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Exploring the Relationship Between Religiousness and Video Game Addiction

A thesis

presented to

the faculty of the Department of Psychology

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Master of Arts in Psychology

by

Joseph Barnet

August 2019

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Keywords: Religiousness, video game addiction, substance abuse

ABSTRACT

Exploring the Relationship Between Religiousness and Video Game Addiction

by

Joseph Barnett

Religiousness has been shown to have an inverse relationship with at least some types of addiction. The present study examined whether intrinsic religiousness predicts substance addiction and video game addiction in a sample of participants that included mostly undergraduate students from the Appalachian region, as well as some participants surveyed with the use of social media advertisements. Intrinsic religiousness has been defined as internalizing the tenets of one's faith. Participants self-reported their religiousness using the Religious Surrender and Attendance Scale – 3 (RSAS-3), which has been shown to measure intrinsic religiousness. Religiousness as measured by the RSAS-3 predicted lower levels of substance use addiction. Statistical significance was not found for the relationship between religiousness and video game addiction. The present study extends findings regarding religiousness and addiction but future research should also take into account different theological and denominational beliefs and commitments related to health outcomes.

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CHAPTER 1

INTRODUCTION

Why look at video games and why does it matter if people are addicted to video games? Video games are played in many households throughout the world and sales of video game consoles continue to soar as do sales and use of personal computer games. The Entertainment Software Association (2017) revealed that 67 percent of Americans own a device that is used to play video games. With growing technological advancements and innovations, many console and PC games can now be played online. According the *State of Online Gaming Report* (2013), more than 1.2 billion people play games worldwide. Some violent video games are being scrutinized for their posited effects of increasing aggression in people that play them (Anderson & Carnagey, 2009). If these claims are substantiated, there is a cause for concern as many people that play video games excessively may be further exposing themselves to these violent video games and thus making themselves more aggressive in the process. The issue of violent video games will be further discussed later in this review.

Another issue with excessive video game use is the cost-benefit ratio of playing video games. In a study of 713 students looking at the relationship between gaming time and performance in school, results revealed that exam scores were significantly lower for students classified as frequent gamers compared to students that were categorized as non-frequent gamers (Ip, Jacobs, & Watkins, 2008). Another study specifically investigated GPA and SAT scores as measures of academic achievement. The study showed a negative relationship between playing video games frequently and academic performance (Anand, 2007). Even though these studies do not show causality between playing video games and academic performance, playing video games takes away time available to do other things, such as schoolwork and participation in

athletics. Another cause for concern related to the cost-benefit of playing video games is when video game play reaches a level that is considered video game *addiction*. While excessive game play could be detrimental to school performance and other social outcomes, video game addiction is the point at which there is functional impairment in some areas of life, such as mood modification and conflict with others (Chiu, Lee, & Huang, 2004). While research in video game addiction is still relatively new, it is important to determine the difference between excessive video game playing and video game addiction. There are scales that have been designed to measure video game addiction, but what is the threshold, if there is one, that makes excessive gaming become video game addiction? Further research in this area will hopefully provide answers to this question.

While *internet* gaming has been subject to consideration for being an addictive disorder, regular *console* and *computer* video games have also been studied in the context of addiction (Elliot, Golub, Ream & Dunlap, 2012; Tejeiro Salguero & Morán, 2002). All formats, online, console, computer, and phone or tablet, were evaluated within the present study. While empirically understudied, there may be a possible similarity between substance addiction and gaming addiction. Both types of addiction can serve as possible “escapes” or temporary comforts for the individual. For some, substances can serve as a coping method (Kuntsche, Knibbe, Gmel, & Engels, 2005). In a similar way, video game play may also serve as a coping method. Kahn et al. (2015) identified that some individuals play games to feel an escape from real life. Visser and Smith (2007) identify escapism as a reason for why adolescents drink alcohol. In addition to escapism, some of the symptoms associated with substance use addiction, such as tolerance and withdrawal, are also present in video game addiction. The DSM-5 suggests individuals that are addicted to games may crave playing the game when they are not engaged with it. In the same

way, those that struggle with substance use addiction may also crave drugs when they are not engaged in using them. Just as it is useful to find that religiosity serves as a predictor of lower substance use, it would also be helpful to investigate whether a similar relationship is present between religiousness and video game addiction. Findings predictors that may lead to buffers are helpful for translational components, such as interventions.

Video Gaming

There are multiple genres of video games, such as violent or social games, that likely differ in their potential for excessive use. Certain genres of video games for consoles, such as first-person shooter, action adventure, role-playing, and gambling games have been reported to have the highest levels of video game addiction potential in a study with 3,380 participants (Elliott et al., 2012). Violent and social gaming will be discussed in the context of addictive potential.

Violent Video Games

Although negative effects of playing violent video games have been researched extensively in the past few decades (Griffiths, 1999), addiction research related to violent video games is rather new. A literature review conducted in 1999 summarized the findings from the previous decades (Griffiths). While little experimental research had been done at the time, the author noted that a consistent finding from the review was that very young children were more prone to showing aggressive thoughts and behaviors after playing violent video games than were teens (Griffiths). According to Anderson and Dill (2000), laboratory exposure to violent video games increased aggressive cognitions in the short-term in a sample of college students. The experiments conducted by Anderson and Dill led to the development of the two-step causal model for aggression in video games. The two-step causal model posits that individuals who play

violent video games have their cognitions altered by the video game. Then, the internal changes that have taken place combine with interpersonal communication that elicits antisocial behavior and explicit aggressive behavior. A meta-analysis of video game violence studies included longitudinal, cross-sectional, and experimental studies, and authors concluded that evidence strongly suggested that exposure to violent video games is a causal risk factor for developing aggressive behavior (Anderson & Bushman, 2001).

With advances in technology and physiological measurement, studies have been able to investigate physiological explanations for the relationship between video game play and aggression. One such study looked at physiological responses to playing violent video games. Participants who had little prior violent video game exposure and played a violent video game showed a reduction in the P3 component of the event-related potential over time when viewing violent images. The response suggests that these individuals showed neurological desensitization to violent images after being exposed to violent video games. The desensitization to violence predicts aggressive behaviors (Engelhardt, Bartholow, Kerr, & Bushman, 2011).

Behavioral studies have also been conducted. In one such study, 43 undergraduate participants were randomly assigned to either play a violent video game called *Mortal Kombat*, or a golf game (Bartholow & Anderson, 2002). Participants were analyzed for aggressive reactions and retaliations by having them perform a reaction time task after video game play. Results confirmed the hypothesis that playing the violent video game resulted in more provocation and retaliation in the reaction time task than playing the non-violent golf game. The study also found that the effect from the violent video games was stronger in males than in females. There are similar findings that offer converging evidence for the possibility of gaming causing negative outcomes (Kuss & Griffiths, 1988).

