human contact, however there is little evidence to suggest the effectiveness of those alternatives (Kato et al., 2020). Understandably, this disengagement may have numerous implications for the

development of identity and self-concept for affected individuals (which will be discussed later in the paper).

Hikikomori highlights a significant problem in the field of video game addiction, which is the limited understanding of cause versus effect. For example, does the disorder itself cause the negative consequences (e.g., feelings of ostracism), or do the comorbidities and social factors associated with video game addiction affect well-being and individual outcomes? (Phan et al., 2020). Many studies have identified physical, mental, emotional, and social factors associated with video game addiction, however, separating cause from effect becomes difficult as these studies are cross-sectional and do not randomize exposure (Phan et al., 2020). Very few recent studies in the field are designed to assess causality which is a major concern regarding the state of our knowledge on the subject.

For example, PVG and the behaviours that are commonly associated with it (e.g., sedentary lifestyles) are linked to: higher rates of obesity, severe depression, poorer psychological well-being, lower life satisfaction, and fewer social relationships (Syed et al., 2020; Alshehri et al., 2019; Cudo et al., 2020; Severo et al., 2020). Despite these links, it is not clear whether people with these characteristics are more drawn to playing video games, or if excessive video game playing results in players being less physically active, socially withdrawing, becoming depressed, and experiencing an overall lower life satisfaction.

Biology and Behaviourism

Some studies have shown that video game addiction alters brain structures and functional connectivity, compared to people without problematic gaming behaviour (Kuriki et al., 2020). These neurobiological changes have been shown to be strongly associated with certain behaviours (i.e., impulsiveness), which in turn, have also been observed in people with substance

and gambling dependencies (Irles & Gomis, 2016). Findings like these may suggest that at least some of these negative characteristics associated with video game addiction occur because of play, however more longitudinal and randomized studies are warranted. To work toward a treatment for adolescent video game addiction, understanding the addictive properties of video games, why certain adolescents are drawn to video games, and how participation affects them socially, emotionally, and mentally, may help to identify strategies that can be used to promote safe play.

Gender

Another important contextual factor around PVG and the development of identity and self-concept is gender. Gaming is predominantly marketed towards males, and the motivations that predicate problematic gaming behaviour are thought to be different between genders (Andreetta et al., 2020). IGD appears to affect almost seven times as many males (6.8%) as females (1.3%), which has led to several gender-homogenous studies that have overwhelmingly emphasized male perspectives on this issue (Kriston et al., 2017, p. 420). The types of games that people of different genders play are also quite different; with boys playing predominantly competitive genres like ‘action shooters’, and girls preferring more social stimulation and ‘brain and skills’ (i.e., puzzle-type) games (Kriston et al., 2017).

These gender-based differences as well as the interactional processes that govern the complex relationship between individuals and the world around them have been cited as important areas for future study, as little is currently known about the subject (Griffiths et al. 2020). Regarding PVG, it has been suggested that personality differences associated with gender (e.g., differences in extraversion, agreeableness, and neuroticism scores) may impact dimensions of self-concept (Murayama et al., 2017; Weisberg et al., 2011). For example, individuals who are

high in traits like neuroticism and conscientiousness might be more sensitive to their social status. In those situations, affected individuals may develop natural proclivities towards certain games that allow them to climb in-game ranking hierarchies. Doing so may provide players with individual feelings of competency, as well as respect and admiration from other participants in the online gaming community (Murayama et al., 2017). Although that example is theoretical, it highlights the need for more information regarding internal and external factors across the gender continuum, that may combine and contribute to the development of PVG practices.

Motivational Theories Underlying Pathological Gaming

Examining why certain individuals play video games and how that play can become problematic has been a complex problem for researchers to understand. The following section will outline several key theories that are frequently cited in both qualitative and quantitative research, in reference to the motivating factors and functional utility of video game use.

Structural Characteristics Theory

As discussed in the previous section, several early theorists attempted to explain the draw of video games for children and adolescents in terms of their compensatory effects for real-life social deficits. One theory proposed by Steinkuehler and Williams (2006) posits that online games create a virtual community which allows friends to meet online and connect with new people around the world. These online fan communities are “an important element in the market success of a videogame, and game developers have begun to recognize the importance of fostering online communities associated with their games” (Ruggles et al., 2005, p. 115).

The online community allows social interactions and opportunities cooperative play. For example, one study explored the nature of the social interactions (912 players from 45 countries) who were playing massive multiplayer online role-playing games (MMORPG's) (Cole &

Griffiths, 2007). The results of this study revealed that the communications occurring between MMORPG players were highly social and interactive and provided opportunities to create strong emotional connections and friendships, to a degree that was not seen in other genres of video games (Cole and Griffiths, 2007). Similarly, an evaluation of 5,826 text messages shared between video game players found that socio-emotional messaging occurred more than three times as often than task-oriented messages (Peña & Hancock, 2006). These early findings indicate that social interactions between players hold deep personal significance and meaning, which extends beyond the goal-oriented communication required to complete the game.

More recent research has confirmed the importance of social connections for individuals with PVG. There is a consensus that this one particular form of gaming (MMORPG's) has the strongest links with PVG practices. These types of games place a particular emphasis on playing collectively, with 75% of the popular MMORPG *World of Warcraft* players reporting that they have made good in-game friendships with other players (Anderson et al., 2019). Such friendships naturally increase the enjoyment of playing the game, which deepens players level of engagement and immersion within it. These virtual interactions also come at a very low risk to players, meaning that they do not have to contend with the same level of social consequences that they might experience in their offline lives (e.g., being inescapably bullied in the real world).

One of the benefits of these online spaces is that there are numerous low-risk opportunities for socialization that provide users with the ability to easily escape from social situations that they are uncomfortable with. Conversely, one of the drawbacks to this is that certain predatory players may also be able to 'get away' with more maladaptive social interactions because of limitations around regulating or policing cyber-interactions.

Other within-game mechanisms have also been linked to problematic video game practices. One of the most compelling arguments for the source of PVG was made by Delfabbro, King, and Griffiths (2010) who suggested that the features or structural characteristics of the games themselves were to blame (importantly, this view also shifts some of the social responsibilities related to PVG onto game developers). The authors suggested that these in-game characteristics could be broken down into five categories: *social features* (elements that allow users to communicate with others); *manipulation and control features* (ways in which the game allows interaction); *narrative and identity features* (qualities relating to storytelling and character); *reward and punishment features* (reward for skilful performance); and *presentation features* (visual qualities) (Delfabbro et al., 2010, p. 90). These within-game characteristics can often combine with individual factors to create powerful behavioural links within the brain during play. Loot boxes (prizes that can be gambled for, purchased directly, or earned for completing in-game achievements) are a good example of these characteristics (i.e., reward and presentation features) (Xiao & Henderson, 2019). Recently, laws and regulations against these loot boxes have been suggested (in South Korea) for their predatory monetization practices, specifically regarding their marketing towards children (Xiao & Henderson, 2019). When considering examples like these, it is important to repeat that the same brain structures that are activated during substance use are also activated during gameplay (namely the medial frontal cortex and right caudate nucleus) suggesting that the two behaviours may share the same neurobiological mechanisms (Chen et al., 2009). The permanency of neurobiological changes caused by pathological play (i.e., alternations to dopaminergic pathways) appears to parallel the amount of time individuals spend gaming (Kuss et al., 2013). This view suggests that users may have to increase their playtime to maintain the same levels of excitement while playing; like

tolerance effects that are often seen in substance abuse. Certain cycles of addictive behaviour may also develop out of these tolerance contingencies. For instance, individuals who are struggling with PVG may engage in gaming to cope with feelings of loneliness. When gaming loses its efficacy around managing those negative feelings, those with PVG may increase their time playing to compensate.

Behavioural Addiction Theory

The behavioural addiction theory for PVG goes beyond the structural characteristics of the game (described above). Griffiths, Monacis, Palo, & Sinatra (2017) define PVG through the lens of gambling addiction, proposing that:

The essential interactions between pathological play and the structural characteristics of the games themselves are moderated by: (a) salience (e.g., cognitive or behavioural preoccupation with video games), (b) mood modification (e.g., using video games to seek out euphoric or dissociative states), (c) tolerance, (d) chasing (e.g., playing to beat a previous high score), (e) relapse, (f) withdrawal, and (g) conflict (e.g., sacrificing other aspects of life to play video games). (p. 853)

This functional model indicates that PVG may represent a non-financial form of gambling, with the only difference between the two being that gambling addicts play for money and video games are played for points and prestige.

Self-Determination Theory

A third 'self-determination theory' for PVG takes a more human stance towards the experience of problematic gaming by emphasizing how video games fulfill the innate intrinsic needs of an individual. Supporters of this theory emphasize the role of individual agency and personal inclinations towards personal growth and mastery (Opdenakker & Minnaert, 2014).

These predispositions and the experiences they may prompt can then be reformulated, reframed, and ultimately integrated into an individual's coherent sense of self (Opdenakker & Minnaert, 2014).

When an individual's social context supports that kind of development, it increases their engagement and psychological growth. When that social setting is predominantly virtual, then that unique context may alter the thoughts, feelings, and behaviours that individuals may adopt to meet their needs. In the physical world, needs can be met through experiences like achieving a promotion at work or helping a friend. However, in the virtual world the actions that players take to meet their needs may look quite different (e.g., achieving a higher rank within the game to join a 'clan' or 'guild'). These sorts of behaviours align with research done by Kordyaka, Muller, and Niehaves (2019) which emphasizes the desires of individuals to test and affirm their competencies, as well as have their skills and abilities validated by others (2019). Striving for positive self and social identities is a natural human phenomenon, and one that is not fully understood from the perspective of virtual social contexts.

Self-determination theory may explain why some players obtain positive and beneficial outcomes (including psychomotor, cognitive, therapeutic, and educational advantages) and others are left with much more negative outcomes (Nuyens et al., 2017, p. 110). This person-centred approach suggests that the architecture of video games have been carefully designed to satisfy three essential human needs: competence, autonomy, and relatedness. Competence can be satisfied by game mechanics that reward competition and advance a player's character or 'avatar', autonomy can be satisfied by role playing and freedom of choice, and relatedness can be satisfied by the social aspects (e.g., teamwork within the game) (Kordyaka et al., 2019).

Individual Factors

A study (and subsequent assessment measure for IGD) completed by Demetrovics and colleagues identified: social, escape, competition, coping, skill development, fantasy, and recreation as seven elements that prompt pathological play (2020, p. 1446). Although each of these factors were found to affect individuals with different levels of severity, the strongest predictors were achievement and escapism. The authors define achievement as “desires to advance and progress in the game, develop a deep understanding of the game mechanics, and compete with other players” and escapism as a propensity towards engaging in games as an avoidance or distraction strategy for real life problems (Demetrovics et al., 2011). Video games may offer players a safe haven, an escape from reality, or an opportunity to socialize behind a safety net. As such, adolescents with self-esteem issues or challenging home circumstances may be more susceptible to video game addiction than those without.

Studies have shown that several numerous aversive childhood circumstances are linked to PVG including: a lack of family intimacy, stress (Chang and Kim, 2020), limited social support (Zhang et al., 2019), poor parent-child relationships (Gao et al., 2020), parental marital conflict (Ponce-Blandon et al., 2020), physical or verbal abuse by parents (Yang et al., 2020), parental rejection (Throuvala et al., 2019) and family cohesion (Nielsen et al., 2019). It is difficult to elucidate whether these factors directly predispose children towards playing more video games; however, it seems likely that a negative family environment would make a video game escape more appealing to children. Another possibility is that parents from these families may not be providing the attention and interventions that required to support children with emerging video game addictions.

In another study, 272 adolescents were followed for a year to identify factors that may lead to a reduction in problematic video game use (Wartberg & Lindenberg, 2020). Following a one-year experiment, this research revealed that maladaptive emotion regulation strategies were the only substantial indicator that modulated a reduction in problematic play (Wartberg & Lindenberg, 2020). This finding naturally asks questions regarding whether video games can be used as a strategy to regulate emotions, whether adolescents that cannot regulate and thus escape through video games, and whether excessive gaming reduces the ability to regulate emotions. As will be explained later, the answers to these questions reveal important clues regarding the impact of gaming on children.

Types of Games and Their Effects

A central debate that has remained within this research area around PVG (since the early 1990's) questions whether certain games are more harmful than others and whether positive outcomes are associated with video game use. For instance, it has been suggested that involvement in virtual communities has many positive implications for people that play video games, particularly amongst emotionally sensitive individuals that may have challenges with offline social settings (Kowert et al., 2014). Online gaming may help adolescents develop offline friendships, as reported by a study in Sweden (Eklund & Roman, 2017), suggesting that social skills developed through online gaming may be transferrable to offline situations.