A study by Anderson and Carnagey (2009) examined sports games to try to differentiate whether it was the competitive nature or the violent nature of video games that was making people more aggressive. Participants either played violent sports games or played non-violent sports games and then completed a general aggression task. The participants that played the violent sports games were more aggressive on the dependent variable task than the control group. Since all of the games were competitive in nature, the researchers posit that the effects were a result of the violence in the video games.

All studies do not support a positive relationship between playing video games and developing aggressive behavior. A meta-analysis done by Ferguson (2007) did not support the conclusion that playing violent video games is linked to aggressive behavior. Effect sizes for each study included in the meta-analysis were calculated and results revealed that publication bias was a problem for studies looking at aggressive behavior and video game play (Ferguson, 2007). Once corrected for publication bias, studies of video game violence provided no support for the hypothesis that violent video game playing is associated with higher aggression (Ferguson). Another study looked at alternative predictors of aggressive behavior which employed measures thought to predict youth violence such as family environment, peer delinquency, and depressive symptoms (Ferguson, 2011). The results of the study showed that depression, and not violent video game exposure and television violence exposure, were prospective predictors of serious acts of youth aggression or violence. While there is debate as to whether there is a causal connection between playing violent video games and becoming more aggressive, we do know that there are negative outcomes that are associated with excessive gaming. Additionally, different types of gaming, if they are causing effects, may function differently depending on game type and genre. For each gaming genre, an example of that genre

will be given to assist the reader to take the perspective of a gamer, seeing the enticements for playing the games from the gamer perspective.

Example of Potentially Addictive Violent Video Games

With technological advancements made in recent years, video games have become increasingly graphic and violent. *Mortal Kombat* is an example of a highly violent game that is rated M for mature on gaming platforms, which is the most restrictive rating (Bartholow & Anderson). As mentioned earlier, it is a game that has been used in experiments that use violent video games as one of the conditions. In *Mortal Kombat*, the object of the game is to defeat the opponent by reducing their “health” bar. When the health bar gets to zero, the living character can perform a highly graphic and oftentimes grotesque “finishing move” on the character with a health bar at zero. Despite its graphic and grotesque nature, *Mortal Kombat* remains a very popular game. This repeated exposure to graphic violence is likely a factor in this desensitization to violence outside of the game.

Social Video Games

Games that have a social aspect, for example multiplayer games, tend to be more addictive than games that do not have a multiplayer component (Hull, Williams & Griffiths, 2013). In these types of games, players can communicate with people on another team or on their own while playing. Perhaps some social games can provide a sense of belonging and community for video gamers. Instead of having a social community at school or at work, perhaps their community is online, which may be a factor that contributes to the addictive qualities of social video games. The individual that is addicted to these video games may feel a compulsion to log-on in order to interact with their friends and may even be pressured by others to play at the expense of other activities.

Massively Multiplayer Online Role-Playing Games (MMORPG), a specific type of online game, tend to be very addicting because in order for the player to be successful at the game, they must invest increasing hours of commitment (Dauriat et al., 2011). Yee (2006) reports that in a sample of 5,471 MMORPG players, the hours played per week ranged from 16-24 hours. While some games do not directly reward players for playing longer hours, MMORPG games can be addicting because of positive reinforcement. In a fighting game, for example, players can have stronger characters and can earn more “money” if they level-up their character, thereby increasing their chances of success in the game. Leveling up a character entails spending time playing the game in order to make the character more powerful in a certain skill. For instance, if a player wanted to level up their defense ability, they would have to spend time fighting monsters in the game. Therefore, to level-up, more time commitment is necessary. In a study of video game addiction with 350 MMORPG players and 344 non-MMORPG players, players were more likely to be addicted to the MMORPG games than the non-MMORPG games (Son, Yasuoka, Poudel, Otsuka, & Jimba, 2012). While the reward aspect of MMORPG games can be a contributing factor to the addictiveness of these types of games, the social aspect of MMORPG games may also contribute. In a study that created a theoretical model concept which included customer loyalty, flow, personal interaction, and social interaction to explain why people are drawn to online games, results indicated that people are more likely to return to games if they have optimal experiences, with optimal experiences defined as having good social interactions with other people on the internet, or even good interactions with the system (Choi & Kim, 2004). Good interactions with the system means having a game that has adequate difficulty, attainable goals, and good feedback. Good social interactions can be facilitated by

having appropriate communication with other players and utilizing teamwork to work towards a common goal (Choi & Kim).

Example of Potentially Addictive Social Video Games

Runescape is a popular MMORPG game that is recognized by the Guinness World Records as the world's largest MMORPG game (Saltzman, 2012). In this game, players are encouraged to log on and play for long periods of time so that they can level up their character. Characters in this game can level up different skills with each skill taking different amounts of time to level up. Runescape has a calculator that players can use to calculate the time that it takes to level up different skills. According to this calculator, it takes roughly 200 hours to level up the "woodcutting" ability to its highest level. If a person were to play 10 hours a day, for instance, it would take 20 days to complete. That is only one of 27 skills that players can level up in Runescape. Social games in particular can present a potential route for fostering addiction. One such route likely includes the opportunities for social interaction, as well as habit. The repetition of activities has been shown to have a moderate effect on addiction (Chou & Ting, 2003). Consumers that continue to act certain way even when it is not in their best interest may develop addictions (Chou & Ting).

Beneficial Components to Video Games

While many studies point to detrimental effects of playing video games, there is evidence that suggests that games played in moderation can have positive health outcomes. Research has shown that video games may improve the ability to learn new information (Gee, 2003; Shaffer, Squire, Halverson & Gee, 2005; Squire, 2011). A study done by Green and Bavelier (2006) showed that individuals that played action video games exhibited an enhancement in attentional resources compared to non-gamers. The authors conclude that action gaming enhances

visuospatial attention throughout the visual field. This can potentially be explained by the rapidly-changing pace of action games requiring focused attention. Video games are even being implemented by rehabilitation professionals to help patients with recovery, including the use of virtual reality video games (Zyda, 2005). In these games, the user usually puts on a mask which allows them to become engulfed in the game. Occupational therapists have used virtual reality games as a form of rehabilitation due to their immersive nature (Halton, 2008), for example, in stroke rehabilitation (Laver, George, Thomas, Deutsch & Crotty, 2015). The integration of real-time computer graphics, visual displays, and other sensory input immerses a participant in a computer-generated environment which aids in decreasing post-traumatic stress experiences (Rothbaum, Hodges, Ready, Graap, & Alacorn, 2001). While games can be, and have been used for good, excessive video game playing can lead to adverse effects. In this study, I will explore a specific predictor of video game addiction, religiousness. Given that video game addiction is investigated as a mental disorder, it would be helpful to find predictors or potential protective factors against excessive use. Since religiousness predicts other types of addictions, it may also predict gaming addictions. I will further assess the relationship between religiousness and substance addiction to determine if the gaming addiction /religiousness relationship is similar to the substance addiction/religiousness relationship.