On the negative side, there are several important links to consider. One review of the literature by Anderson, Rothstein, and Bushman (2010) warns that playing violent video games is a strong causal risk factor for increased: “aggressive behaviour, aggressive thoughts, and aggressive affect, as well as for decreased empathy and prosocial behaviours” (p. 353). However, studies exploring this relationship have suggested a far more complex theories (Harvard Mental

Health Letter, 2010). For example, an earlier study conducted by Anderson and Dill (2000) randomly assigned adolescents to (either) violent or non-violent game groups; demonstrating that the in-game level of violence had no affect on real-world violent crime. Although that study found no linkage between violent video games and violent crime, it found other factors (e.g., trait aggression, family violence, and male gender) were much more closely aligned with violent behaviour (Ferguson & Killburn, 2010).

A study in China, investigated the impact that violent video game playing had on 648 middle school students (Shao & Wang, 2019). A positive correlation linked interactions with violent video games with aggression among adolescents (Shao & Wang, 2019). Interestingly, it appeared that the family environment (i.e., parent-child relationships) appeared to moderate this association (Shao & Wang, 2019). This may suggest that certain interactions that occur within the family system may regulate or reduce how these aggressive effects are displayed. For instance, studies have shown that belonging to a poor family environment (e.g., one with family violence or minimal parental monitoring) will mediate the impact of video games towards aggressive behaviour (Shao & Wang, 2019). That said, the debate over whether violent video games are an antecedent that predicts aggressive behaviour (i.e., exposure to violent games increases aggression), or a catalyst that prompts aggressive behaviour (e.g., genetic predispositions such as temperament prompt individuals to behave aggressively in stressful instances and environments) remains largely unanswered (Shao & Wang, 2019). In both situations, however, it is likely that interactions within the family system will affect the form that violent behaviours may take, as well as their behavioural display (Shao & Wang, 2019).

To attempt to explain this occurrence as well as the debate over whether violent video game play contributes to aggressive behaviour, Ferguson and Wang conducted a study using a

sample of 3034 Singaporean youth using a two-year pre-test post-test study design (2019). Information was collected on: video game play practices as well as aggression and pro-social behaviours and outcomes (Ferguson & Wang, 2019). To assist with determining effect sizes, the authors controlled their analyses to adjust for the mediating effects of factors like age, sex, family income, and moral disengagement (Ferguson & Wang, 2019). When adjusting for these factors, the authors did not find any evidence to suggest that violent video game exposure is a risk factor for future aggression in youth; concluding that it would take 27 hours per day of violent video game play to affect a clinically noticeable increase in aggression (Ferguson & Wang, 2019). These results support the theory that aggression seen among some players who are addicted to violent video games may not be due solely to the nature of the game, but perhaps caused by social, emotional, mental, or other environmental factors of the adolescents. This outcome indicates that the interaction between various personal factors (and the game) can be quite complex and can not been easily understood by correlational statistics.

Taken as a whole, these studies suggest that while environmental factors are likely the mechanisms behind why certain adolescents become more aggressive after exposure to violent games, the problem does still exist. There are two commonly cited reasons for this. First, there are changes in brain structure that have been shown to be correlated with excessive playing of violent video games (Mohammadi et al., 2020). Second, violent games appear to be more addictive compared to mind and casual games (e.g., puzzle type games) (Ofli & Yalcin, 2019; Han et al., 2020). Overall, the impact of violent video games on adolescent aggression appears to be complex and under-explored. However, given that adolescents from a violent or problematic family environment appear to be more drawn to (and affected by) violent games, helping this

vulnerable population with this increased risk to both video game addiction and aggressive symptoms of violent game play is important.

Further, loneliness (Cudo et al., 2019), low self-esteem/self-control (Zhang et al., 2019), insecure peer attachments (Reiner et al., 2017), and a lack of perceived purpose in life (Zhang et al., 2019) have also been identified as predictors of video game addiction. In 2019, an international study using online participants suggested that affected individuals may use the immersive escapism of video games to cope or lessen difficult emotional experiences and that those patterns, when repeated, may contribute to problematic play (Blasi et al., 2019). The ease at which a player can exit their physical world and enter a problem-free digital one is an appealing choice for many young individuals. The excitement and distraction of gaming may soothe the discomfort caused by difficult emotional experiences by delaying their processing and may also offer insecure and shy adolescents an opportunity to gain confidence and make friends behind the comfort of a virtual environment. In the physical world, it may take significant time and effort to change one's social reputation or a friend group, but in the digital world, that can all be done with the click of a button.

Self Concept

Much of the information presented in the above sections was gathered from quantitative studies, which can reveal statistically powerful links between of the way PVG is experienced. In many ways, however, qualitative methods are also advantageous when attempting to explain this phenomenon because 'identity' is such a deeply personal construct that requires equally rich data to convey; especially when attempting to understand those constructs across time. Qualitative descriptions (among others) are echoed in the field of developmental psychology, which sees adolescence as "a time of intensive identity development, where young people seek out new

experiences, have strong emotions, develop a sense of self, establish important relationships outside of the family, and engage in exploring various potential selves” (Konrad et al., 2013, p. 425).

When read alongside some of the mixed method studies above, deeper understandings in regard to the experience of PVG can be found. For instance, a phenomenological study by Forsyth, Chesla, Rehn and Malone (2017) described the ways in which 20 participants (aged 13-21) used video games as training arenas for attempting new skills, identities, attitudes, and characteristics that could be generalized into their real lives. When comparing their actual selves with their online personas, a theme emerged wherein online environments allowed participants to inhabit their different characters (e.g., personas) more fluidly (Forsyth et al., 2017). This is often quite different from the relatively ‘fixed’ real-life experiences and identities of adolescents (Wójcik & Mondry, 2020). In their ‘offline lives’ young people frequently label others with (often undeserved) behavioural personas e.g., ‘*the druggie*’ or ‘*the drama girl*’, and it can often take a lot of time and effort to shed these labels (Wójcik & Mondry, 2020). This dilemma may help explain why many players find it so personal and so liberating when they are able to seamlessly shift their identities online (Forsyth et al., 2017).