Addiction

Substance Addiction

The term addiction historically has referred to misuse of substances. The DSM-5 (APA, 2013) includes criteria that characterize substance use disorder as an addiction such as, “craving or a strong desire to use opioids, “stopping or reducing important social, occupational or recreational activities due to substance abuse” (APA, p. 492). When an individual is addicted to

something, they may feel that it is pleasurable at first. If the addicted individual tries to escape the behavior, they often cannot. The individual will feel compelled to continue the behavior regardless of its detrimental effects. Drugs and alcohol are frequently studied addictive substances that have negative impacts on health. According to the Mayo Clinic (2017), drug and substance use addiction can have the following symptoms: feeling that the need to use the drug regularly, having intense urges for the drug that block out any other thoughts, needing more of the drug to get the same effect, and taking larger amounts of the drug to attain the same effect.

Behavioral Addiction

Behavioral addiction is defined as a behavior that can function both to produce pleasure and to provide an escape from internal discomfort. It is characterized by a recurrent failure to control behaviors and the continuation of behaviors despite significant negative consequences (Goodman, 1990). The most commonly cited behavioral addiction is gambling, but others include viewing pornography and of interest in the current study, video gaming.

Gambling. According to Blanco et al. (2001), pathological gambling has characteristics that more closely resemble substance abuse disorder than obsessive-compulsive disorder (OCD). OCD requires the individual to experience repetitive behaviors or mental acts that are performed in response to an obsession or according to rules that the person believes must be applied rigidly. (APA, 2013). In pathological gambling, the individual does not necessarily subscribe to certain rules or repetitions that are applied rigidly. In gambling, an individual's likelihood of addiction may be increased because the intermittent schedule of reinforcement strengthens the behavior. It is well known that intermittent reinforcement is the best reinforcement schedule for maintaining a behavior, and both gambling and video game play are characterized by intermittent reinforcement (Kendall, 1974). Gamblers experience "near misses," coming close to winning but

still failing to win the reward (Parke & Griffiths, 2004). Other stimuli may be perceived to be rewarding in a gambling setting because they produce physiological responses, such as excitement, arousal, and tension. These factors point to gambling as being an actual addictive behavior rather than an obsessive-compulsive behavior.

Video Gaming. As mentioned earlier, the DSM-5 now has a categorization for Internet Gaming Disorder as a condition for further study. This means that while Internet Gaming Disorder is not yet considered to be an official disorder, additional research is encouraged and it may come to fruition as a disorder in the future. The diagnostic criteria for Internet Gaming Disorder include: preoccupation or obsession with internet games, withdrawal symptoms when not playing internet games, a built-up tolerance to games, and using internet games to relieve anxiety and guilt (APA, 2013). Further operationally defined terms related to video game or internet gaming addiction include salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse. Salience refers to the extent to which video games become a central part to an individual's life. As an example, games take the place of other activities, as well as the individual's thought process. Mood modification refers to the subjective experiences that people report as a result of engaging in internet and video game play, such as anger and sadness. Tolerance is the process whereby more playing time is required in order to fulfill the desired mood-modifying effects. Withdrawal symptoms are the unpleasant feelings that occur when playing time is discontinued, and relapse occurs when video-game playing habits are quickly reverted to even when trying to stop the habit (Griffiths, 2000a; 2000b). While most of these effects associated with addiction are negative (avoidance of discomfort), pleasure (seeking pleasurable sensations) may also contribute to the addiction. Markey and Ferguson (2017) suggest that video gaming can raise dopamine levels to roughly double the normal resting state.

Although there is not a consensus on video gaming addiction being a psychiatric disorder, there is enough evidence of its potential negative effects to warrant study into predictors of excessive gaming, thus the exploration of religiousness as a predictor of video gaming addiction.

Religiousness

Religiousness is a broad term and can have varied meanings. Even people that believe in similar religious systems might believe for different reasons and practice that religion in different ways. Someone that attends church every week, prays regularly, has a personal relationship with God and immerses him or herself in the community of the church can potentially differ in health outcomes from someone who just says that they believe in a higher being (Allport, 1950; Ryan, Rigby, & King, 1993). Much research concerning religiousness has used measures of religious attendance oftentimes using only a single question. For example, Koenig and Larson (2001) analyzed many studies with religious variables and found that the great majority of the studies used denomination, attendance, or membership as the sole measure of religiousness. Eighty percent of people worldwide identify with a religious group (Hackett et al., 2012). According to an American Religious Identification Survey, 32 percent of students identified as being religious, 32 percent of students identified as being spiritual, and 28 percent of students identified as being secular among 1800 students representing college campuses across the United States (Kosmin & Keysar, 2017). Pew Research Center indicates that 77.2% of the population in the United States identifies with a religion (Pew, 2017). As demonstrated from these statistics, religiousness is prevalent, and since it holds potential health benefits, it is worthy of investigation.

IR/ER

Over the past few decades, researchers have attempted to develop valid definitions for religiousness and spirituality (Oman, 2013). In a broad sense, religiousness is generally

understood to mean identifying with a system of faith and worship and the recognition of and believing in a higher power (Byrne, 1999). The current study will specifically focus on one view of religiousness. Allport and Ross (1967) categorize religion into intrinsic religious orientation (IR) and extrinsic religious orientation (ER). Individuals high in IR tend to adhere to the creeds of their religion and they internalize the main tenets of the faith tradition whereas individuals high in ER tend to see personal benefits of religion such as securing friendships, relationships, and a sense of peace (Gorsuch & McPherson, 1989), and according to Allport and Ross, people high in ER are significantly more prejudiced than people with an intrinsic religious orientation. Watson, Morris and Hood (1988) found that IR was negatively correlated with depression scores, whereas ER correlated positively with depression. The reason the focus of the present study is IR rather than ER is that individuals in these groups differ in health outcomes (Gorsuch & McPherson, 1989, Watson, Morris & Hood). ER has been associated with more negative outcomes (Watson, Morris & Hood), and I am trying to find a measure of religiousness that is most likely to predict healthy behavior, in this case, lower likelihood of video game addiction. Therefore, I will investigate IR as a predictor of addiction.