The notion of self concept is an important element within the study of PVG and has often been described using Morris Rosenberg’s (1979) definition of “the totality of the individual’s thoughts and feelings in reference to themselves” (p.4). This aspect of individual identity captures the way in which people create their own self-identity using different levels of abstraction, ranging from intimate personal narratives to broader social themes (Kordyaka et al., 2019). Studies on PVG and self concept commonly use the following categories for domains of assessment: athletic competence, behavioural conduct, close friendship, physical appearance,

social competence, scholastic competence, job competence, romantic appeal, and an overall measure of self worth (Heath et al., 2019, p. 46; Evans et al., 1994). In the virtual world, these domains of competence are often played out through ‘avatars,’ or digital self-representations. Researchers have found that there is a great deal of personal meaning that goes into the creation of a player’s avatar (Green et al., 2020). When a player selects an identity from a nearly unlimited pool of possibilities, their choices may reveal interesting and significant insights regarding the ways that individuals and groups within these subcultures perceive themselves within their diverse realities. Research has suggested that one of the driving forces behind the increased adoption of avatars is the opportunity to create the online identities that individuals may lack offline, which may serve as a compensatory function for people struggling with insecurity or poor self-concept (Triberti et al., 2017; Green et al., 2020). This may also explain why people with multiple adverse childhood experiences appear more likely to use avatars in online games (Kothgassner et al., 2020). Experiencing that virtual compensation may encourage the formation of an idealized self-concept, which can sometimes grow increasingly distant from player’s own self-image. (Lemenager et al., 2020).

This brings up questions such as: Do these difficult early experiences prompt young people to want to escape from their developing identities? Also, do young people identify more with their avatars than they do with their offline selves? And are there costs and benefits associated with choosing avatars that represent a hyper-idealized self? Unfortunately for clinicians, many of the answers to these questions are not fully known (although more on this topic and others) will be discussed in the following two sections.

Treatments and Interventions

The current body of research in high level academic journals contains no published systematic reviews on IGD prevention and treatment (Zajac et al., 2019). That said, there have been several studies that have attempted to find and develop evidence-based treatments for the disorder (King & Delfabbro, 2014). As mentioned above, one of the major difficulties that has been identified by researchers in the field involves overcoming the inconsistent definitions (and lack of unified rating scales) that define the phenomenon. In addition to this, other difficulties are related to study design, long term effects, and cultural generalizability have made it hard to reach any sort of consensus regarding effective treatments (Zajac et al., 2019).

Consequently, it has been difficult for researchers, clinicians, and clients to assess what the disorder involves, and what recovery and treatment look like beyond the clinical criteria suggested by organizations like the APA and WHO. The semantic boundaries around what recovery looks like (outside of those diagnostic criterion) can be blurry. Should recovery be defined only by a reduction in the frequency of gaming? Or, should the definition include a wider array of dynamic factors (i.e., engagement in alternate hobbies or interests, the relative quality of family-based or other close social relationships, and multiple dimensions of overall functioning and satisfaction) as other researchers have suggested? (King & Delfabbro, 2014).

Currently, the most-used and most-studied therapeutic intervention for IGD is Cognitive Behavioural Therapy (CBT); and often in combination with pharmacological interventions including drugs like bupropion (an atypical antidepressant that affects norepinephrine and dopamine (King et al. 2014). Although very few studies provide detailed descriptions of what interventions for IGD involve, several early studies were modeled off an early treatment program for adolescents developed by King, Delfabbro, and Griffiths (2012) that involves three parts. The

first portion of such programs are frequently devoted to group CBT work around developing techniques to deal with media, techniques for controlling impulses, and techniques for recognizing when problematic behaviour is occurring and how to stop it (King et al. 2012). The second involves a multimodal CBT and psychoeducation component with the client, and the third involves parent training, where techniques for problem-solving and good communication and management between family members are emphasized (King et al., 2012).

Early studies suggested that these treatments were highly effective, lasting, and empirically robust; however more recent studies have been far less conclusive (King et al., 2012; Zajac et al., 2019). One study suggests that the parent psychoeducation portion of these interventions contributed to improved PVG behaviours and parent-child connectedness (Liau et al., 2014). Conversely, others have found that there is no evidence for its effectiveness (and in some cases, such interventions increased measures of conflict and stress between parents and children) (Krossbakken et al., 2018). Despite the sometimes-conflicting reports on evidence-based strategies, there are still insights within the expanding body of research that should not be overlooked (Liau et al., 2014).

For example, there are several other counselling modalities that have been used to help clients (and their families) who are affected by PVG. Some have suggested that mindfulness strategies practicing presence, awareness, and insight have demonstrated more lasting treatment effects than group therapy (Li et al., 2017). Alternately, the use of narrative therapy to treat PVG have gained similar traction (Graham, 2014). Many of these theories have been adapted to treat PVG in quite interesting ways. For instance, narrative techniques have been tailored to video game culture by focusing (and validating) the client's skills that were necessary to become a successful gamer, and then generalizing them into their offline live (Graham, 2014). Also,

developing a rich story around that offline life (that integrates vivid nuances and exceptions to the problem) may allow more functional reauthored stories to emerge (Graham, 2014). With evidence and support from outside witnesses these new stories may gain validity within the client's life, infusing it with a sense of purpose and balance that was not previously possible. Regardless of the modality chosen, the same basic tenants of counselling (i.e., empathy and unconditional positive regard) appear to hold true, namely because they stop clinicians from becoming dismissive of skills sets and worldviews that are foreign to them (Graham, 2014; Waltman et al., 2016). These abilities (and others discussed in the section below) are vital competencies for clinicians to consider and develop before working with adolescents affected by PVG.

Part Two: Implications for Counselling and Recommendations for Practice

Understanding Oneself as a Counsellor

Self-awareness and introspection are integral to many modern and postmodern counselling frameworks. Similarly, competent counsellors should strive to free themselves from the cultural conditioning of their personal and professional experiences, and to better appreciate and acknowledge the legitimacy of alternate worldviews (Sue & Sue, 1999). Developing the ability to occupy multiple perspectives allows for the growth of a counsellor's introspective, empathetic, and reflexive skills. This level of awareness is an important competency for counsellors who are working with adolescents (aged 10-19) engaged in PVG practices, as the biases that counsellors may inadvertently bring into therapy may directly affect the success of a given therapeutic intervention (Waltman et al., 2016). By understanding our own biases, we as counsellors can bring awareness and insight into our personal relationships with video games,

thus allowing for a more flexible and holistic interpretation of our client's subjective experiences.

This is not an easy task for those who are not familiar with gaming practices. Most therapists and policymakers view video games as 'detrimental' to society (Goodson & Turner, 2021, p. 1). These kinds of negative perceptions pathologize gamers by viewing their hobby as a deviant act. Further, it marginalizes individuals who enjoy gaming by pushing them back into their virtual spaces and dismissing their real-world impacts and contributions. When taken collectively, these negative beliefs contribute to a dominant (and destructive) cultural stigma against video games and the people who play them. In popular culture, one does not need to look far to find images of overweight and lonely gamers who have retreated into their parent's basement to indulge in their so-called childish habits. For those who suffer from problematic play, these portrayals become barriers that must be overcome when attempting to access treatment and care. Further, when help is finally sought, even skillful counsellors can have a difficult time seeing past the veil of shame that conceals the reality of a client's pain, struggles, and strengths.

On top of the 'non-contributing' societal perceptions of gaming, counsellors may also hold biased views about video games causing aggression in youth. As was highlighted earlier, the research on this subject is highly contentious. Some systematic literature reviews have found that "exposure to violent video games is a significant causal risk factor for increased aggressive behaviour, aggressive cognition, aggressive affect, and for decreased empathy and pro-social behaviour" (Anderson et al., 2010, p. 353). The media has been quick to share these findings without adequate room for interpretation, which may explain why the thirst for dramatic and sensationalized narratives often supersedes the need for informational accuracy. These

prevailing storylines are relevant to the field of counselling psychology because again, they represent gamers as ‘damaged goods’ who have been corrupted by their hobby. For counsellors, it is important to be mindful of the counter-narrative to this story.

What if video games actually help youth by rebalancing their emotional equilibrium or by providing safe outlets for their aggressive thoughts and feelings? How would our clients (and those around them notice) the differences between healthy play and coping, and pathological play? How would a counsellor? Several norms referenced scales have been developed to identify these differences, and while they are relatively new, their clinical utility can be helpful for both counsellors and clients alike (Pontes & Griffiths, 2015).

Although there are numerous advantageous and detrimental outcomes associated with gaming that have been highlighted in this literature review, the issue is much more complex than simply understanding video games as being wholly good or bad. By developing a thorough understanding about our own relationship with gaming, counsellors may be able to better reflect on personal biases and maintain a sense of unconditional positive regard within their sessions that may otherwise not be available. Reflecting on these experiences and asking questions is an important part of this process. What experiences has the counsellor had with video games and/or the people who play them, and how have those experiences shaped their worldview? Have video games been a valid topic for conversation in a counsellor’s personal life, or in their other counselling sessions? Why or why not?

Understanding the Problem

Gaming disorder is a relatively new phenomenon, and its relevance and clinical significance has yet to be fully understood (Przybylski et al., 2017). The exponential increase in video game play (now including around 50% of males and 48% of females in the United States)

that has occurred over the last decade has made it difficult to decipher the trajectory of clinical research on the subject in a coherent and chronological way (Faust & Prochaska, 2018). In the sections to follow, I outline important historical developments in attempting to classify the problem, including the varied definitions, as well as important topics of consideration for counsellors who work with this population. That section will be followed by recommendations for next steps for research, and a personal reflection on the process and thoughts that went into the development of this paper.

Lexicon and Stigma

It may be appropriate to begin this section by mentioning that the language surrounding PVG has varied significantly in the past and continues its evolution today. For clinicians, it is important to understand these varying definitions of disordered gaming and how their use has influenced our current understandings on the subject. The term Gaming Disorder was first formally defined by the World Health Organization's International Classification of Diseases (2020) as a:

“.. pattern of gaming behaviour characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation of escalation of gaming despite the occurrence of negative consequences” (p. 166)

Prior to that, the DSM-5 had included the problem of 'Internet Gaming Disorder' as a condition for further study (APA, 2013). The nine specific criteria for Internet Gaming Disorder include: pre-occupation, withdrawal, tolerance, difficulty reducing the behaviour, lack of participation in other activities, continuation despite problems, deception, escapism for adverse moods, and risk to relationships (APA, 2013, p. 796). Further, specific instruments such as the

Internet Gaming Disorder Scale have been developed to assess levels of addiction according to the APA guidelines (Pontes & Griffiths, 2017). For counsellors, these advancements have been subject to considerable critique because of the inherent risks of overdiagnosis and over-pathologizing of ‘normal’ behaviours (Billieux et al., 2019). In this sense, it is important to clearly parse out what normative and healthy video game use looks like for our clients, and where and when that may cross the line into unhealthy and dysfunctional use. This is not an easy task for clinicians because ‘healthy video game use’ may look different between individuals, as well as between cultures.

Conceptualizing the trajectory of problematic video gaming (PVG) practices across time is another important consideration within this field, because of how quickly the relevant themes and vocabulary are changing. Both the technology and the nature of the games themselves have evolved considerably. Similarly, the numerous cultural elements that permeate and surround problematic video game use have also shifted quite dramatically. This has made it difficult for researchers to reach a consensus regarding the terminology that is used to describe this phenomenon (Gentile et al., 2018). Because the earlier literature review focused on the gaming experiences of early adolescents (10-19 years of age), it is important to constrain the timeframe to match those same developmental paths. For young individuals, the definitions of varying forms of PVG that are being used within professional organizations and academic literature can be quite complex. For instance, the WHO (2020) defines ‘gaming disorder’ (GD hereafter) as the presence of three of the following symptoms: “impaired control over gaming, increasing priority given to gaming, and/or the continuation or escalation of gaming despite the occurrence of negative consequences” (p. 166). On the other hand, the DSM-5 (2013) suggests that five of nine criteria be met to warrant a diagnosis: “preoccupation or obsession, withdrawal, tolerance, loss of

control, loss of interest, continued overuse, deceiving, escape of negative feelings, functional impairment occurring within one year” (p. 821). The DSM-5 also differs from the WHO in the sense that the DSM-5 has yet to explicitly limit IGD to video games, citing other commonly used terms such as internet use disorder, internet addiction, and gaming disorder (APA, 2013). As Nielsen (2018) points out, IGD and gambling addiction are the only two behavioural addictions that can be found within the DSM-5 (Nielsen, 2018).

The APA’s conditional classification of IGD in the DSM-5 has been a landmark change for the way that behavioural addictions are seen and treated, as the identified symptoms now meet the criteria for ‘mental disorders’ instead of the ‘impulse control disorders’ that they were categorized as before (Kiraly et al., 2015). One positive outcome of this early organizational classification is that it has sparked a great deal of research, policy interest, and subsequent clinical treatment trials on the subject. On the negative side, the rapid inclusion of IGD was not based on clinical descriptions of the disorder, but rather on adaptations made from its counterpart ‘gambling disorder’; which has led some to question its accuracy (Nielsen, 2018, p. 301).