Religiousness Predicting Addiction

Religiousness, broadly speaking and defined, is predictive of good health (Miller & Thoresen, 2003; Powell, Shahabi, & Thoresen, 2003; Seeman, Dubin, & Seeman, 2003). In a meta-analysis of data from 42 independent samples that examined the association between religiousness and all-cause mortality, religious involvement was significantly associated with lower mortality (McCullough, Hoyt, Larson, Koenig & Thoresen, 2000). In a structural equation path model, results revealed that high levels of church attendance combined with religious practice predicted healthy eating habits in a sample of 3,620 African Americans (Dodor, 2012).

In a study concerning a number of health-related behaviors and outcomes, religiousness was shown to have a positive relationship with wellness and positive health and an inverse relationship with illnesses and health-compromising behaviors, such as smoking, drinking, and drug use (Bahr, Maughan, Marcos & Li, 1998; Oleckno & Blacconiere, 1991).

Willis, Yaeger, and Sandy (2003) conducted a study that investigated whether religiousness acts as a buffer between life stress and adolescent substance abuse. A buffering effect was found in the cross-sectional analysis. A latent growth analysis also showed that religiousness reduced the impact of life stress on initial level of substance use and of rate of growth in substance use over time. Another study showed that patients with higher ratings of perceived spiritual or religious support were abstinent from illicit drugs significantly longer than patients with lower ratings. Bahr, Maughan, Marcos and Li (1998) found that in a random sample of 13,250 adolescents, religious students were less likely to use drugs or have friends that use drugs than were nonreligious students. In a sample of 105 varsity athletes, intrinsic religiosity was inversely associated with alcohol, marijuana, and other drug abuse (Storch, Storch, Kovacs, Okun & Welsh, 2003). These studies seem to suggest that religiousness, broadly measured and defined, may have some ability to reduce substance use, but would the same relationship be found if the addiction were to video games rather than substances?

Although research seems to suggest that in smaller quantities, video games can be beneficial for some health and cognitive outcomes, video game addiction, can lead to a host of negative effects, such as lower academic achievement, apathy towards other activities, and dependence on the game. The current study will attempt to see whether measured religiousness negatively correlates with scores on a measure of video game addiction. In other words, we are hypothesizing that religiousness scores on a measure of IR (Clements, Fletcher, Cyphers,

Ermakova & Bailey, 2015) will be negatively correlated with scores on a measure of video game addiction (Pontes, 2015). Substance addiction will also be measured in order to determine whether the IR measure predicts both substance addiction and video gaming addiction similarly.

Measurement

Measuring Addiction

Because video game addiction is a newer concept and was only recently added to the DSM-5 as a disorder for further research, there are fewer validated scales of video game addiction than of substance addiction. Several scales have been developed to measure gaming behavior (Lemmens, Valkenburg & Peter, 2009; Pontes, 2015; Van Rooji et al., 2010). The *Game Addiction Scale* has been used to measure video game addiction in adolescents has been implemented and used (Lemmens, Valkenburg & Peter, 2009). While the scale contains positives, such as having high reliability, some of the cons include it being designed exclusively for adolescents. The article itself suggests that adolescents are not the only players that can get addicted to games. The *Compulsive Internet Use Scale* (Meerkerk, Van Den Eijnden, & Garretsen, 2009) has been used to measure online internet use. It is a 14-item scale that was used to measure seven underlying criteria: salience, tolerance, mood modification, relapse, withdrawal, conflict, and problems. While the scale has high internal consistency and validity, one limitation of the scale is that it is used exclusively to measure internet use rather than video game play in general. Furthermore, since the scale came out in 2009, it has not been updated to reflect newer insights in the field. In the present study, the *Internet Gaming Disorder Short Form-9 Scale* [IGDSF9] (Pontes, 2015) will be used to measure video game addiction. The IGDSF9-SF is a scale that has been updated to include the diagnostic criteria for internet gaming disorder on the DSM-5. Evidence has been found for the scale's construct, criterion, concurrent

and cross-cultural validity (Pontes, 2015). The scale is being used as opposed to other scales because it has been formulated to reflect the DSM-5 categorization for internet gaming disorder.

Measuring Religiousness

As mentioned, religiousness has been defined in many ways and has been measured in many ways. The Brief Multimodal Measure of Religiousness and Spirituality (BMMRS) has also been used to measure religiousness primarily in medical settings and encompasses many aspects of religion (Fetzer Institute/NIA, 1999). The BMMRS is a broad scale that captures a broad range of definitions of religiousness and spirituality. The BMMRS contains a total of 40 items that ask about daily spiritual experiences, values and beliefs, forgiveness, private religious practices, religious and spiritual coping, religious support, religious and spiritual history, commitment, organizational religiousness, and religious preference. A narrower measure of religiousness is the 12-item Surrender Scale (Wong-McDonald & Gorsuch, 2000; 2004). This measure has been used to predict stress levels, which in turn predict health outcomes (Clements & Ermakova, 2012). The *Surrender Scale*, in contrast to more general scales like the BMMRS, may capture a deeper commitment to tenets of a religion (Clements et al., 2015). In the present study, religiousness will be measured using the validated RSAS-3 Scale (Clements et al., 2015) which combines two items from the Surrender Scale with one item on religious attendance from the BMMRS. This is a measure of both commitment and behavior and is highly correlated with measures of intrinsic religiousness, which tends to predict health outcomes in ways that extrinsic religious orientation does not. In contrast to the *Surrender Scale*, the RSAS-3 scale only contains 3 items, yet it is still very highly correlated with the *Surrender Scale*. The measure also contains an item about church attendance which is the religiousness measure that is most predictive of health outcomes (Clements et al., 2015). Since it is known that religiousness tends to negatively

correlate with other types of addiction such as substance use disorder, a similar relationship should be seen with video game addiction.