The scientific literature on the subject has also used different terminology to describe the phenomenon, using many different terms like “video game addiction, pathological gaming, and gaming disorder” (Gentile et al., 2018, p. 312). As a result, problematic or pathological video game use (PVG or PVGU respectively) has been suggested as an emerging construct to encompass the numerous definitions and iterations of this disorder (Heath et al., 2019). While there are countless differences between players and games that could be discussed within this review, the earlier examples serve to illustrate the vastly different landscapes where the practice of ‘problematic video gaming’ can occur.

Socialization and Online Culture

From a clinical standpoint, it is important to note that the MMORPG (in particular) appears to be most closely tied to PVG practices. In this type of game, players organize teams, develop their skills, and play for status within game universes that are populated by thousands of players at the same time. These games typically involve expansive environments and wide ranges of virtual personas for players to adopt and interact with. Often these types of interactions and explorations are reinforced by in-game rewards, such as new clothing or items for a character. These items are often earned for completing in-game achievements but can also be bought and traded between other players.

Global marketplaces worth hundreds of millions of dollars have emerged from these virtual stores, and entire communities have developed around acquiring, selling, and trading these items. Often, these items are bought to signal to other players one's group status, membership, and identity. Players with complementary skills sets or group identities can then form groups and play together, creating vast networks of like-minded individuals (both within the game, and in online forums and other forms of social media).

This kind of functionality is well understood by companies that produce these games, as they are acutely aware of the significance of the online communities that surround their products (Ruggles et al., 2005).

Identity and Competing Systems

Recent research suggests that there are family dynamics (e.g., diffuse boundaries around technology and lack of other opportunities for play) that allow or even encourage unhealthy gaming (Bean, 2018). For counsellors, addressing how the client's gaming behaviour alters family roles and boundaries can be quite useful. If the client's family has negative views or low

levels of ‘cultural consonance’ towards gaming, this could indicate that the client is fearful of parental shame or judgement around the subject. Often, this is the case, as gamers are typically labelled as “losers, misanthropes, schizoid, having Aspergers, or being socially deviant” (Kowert, 2016, p. 82) all of which are considered negative. Analogous to the earlier description of the stigma that gamers carry, these types of beliefs may cause adolescents to withdraw from a family support system that could (and should) be helping them. This is important because no factor influences adolescent adjustment (and also, protective factors against PVG) more than the quality of family relationships; specifically the feelings of connectedness children have with parents and family (Blum & Rinehart, 2000, Schneider et al., 2017). In this sense, considering (and balancing) one-to-one work as well as systems work has proven to be an essential part of working therapeutically with adolescents with PVG (Bean, 2018).

A second important topic to consider when working with young people experiencing PVG is the way in which prolonged video-game usage affects the development of their self concept. Just like in the physical world, virtual spaces have their own (separate) sets of cultural norms and ‘rules’ for gamers to follow. For example, in the physical world there are often very real and immediate consequences for rude behaviour, however in games, those interactions are comparatively low (to no) consequence. This can mean that certain bullying behaviours that would not typically be acceptable can go unchecked, and at times, even be encouraged. This, of course, can profoundly affect the experience of gaming as well as the thoughts and feelings that that the players have towards themselves.

A third important difference for counsellors to keep in mind is that the social hierarchy functions differently in virtual spaces when compared to physical ones. Achievement and success in the virtual world are measured by an entirely different set of skills and attributes than

what is commonly valued in the real world (e.g., a player's ranking, number of followers, in-game skills, and abilities). This creates a social hierarchy that looks very different from that of the physical world, because only a few of those skills are transferrable between offline and online environments. Such differences are important when attempting to conceptualize cases involving pathological play because a client's feeling of competency and social validation may be tied into their online status. Asking questions that explore how the client feels about their online and offline persona's may be useful in this regard.

Biological Changes

Recent research has shown that video game addiction alters brain structures and functional connectivity compared to people without problematic gaming behaviours (Kukri, 2020). These changes are often the result of repeated activations of the same brain structures that are also stimulated by substance addictions, suggesting that the two share the same neurobiological mechanisms (Chen et al., 2009). Like substance use addictions, research has shown that those affected by video game addictions have “worse response-inhibition and emotion regulation, impaired prefrontal cortex functioning and cognitive control, worse working memory and decision-making capabilities, decreased visual and auditory functioning, and a deficiency in their neuronal reward systems” (Kuss et al., 2018, p. 166). These early findings prompted clinicians to adopt the same treatment strategies (e.g., Cognitive Behavioural Therapy interventions) for PVG that were being used for substance addictions. Follow up studies have since shown conflicting evidence for their effectiveness (Zajac et al., 2017). Importantly, no treatment models for PVG currently meet the criteria for being evidence based, though certain combinations of CBT and pharmacological interventions have shown promise as effective treatments (Zajac et al., 2017).

Understanding the Client

Bridging the Virtual Divide

Conversations about gaming between gamers and non-gamers are often difficult (Brown, 2017). For non-gamers, the topic is not interesting and those who play find it too difficult to explain in any sort of interesting way. This means that for clinicians, bridging that divide between ‘online’ and ‘offline’ worlds is essential when treating problematic video gaming because clients with PVG often place significantly more value in their virtual identity and existence (and for good reason, as these virtual worlds are rich environments rife with limitless opportunities for socialization, creativity, and competition). Many of the best treatments for PVG begin with the clinician working to understand those rich virtual environments (Bean, 2018). If the clinician is not familiar with a certain game, it may be useful to attempt to gain some experience playing the game, or even look up some of the information about the game online (Bean, 2018). Doing this may help counsellors understand a client’s subjective experiences in a more precise and helpful way, and it may also allow the clinician to examine the full range of a client’s psychological functioning.

As clinicians the ability to situate oneself within the broader community or cultural context is an essential ethical standard, so developing a competent working knowledge of technology and gaming before working with clients with PVG is essential (Canadian Psychological Association, 2014) as is educating yourself on various cultures within the cities you work.

Psycho-Social Functioning

When counsellors recognize symptoms of problematic gaming, research has shown that they are also inclined to notice signs of other psychopathologies (Bonnaire & Baptista, 2019).

Many of these alternate pathologies have been found to share diagnostic features with gaming problems (i.e., depression, anxiety, attention deficits, and autism spectrum disorder) (Bonnaire & Baptista, 2019). This has made it difficult to untangle the relationship between gaming and other clinical conditions. For counsellors working with individuals with PVG, it is important to work towards an understanding around how these complex interactions are experienced subjectively by the client.