Measuring Addiction to Substances

There are a plethora of measures that quantify substance addiction. The *Alcohol, Smoking and Substance Involvement Screening Test* (ASSIST) is a validated instrument that is used to measure specific types of substance abuse (Humeniuk et al., 2008). The instrument asks questions about specific types of drugs. The instrument also asks participants if friends or relatives express concern about potential drug use of the participants. This measure is commonly used an interview format. The scale is a validated instrument that seems to inquire about different types of substances and drugs rather than just alcohol. However, since the measure is mostly used in interview format, I felt that it would not be as appropriate to use for this project. The *Michigan Alcoholism Screening Test* (MAST) was constructed to measure and detect alcoholism in participants (Selzer, 1971). The measure consists of 25 items that ask the participant to either answer “yes” or “no.” Questions pertain to specific drinking habits in participants. One question asks, “do you ever feel bad about your drinking.” Another asks, “have you ever been a patient in a hospital because of drinking?” While the scale is well known and widely used, I did not choose to use it for this project due to it being used exclusively for alcohol and would therefore be a bit too narrow for the purposes of this project.

The substance addiction measure chosen for the current study was the *TCU Drug Screen V* (TCUDS-V), an updated version of the *TCU Drug Screen II* that reflects the diagnostic criteria in the DSM-5 (TCU, 2017). The *TCU Drug Screen V* screens for substance abuse that ranges from mild to severe for many substances including alcohol. This instrument was chosen because

it measures substance use across different drugs as opposed to just alcohol. The instrument is also designed to be self-administered rather than to be used in interview format.

Current Study

The current study examined whether religiousness predicted video game addiction similarly to the way it predicted substance addiction. The tested hypothesis was that measured religiousness would be inversely relate to likelihood of video game addiction as measured by a validated measure of video game addiction, meaning greater religiousness should correlate with a lower likelihood of video game addiction. Measured religiousness should also inversely relate to substance abuse as measured by a validated measure of substance abuse.

CHAPTER 2

METHODS

Participants

Participants were recruited through SONA, Facebook, and word of mouth using REDCap. We attained a convenience sample that included both religious and non-religious participants, as well as gamers and non-gamers. Students completing surveys through SONA received extra credit that could be applied to a class in which they were currently enrolled. No other incentives were offered for participation. Study staff did not collect any identifying information and therefore responses were not linked to participants.

Measures and Procedure

IGDS9-SF: The current study employed the Internet Gaming Disorder Scale-Short-Form (IGDS9-SF) (Pontes, 2015), which is a validated 9-item measure which assesses DSM-5 criteria for internet gaming disorder ($\alpha=.87$). The items on the scale inquire about video game playing habits, such as “Do you feel preoccupied with your gaming behavior?” “Do you think about previous gaming activity or anticipate the next gaming session?” “Do you think gaming has become the dominant activity in your daily life?” The responses range from 1 (Never) to 5 (Very Often). Total scores are obtained by adding the responses to all items with total scores ranging from 9 to 45. This measure is self-administered and was administered using the REDCap and SONA servers. Construct, criterion, concurrent and cross-cultural validity have all been demonstrated as has reliability (Pontes & Griffiths, 2015). According to Pontes (2015), receiving a score of 5 (very often) for at least 5 items on scale would constitute as having video game addiction. Although, even if that threshold is not reached, participants can still show a potential for addiction by having higher scores on the scale.

RSAS-3: The present study aimed to capture IR as the measure of religiousness. As such, the present study utilized the RSAS-3 (Clements et al., 2015). The scale, based off of the 12-item surrender scale (Wong-McDonald & Gorsuch, 2004), is designed to capture higher religious commitment. In total, the scale contains 3 3 Likert-scale items, two regarding surrender to God, and 1 regarding religious service attendance frequency. The first surrender question asks “when my understanding of a problem conflicts with God’s revelation, I will submit to God’s definitions?” Possible responses range from 1 “never true of me” to 5 being “always true of me.” The second asks, “Although I may not see the results from my labor, I will continue to implement God’s plans as long as God directs me to do so,” and is rated on the same scale. The participant then is asked “How often do you go to religious services” on a Likert scale (1 “never” to 6 “more than 1 time a week”). This is included because religious attendance is highly predictive of health outcomes. The RSAS-3 has been found to have strong construct validity and be strongly inversely related to stress (Clements et al., 2015). The measure can be self-administered online or on paper. The test would be scored by adding up the total score from the test and then averaging the items. Participants can reach a threshold of “high religious commitment” by answering a 4 or 5 on all of the questions.

TCU Drug Screen-V: The current study will employ the TCUDS-V, which is a 17 item-scale measure of substance use, updated from the TCU Drug Screen II that reflects the diagnostic criteria in the DSM-5 (TCU, 2017). The TCUDS-V screens for substance misuse that ranges from mild to severe by asking questions related to drug use. The first 11 items are answered by responding “yes” or “no” to the question posed. Question 12 asks specifically about which drug has caused the most serious problems in the last 12 months, and participants are asked to choose from a list of drugs. Question 13 asks how often the participant used each type of drug in the last

12 months. Question 14 asks if participants have ever been to a drug treatment program. Question 15 asks on a Likert scale from “not at all” to “extremely” “how serious do you think your drug problems are?” The scale is scored by assigning 1 point for each question answered “yes” from questions 1-11. Participants can be categorized as having an addiction if they answer “yes” to at least 3 items. Items 12-17 are not included as part of the total TCUDS-V score, but they do provide additional insight that can be used in treatment decisions.

Data Cleaning

Before analyzing data, there were a total of 645 responses obtained through the use of SONA ($n = 508$) and non SONA ($n = 61$) responses. Responses were all gathered through the use of REDcap. Participants gathered through SONA were directed to a link that would take them to the REDcap survey. There were 70 participants that opened the survey but did not complete any responses, including the consent form. These cases were deleted before data entry. There were 3 participants that consented and filled in some demographic information, but did not complete the remainder of the survey. Most variables were coded automatically within REDCap. All games were coded and cleaned to be standardized and consistent. For instance, “angry birds” was changed to “Angry Birds.” State of residence were also corrected to be standardized and consistent.

Analysis Plan

Descriptive Analyses

Means, standard deviations, and intercorrelations were reported for demographic variables as well as for the three measures being used in this study (e.g., IGDSF9-SF, TCU Drug Screen-V, RSAS-3). Each instrument was scored on a continuous scale (total score) and dichotomously (e.g., addicted/not addicted to video gaming, dependent/not dependent on

substances, high/not high on religious commitment). Pearson correlations were conducted to evaluate relationships for continuous scores. Chi Squared Tests of Independence were conducted to evaluate relationships for categorical scores. Expected outcomes were that there would be an inverse relationship between continuous RSAS-3 scores and both continuous IGDSF9-SF and continuous TCUDS-V scores, indicating that religiousness predicts both video gaming and substance use. Chi Squared Test of Independence results were expected to confirm that both video game addiction as measured by the IGDSF9-SF and substance dependence as measured by the TCUDS-V are dependent on religiousness as classified by the RSAS-3.