To adequately assess the full range of psychological functioning for a client, an important area to assess is how closely video game practices align with the culture that surrounds them, and how closely those video games are tied to a client's cultural identity. For example, settings where video games are an accepted form of day-to-day leisure can be termed highly culturally consonant, so video game play for upwards of six hours per day is less likely to impact a client's functioning, than in situations where gaming is less culturally accepted. In this sense, evaluating the various cultures (and perhaps, virtual sub-cultures) that a client belongs to may help provide a richer indication of their functioning that goes beyond the limitations of more formal assessment tools. Joining a client in a systemic evaluation around how others (who are close to them) perceive videogames may give some indication as to how those systems perpetuate or limit a client's maladaptive levels of play. This is true within the client's real-life connections, as well as their digital ones. By framing the client's problem in this way, the clinician may be able to assume a 'whole client worldview' that can appreciate the various dimensions and experiences of the gaming behaviour.

For instance, many MMORPG games have features that facilitate the development of strong connections and emotional relationships between gamers through mechanisms like the automatic grouping of players into 'clans' (Cole & Griffiths, 2007). Like any other human

relationships, these virtual connections can be extremely meaningful and should not be overlooked or discounted within a counselling session. How are those friendships similar or different from other in-person friendships? What does your client appreciate about their online friends, and why? What characters and/or roles do they play within the game and what do those interactions say about their beliefs/personality/strengths? How honest has your client been with their online friends about the amount of time they are committing to the game, or their hopes and dreams in the ‘real world’? The answers to these questions may allow clinicians to approach clients with a more genuine sense of openness, acceptance, and empathy, as well as highlight the ways that gaming operates in their lives and identities.

Motivations and Strength Based Approaches

The motivational factors that draw players towards gaming (and excessive gaming) are complex and multifaceted. In line with some of the studied that were highlighted earlier, it is important for clinicians to consider the social elements of gaming that have been shown to influence excessive game use, as some players use their play as a compensatory strategy for their unmet emotional needs for belonging and connection that they may not be experiencing in real life (Beard, 2019). Whether it is a lack of academic, professional, or relational success in real life that drives adolescents towards PVG, or something else, it is important to keep in mind that these games hold a deeply personal meaning for the player. Frequently, these meanings are played out through the player’s chosen character or ‘avatar’.

The avatar is a visual representation of a character, and often those characters play essential roles in the game’s storyline. Gamers are immersed into those storylines and engage in those roles through the eyes of their chosen avatar/character/hero. Importantly, the characters in many of the most addicting games have rich personalities, attributes, and skills (Anderson et al.,

2019). The richer the ‘skill tree’ (or range of available actions), the more immersive and nuanced the game becomes. In the popular and long-lived video game *Super Mario Brothers*; the main character (a plumber named Mario) is a relatively simplistic character that has a very limited range of skills (jumping, running, going down sewer pipes). Not much is known about his background, personality, or purpose. On the other hand, modern games like the best-selling *Red Dead Redemption* portray a much deeper and more nuanced understanding of the character (e.g., where players play as an escaped political prisoner seeking to reunite with his family by taking jobs as a ‘hired gun’). Through the eyes of their chosen character, players are guided towards much more profound emotional experiences that infuse games with personal meanings. Research has found that for most players, these deeper meanings can be seen in the way that players communicate with each other within the game. These conversations extend beyond the goal-oriented communication required to complete the game, and often form the foundations of in-game friendships. For example, 75% (of the popular MMORPG *World of Warcraft*) players reporting that they have made good in-game friendships with other players (Anderson et al., 2019). These findings indicate that individuals with PVG may have a wealth of within-game abilities that are worthy of acknowledgement and use within therapy. For example, a strength-based line of questioning may ask about ‘what video games have taught you about friendships and being a good teammate?’.

Future Research

A key area for future research around the topic of PVG could involve finding a consensus to defining what constitutes problematic gaming. Currently, there is no widely agreed upon definition within research and practitioner communities; though the major institutional definitions share common descriptions of persistent gaming, impaired control, and functional

impairments within multiple areas of life (King et al., 2018). One of the major reasons for this confusion is the difficulty around determining causality, or the direction of the relationship between PVG and other factors. Are adolescents with PVG are at greater risk of developing mental disorders? Or do adolescents with mental disorders have a natural proclivity towards engaging in problematic gaming? To further complicate this issue, PVG has been shown to develop concurrently with other disorders such as depression (Liu et al., 2018).

The disproportionate prevalence rates of PVG between genders is another poorly understood topic that warrants further research. Because PVG predominantly affects males, a large proportion of the research on the subject has emphasized male perspectives and experiences (Kriston et al., 2017). Without strong comparative data sets it can be difficult to ascertain how: gender and PVG may interact within unique cultural contexts, the ways that PVG is subjectively experienced between genders, and consequently, what treatments or interventions may be useful across genders.

This confusion has made it difficult to confirm a solid and unambiguous research base that would allow institutions like the WHO and the APA to include PVG as an actual diagnosis (Kuss, 2013). In 2019, a study showed that “only 60.8% of clinicians agreed that PVG could be a mental health problem”, and of that 60.8%, only half of those clinicians agreed with APA’s definition of the disorder (Ferguson & Coldwell, 2019, p. 359). For as long as there is no consistent definition of IGD, it will continue to be difficult for researchers and practitioners to develop meaningful assessment measures and treatments for those affected (Zajac et al., 2017).

Although some of studies have since emerged from the academic community, the lag between their publishing and their practical use has left many children without effective treatment options (even though there is a high demand for specialist services in North America).

Academic, institutional, and clinical communities are also struggling to keep up with this quickly evolving issue. One prominent researcher Darius Kuss has stated that the: “integration of the neurobiological, individual, game-related, and cultural factors contributing to pathogenesis and symptom experience understandably requires multifaceted data sets, and importantly, time” (Kuss, 2013, p. 125). This poses a problem because those deeper understandings are continually being re-written by the ongoing supply of new games that are continually entering the market and permeating into our culture. These games are backed by multi-billion-dollar corporations such as Electronic Arts and Activision that largely do not recognize the existence of PVG or their social responsibilities to those affected individuals (Faust & Prochazka, 2018). Many governments are doing equally little to support research, prevention, and treatment initiatives in these areas (King et al., 2018). Unlike many Asian countries where PVG is more prevalent, Canada has very limited data on the subject, and consequently very limited funding and treatment options for affected individuals (Long et al., 2018).