Logistic Regression

Two logistic regression models were conducted to determine whether RSAS-3 scores predict the likelihood of video gaming addiction or substance addiction (run in separate models). Only demographic variables found to be significantly related to the outcome variables were included as covariates. Race was significantly related to the IGDSF9-SF and as such was included as a covariate in the logistic regression model investigating gaming addiction. Housing status was significantly related to the TCUDS-V, and as such was included as a covariate in the logistic regression model investigating substance addiction.

The expectation was that religiousness as measured with the RSAS-3 would predict video gaming and substance use similarly across logistic regression models. If religiousness was found to predict the outcomes differently, this would be evidence that video game addiction and substance addiction differ.

CHAPTER 3

RESULTS

Demographic variables for participants are in Table 1. The average age of participants was 20.86 (SD = 5.44) with a range of 18 to 58. Males constituted 33.5% of the sample while females constituted a total of 66.1% of the sample. Participants identifying as other constituted 0.4% of the total sample. For race, White constituted the majority of the sample (83.2%) followed by Black (9%). The majority of the sample consisted of full-time students (91.7%) with the majority of participants also reporting that they lived with a roommate (45.3%). Participants that met the threshold for video game addiction constituted only 1.1% of the sample, while participants that met the threshold for substance addiction constituted 8.3% of the sample.

Table 1

Characteristics of Study Sample

		Religious Commitment	
		High <i>n</i> (%)	Not High <i>n</i> (%)
Student status			
	Not a student	8 (1.5%)	20 (3.7%)
	Full-time student	130 (24%)	366 (67.7%)
	Part-time student	4 (.7%)	13 (2.4%)
Race			
	White	118 (22%)	328 (61.2%)
	Black	17 (3.2%)	31 (5.8%)
	Asian	3 (.6%)	14 (2.6%)
	Multiracial	1 (.2%)	10 (1.9%)
	Native American/Pacific Islander	0 (0%)	3 (.6%)
	Other	0 (0%)	11 (2.1%)
Ethnicity			
	Hispanic	4 (.7%)	15 (2.8%)
	Not Hispanic	136 (25.3%)	383 (71.2%)
Gender			
	Male	40 (7.4%)	141 (26.1%)
	Female	102 (18.9%)	255 (47.2%)

	Other	0 (0%)	2 (.4%)
Work status			
	Full Time	16 (3%)	51 (9.4%)
	Part Time	75 (13.9%)	199 (36.8%)
	No Work	51 (9.4%)	149 (27.5%)
Housing status			
	Live with Parents/Guardian	57 (10.6%)	142 (26.3%)
	Live Alone	8 (1.5%)	30 (5.6%)
	Live With Roommates	63 (11.7%)	181 (33.6%)
	Live with Spouse	8 (1.5%)	26 (4.8%)
	Live with Romantic Partner	3 (.6%)	17 (3.2%)
	No Permanent Residence	2 (.4%)	2 (.4%)
Substance addiction			
	Likely Substance Addiction	4 (.8%)	39 (7.5%)
	No Substance Addiction	131 (25.3%)	343 (66.3%)
Video-game addiction			
	Evidence of Addiction	2 (.4%)	4 (.7%)
	No Evidence of Addiction	140 (25.9%)	394 (73%)
SONA			
	Yes	126 (23.5%)	368 (68.5%)
	No	14 (2.6%)	29 (5.4%)

Bivariate relationships were examined for variables of interest and potential covariates. A Chi-Squared Test of Independence was performed to examine the relationship between gender and video game addiction. The relationship between gender and the presence of video game addiction was not significant, $X^2(1, N = 554) = .716, p = .397$. Gender was also not significantly related to substance addiction, $X^2(1, N = 525) = .256, p = .613$. Race was not significantly related to substance addiction, $X^2(1, N = 540) = 9.225, p = .100$, but it was significantly related to video game addiction, $X^2(1, N = 554), 9.993, p = .002$. Student status was not significantly related to substance addiction $X^2(2, N = 525), 2.128, p = .345$ or related to video game addiction, $X^2(2, N = 554), .589, p = .745$. Work status was not significantly related to substance addiction, $X^2(2, N = 525), 3.017, p = .221$ or video game addiction $X^2(2, N = 554), .089, p = .957$. Whether

or not the participant took the survey through SONA was not significantly related to substance addiction, $\chi^2(1, N = 522), 2.357, p = .125$ or to video game addiction, $\chi^2(1, N = 550), .512, p = .474$. Housing status was not significantly related to video game addiction $\chi^2(5, N = 550), 1.413, p = .923$ but was significantly related to substance addiction $\chi^2(5, N = 523), 11.887, p = .036$. Age was not significantly related to video game addiction (measured continuously) $r(547) = -.037, p = .39$, or significantly related to substance addiction (measured addiction) $r(525) = .001, p = .978$.

Pearson product moment correlations between IGDSF9-SF scores and RSAS-3 scores revealed a non-significant relationship, $r(532) = -.078, p = .072$. As predicted, Pearson product moment correlations revealed that there was a statistically significant correlation between the TCUDS-V scores and the RSAS-3 scores, $r(516) = -.208, p < .001$. This was a weak inverse correlation between religiousness and substance use addiction.

Two logistic regression models were performed in order to assess the likelihood of religiosity predicting 1) substance use addiction 2) video game addiction. Assumptions were checked for both models and neither model violated any assumptions. Binary logistic regression requires dependent variables to be binary which is which is appropriate for dichotomized substance addiction and gaming addiction. The first model, gaming addiction, utilized housing status as a covariate as it was significantly related to the dependent variable in initial testing. For the first model with substance addiction as the outcome, the Hosmer-Lemeshow test revealed that the model had good fit $\chi^2(5, N = 515), 5.958, p = .310$ since the p value was greater than .05. The second model testing gaming addiction, utilized race as a covariate as it was significantly related to the dependent variable in initial testing. The Hosmer-Lemeshow test revealed that the model had good fit $\chi^2(1, N = 540), 1.061, p = .303$.