Ultimately, the current body of research on this subject has very little quantitatively ‘rich’ or ‘thick’ data around how PVG is subjectively experienced by adolescents over time. With more research in this area, researchers may develop a better understanding on the natural progression of this disorder. In this sense, longitudinal studies designed to understand the personal, cultural, and game related aspects of IGD, and its causation may be important. Specific measurements of phenomenological experience and treatment approaches have been suggested in the literature (Kuss, 2013). With those in place, it would be much easier for clinicians to determine how the timing and magnitude of a given treatment affects displays of pathological play, especially when compared against natural recovery rates (Zajac, 2017).

Personal Reflection

Having now researched this subject extensively, I have come to realize that my interest (and involvement in) the topic of problematic video gaming was born much earlier than I had initially realized. Well before my teenage years, I had several gaming experiences that shaped my future in several interesting and profound ways. One of my earliest memories was of my sister and I opening a Christmas present together and finding a Super Nintendo console with two controllers inside. For both of us this was one of the happiest moments in our childhood. After thanking our parents profusely, we immediately plugged the console into our television, chose our characters, and set off into the magical world of Donkey Kong where we cooperatively worked to defeat enemies and recover our stolen banana hoard. Outside of the virtual jungles and oceans (in Donkey Kong country) my sister and I rarely got along, and today, I reflect on those times with a great deal of gratitude and fondness. Sometimes we would not even play. We would just leave the calming ambient soundtrack to play while we relaxed into our peaceful afternoon naps. Playing video games together was the only time when we could develop a shared sense of cooperation, problem solving, and growth (both our characters and real-life selves) without some sort of senseless conflict getting in the way. During my childhood, video games fit nicely into my short list of priorities, which at that time was mostly made up of finding ways to have a much fun as possible with the least amount of effort. Looking back on those early moments in my life I can see a great deal of significance within those early experiences to shaping us today. Would our lives have turned out differently if we had not received that Christmas present? Was there something about my sister and I that made Nintendo more meaningful to us than to others? Did the stories and the characters that we vicariously lived within change the course of our emerging identities? It certainly feels like those experience have affected me throughout my life, though I

cannot attempt to explain specifically how. Although I never played more than a couple of hours per day, I did catch glimpses of the costs that it could have on myself and those around me. I saw how people who suffer from PVG may go unnoticed and unsupported within a culture that disguises minority struggles and veils minority pain.

Since then, undertaking this project has transformed my personal, professional, and academic life tremendously. Just recently I started playing video games again for the first time in years because I felt like the COVID pandemic had left me with little else to do, and I was blown away by how much games have improved since I had last played. I frequently catch myself escaping into games wondering where the time went. Now that I have studied the topic extensively, I find myself noticing certain elements within the game that align with some of the research I have done for this project; features that make them appealing and hard to quit. For instance, with the click of a button I can signal to my friends that I am online and ready to play (which also happens to show me a comparison between my in-game rank and theirs). For whatever reason, those small features for social comparison have occupied my thoughts for a lot longer than I would care to admit. I have also begun to recognize how certain character's stories seem to align with my motivations to feel valued and understood, or to compete and contribute to my own team of friends and our shared story. These realizations have prompted me to think about how none of these elements in the games are not happening by accident; they have been deliberately placed by teams of game designers who have seamlessly woven them into the architecture of the game. No doubt, these companies have researched and understood our human nature in ways that would make most psychologists and counsellors envious.

I have also had to come to terms with similar realizations in my academic and professional interests. When I first formulated my research topic, I took a very narrow view

about what gaming was and how it might impact the adolescents I work with. I mistakenly thought that I could constrain the outer boundaries of my research area into a relatively straightforward review. Since then, I have come to know that the topic of video games (and its impact on self-concept) is far more complex and intriguing than I had originally thought. Today, I have even more unanswered questions to contend with than I did when I first started this project. Gaming and virtual identities evoke a much deeper conversation than I had initially thought. Primarily, that conversation has to do with fundamental changes in the ways that we are connecting with each other in the modern world.

I recently read an article where the Chief Executive Officer of Twitch (a popular game streaming website) was talking about how online games have the unique ability to bring people and communities together, where he referred to online gaming as “the modern version of the campfire” (Shear, 2019. p. 1). For me, these kinds of statements are worrisome because they suggest that video games are replacing other forms of play rather than growing parallel to it. Is that really going to be the case? The continued growth of the video game market seems to be going that way; accelerating even more as we have all been trying to adapt to the pressures of the pandemic. These kinds of predictions make me worried for the future. Is that the kind of world that I want to live in? Is that the kind of world that I would want my future children to grow up in?

These are complicated questions, and it seems that neither me nor society in general has arrived at a good set of answers to this problem. To be clear, though, I believe that it is right to conceptualize this issue as a ‘problem’. The cultural shifts that have normalized problematic play to the point where it has become an accepted part of adolescent lives concerns me. Many of the young people I work with have so much unrealized potential that they are emptying into these

virtual spaces, and I cannot help but feel that at least some of that effort is misdirected. So, is it right to conceptualize the time spent playing video games as a loss to our society? Are we dealing with a cultural sickness rather than an individual pathology? At least in part, I think that the answer to both of those questions is yes; and I certainly grieve that loss. These ideas have led me to ask myself whether I am too old to understand the changing times. Am I spending too much effort rallying against the future rather than adapting to it? I suppose only time will tell.

At the end of this all, one of my beliefs that has remained unchanged throughout this project is my conviction that problematic video gaming is not a challenge that will be solved on an individual level. It is one small manifestation of a much larger cultural movement, and with that line of thinking, any meaningful treatments for affected individuals should also include a broader societal understanding of the issue. In that regard I am hopeful that both this paper and this area of inquiry will be useful for parents, counsellors, and policy makers moving forward.

Conclusion

My hope in writing this review is to shine some light on a stigmatized and often under supported population of individuals, whose aspirations and needs remain largely unknown. While other countries in Europe and Asia already have gaming-specific treatment centres (and established processes for supporting individuals with PVG) Canada is still significantly behind other nations in these areas (Sanders, Williams, & Damgaard, 2017, p. 6). Without reliable data to lean on, Canadians are forced to rely on abstract generalizations informed by research done elsewhere in the world. Additionally, this lack of evidence may be prolonging a state of inaction on the part of government policy makers, much to the detriment of our fellow citizens. In this way, the intention behind this review is to consolidate some of what is known about this complex phenomenon in a way that may generate new meaning and renew a sense of collective purpose

around supporting those with PVG; thus pushing back on some of the power structures that have (so far) failed to support Canadian youth.

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