The first model testing the likelihood of substance addiction in individuals who do and do not report being high in religiousness with housing status included as a covariate explained between 4% (Cox and Snell R Square) and 9.2% (Nagelkerke R Squared) of the variance in substance use addiction. For individuals addicted to substances regressed on those showing high religious commitment with housing status as a covariate, the model was statistically significant $X^2(6, N=515) = .002, p = .002$. As shown in Table 2, only three independent variables made a unique statistically significant contribution to the model (religious commitment, living with roommate(s), and living with romantic partner). The odds of being addicted to a substance was 4.913 times higher for someone who did not meet the threshold for being high in religious commitment than for someone who did.

Table 2

Logistic Regression Predicting Likelihood of Substance Addiction

	B	S.E.	Wald	df	p	OR	95% C.I.	
							Lower	Upper
Housing Status								
Referent (Parents)			9.938	5	.077			
Alone	1.184	.606	3.822	1	.051	3.269	.997	10.716
Roommates(s)	.872	.428	4.159	1	.041	2.392	1.035	5.531
Spouse	.351	.818	.184	1	.041	1.420	.286	7.064
Romantic Partner	1.649	.674	5.986	1	.668	5.204	1.388	19.507
No Residence	2.403	1.277	3.543	1	.014	11.058	.906	135.005
High RSAS-3	1.592	.616	6.682	1	.010	4.913	1.469	16.427

Table 3

Logistic Regression Predicting Likelihood of Video Game Addiction

	B	S.E.	Wald	df	p	OR	95% C.I.	
							Lower	Upper
Race	2.282	.874	6.818	1	.009	9.799	1.767	54.350
High RSAS-3	.382	.881	.188	1	.665	1.465	.260	8.242

The second model testing the likelihood of video game addiction in individuals who do and do not report being high in religiousness with race included in the model as a covariate was also statistically significant, $\chi^2(2, N=540) = 7.330, p = .026$. This model explained between 1.3% (Cox and Snell R Square) and 11.7% (Nagelkerke R Squared) of the variance in video game addiction. As shown in table 2, only race made a unique statistically significant contribution to the model. The odds ratio for race predicting video game addiction was 9.799 95% CI [1.767, 54.350], meaning that being a race other than White would mean that they were 9.799 times more likely to be addicted to video games. The odds ratio for religious commitment on video game addiction was non-significant, OR=1.465, 95% CI [.260, 8.242]. While the second model was significant, this relationship was driven by race rather than religiousness.

CHAPTER 4

DISCUSSION

As expected, religiousness as measured by the RSAS-3 predicted lower levels of substance use addiction as measured by the TCUDS-V when used as a continuous, as well as when used as a dichotomous outcome variable while controlling for housing status. Unlike what was hypothesized, there was not a statistically significant relationship between religiousness and video game addiction. Only race was predictive of video game addiction. Being a race other than White was linked to a greater likelihood of video game addiction.

Findings concerning religiousness and substance use disorder corroborate extant research that has shown religiousness predicts low levels of substance addiction (Chawla et al., 2007). The present study, however, provides insights for the field as we utilized a measure designed to capture intrinsic religiousness rather than a broader measure for religiousness, such as the BMMRS. Theoretically, it makes sense that intrinsic religiousness would be predictive of lower levels of substance use. For instance, those high in intrinsic religiousness tend to internalize the tenets of the faith. Religious teachings for the two largest religions in the world (Islam and Christianity) discourage drunkenness and debauchery (Michalak & Trocki, 2006), therefore, if those tenets are internalized, one would expect less alcohol (and relatedly other substance) use. According to Clements and Ermakova (2012), surrender reflects a deep commitment to following God's will and therefore should predict a greater adherence to religious tenets (Wong-McDonald & Gorsuch, 2004). This could be one possible explanation for why we tend to see an inverse relationship between these variables. Another possible explanation is that individuals may turn to religion when facing stressful situations (Clements & Ermakova) instead of utilizing alcohol when stressed. Additionally, Christian scripture promotes care for the body, likely

leading to healthier behavior. While social support may explain some of the reasons for why individuals engage in healthier behaviors, Debnam, Holt, Clark and Roth (2012) demonstrated that religious social support predicted healthy behaviors, including decreased alcohol consumption, beyond just social support.

Unexpectedly, religiousness showed no statistically significant relationship with video game addiction. It was hypothesized that religiosity would predict lower levels of video game addiction due to the overwhelming extant literature that provides support for religiousness predicting lower levels of substance addiction, as well as religiousness predicting good health behaviors and outcomes. Video game addiction is seen by some as a negative health behavior that can have detrimental effects on the wellbeing of an individual. It is similar to gambling disorder in the way it is described in the DSM-5. Since religiosity predicts lower levels of gambling participation (Hoffman, 2000), it was also thought that religiosity would have a similar relationship with video game addiction.

Because religiousness did not predict video game addiction as hypothesized, the current study indicates there may be differences between video game addiction and other types of addiction. While more research is needed in order to confirm differences in mechanisms, the current study implies that video game addiction and substance use addiction may be more different than previously anticipated, especially as they relate to religiousness. One possible explanation for the difference is that since religiousness is predictive of good health behaviors and predictive of lower levels of negative health behaviors, it may be that video game addiction is not thought to be as negative of a behavior as gambling addiction or substance use addiction. In fact, while the Bible discourages all forms of addiction (“Be Sober-minded; be watchful,” 1Peter 5:8) drunkenness and gambling are more explicitly condemned in the Bible, such as “and

do not get drunk with wine, for that is debauchery, but be filled with the spirit.” (Ephesians 5:18) Furthermore, since video game addiction has only recently begun to be investigated as a disorder or as an addiction, individuals may not think of it as something that could have the potential to be serious. People may play games without realizing that they are potentially addicted to the games. If that is the case, it may be less likely that someone even high in intrinsic religiousness would suppress the behavior. It would be interesting to see if results change after awareness for video game addiction increases.

Limitations

This study is not without limitations. First, the majority of the participants (88%) reside in southern Appalachia. There are some unique differences in religious beliefs and attitudes in Appalachia and other areas in the south compared to other geographic areas. Furthermore, the sample was a mostly undergraduate student population.

A second limitation of the study is that the RSAS-3 scale has not been used in many prior studies and thus we do not currently have much to compare the current study to in regard to intrinsic religiousness. Furthermore, part of the difficulty with religiosity research is that there is no consensus to an overall definition of religiousness. This poses difficulties when trying to assess religiousness and its relationship with other variables.

A third limitation of the study is that the concept of video game addiction is still rather new. Therefore, since it is new, it is possible that individuals are not aware that the playing habits are potentially detrimental. In addition, when the IGDSF-9 scale was dichotomized using the recommended cut-off score, only 16 respondents in the current sample were identified as being addicted to video games. This cut-off score may have under identified video game addiction. The scale is rather new (2015), and there are not many studies that have employed its use.

However, there are currently very few scales to date that actually seek to measure video game addiction with the criteria that is set forth in the DSM-5. Further research should focus on validation of measures and specifically of optimal cut-off scores for identifying video game addiction.

Fourthly, only 6 participants met the threshold for video game addiction while only 43 participants met the threshold for substance addiction. The study also relied on self-report to assess religiousness, video game addiction, substance use disorder, and demographic information. The nature of self-report makes it impossible to completely rule out biased responding.

Lastly, the study employed the use of regression analyses to investigate the relationships between variables. Due to the nature of correlational research, the results cannot establish causality or make causal claims.

Future Directions

We are at an exciting point in the study of religiousness and video game addiction and substance use. While religious belief has been present in the world for thousands of years, only recently have there been efforts to empirically study outcomes and consequences of religious belief. Video game play has increased in the recent years. Technological advancements within games have largely outpaced empirical study of video gaming behavior. More specifically, video game addiction is largely an understudied phenomenon that requires more empirical study in before any recommendations are made. Finally, substance use disorder continues to plague the lives of many individuals as Appalachia in particular continues to wrestle with a growing opioid epidemic, and empirically confirming predictors and particularly protective factors is paramount.

One possible future research direction would be to compare a broader religiosity scale such as the BMMRS to the RSAS-3 when predicting different health outcomes. Another possible future research direction would be to investigate differences in denominational affiliation in terms of health outcomes.

CHAPTER 5

CONCLUSION

Intrinsic religiousness as measured by the RSAS-3 was found to be significantly related to substance use addiction but not to video game addiction. The current study demonstrates differences in relationships between religiousness and video game addiction and substance addiction. This research provides insights into the field of religiousness and addiction and has implications for future research directions. One such direction could be to continue to investigate differences in substance addiction and video game addiction, as well as other potential variables that may predict both video game addiction and substance addiction.

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APPENDICES

Appendix A Demographic Questions

Demographic Questions

Age _____

Gender

- 0. Female
- 1. Male
- 2. Choose not to answer

Race

- 0. White
- 1. Black
- 2. Asian
- 3. Multiracial
- 4. Native American/Pacific Islander
- 5. Other

Ethnicity

- 0. Hispanic
- 1. Not Hispanic

Housing status

- 0. Live with parent(s)/guardian(s)
- 1. Live alone
- 2. Live with roommate(s)
- 3. Live with spouse
- 4. Live with romantic partner
- 5. No permanent residence

If you attend church or other religious service, what type of church or service? _____

Are you a student?

- 0. No
- 1. Yes, full time
- 2. Yes, part time

If so, check what type of student

- 0. Do not attend school
- 1. Technical School
- 2. Community college
- 3. Four-year college or university
- 4. Graduate/medical/professional school

Do you work?

- 0. Do not work
- 1. Work part time
- 2. Work full time

Appendix B

Religious Surrender & Attendance Scale-3

Religious Surrender & Attendance Scale – 3

	Circle the Statement That Best Describes You				
	Never True of Me	Occa- sionally True of Me	Fairly Often True of Me	Very Often True of Me	Always True of Me
When my understanding of a problem conflicts with God's revelation I will submit to God's definitions.	1	2	3	4	5
Although I may not see results from my labor, I will continue to implement God's plans as long as God directs me to do so.	1	2	3	4	5

	Circle the Statement That Best Describes You					
	Never	1-2 times a year	Every month	1-2 times a month	Every week	More than 1 time/ week
How often do you go to religious services?	1	2	3	4	5	6

Appendix C TCU Drug Screen V

TCU Drug Screen V

During the last 12 months

	No	Yes
1. Did you use larger amounts of drugs or use them for a longer time than you planned or intended?	<input type="radio"/>	<input type="radio"/>
2. Did you try to control or cut down on your drug use but were unable to do it?	<input type="radio"/>	<input type="radio"/>
3. Did you spend a lot of time getting drugs, using them, or recovering from their use?	<input type="radio"/>	<input type="radio"/>
4. Did you have a strong desire or urge to use drugs?	<input type="radio"/>	<input type="radio"/>
5. Did you get so high or sick from using drugs that it kept you from working, going to school, or caring for children?	<input type="radio"/>	<input type="radio"/>
6. Did you continue using drugs even when it led to social or interpersonal problems? ...	<input type="radio"/>	<input type="radio"/>
7. Did you spend less time at work, school, or with friends because of your drug use?	<input type="radio"/>	<input type="radio"/>
8. Did you use drugs that put you or others in physical danger?	<input type="radio"/>	<input type="radio"/>
9. Did you continue using drugs even when it was causing you physical or psychological problems?	<input type="radio"/>	<input type="radio"/>
10a. Did you need to increase the amount of a drug you were taking so that you could get the same effects as before?	<input type="radio"/>	<input type="radio"/>
10b. Did using the same amount of a drug lead to it having less of an effect as it did before?	<input type="radio"/>	<input type="radio"/>
11a. Did you get sick or have withdrawal symptoms when you quit or missed taking a drug?	<input type="radio"/>	<input type="radio"/>
11b. Did you ever keep taking a drug to relieve or avoid getting sick or having withdrawal symptoms?	<input type="radio"/>	<input type="radio"/>
12. Which drug caused the most serious problem during the last 12 months? [CHOOSE ONE]		
<input type="radio"/> None		
<input type="radio"/> Alcohol		
<input type="radio"/> Cannabinoids – Marijuana (weed)		
<input type="radio"/> Cannabinoids – Hashish (hash)		
<input type="radio"/> Synthetic Marijuana (K2/Spice)		
<input type="radio"/> Opioids – Heroin (smack)		
<input type="radio"/> Opioids – Opium (tar)		
<input type="radio"/> Stimulants – Powder Cocaine (coke)		
<input type="radio"/> Stimulants – Crack Cocaine (rock)		
<input type="radio"/> Stimulants – Amphetamines (speed)		
<input type="radio"/> Stimulants – Methamphetamine (meth)		
<input type="radio"/> Bath Salts (Synthetic Cathinones)		
<input type="radio"/> Club Drugs – MDMA/GHB/Rohypnol (Ecstasy)		
<input type="radio"/> Dissociative Drugs – Ketamine/PCP (Special K)		
<input type="radio"/> Hallucinogens – LSD/Mushrooms (acid)		
<input type="radio"/> Inhalants – Solvents (paint thinner)		
<input type="radio"/> Prescription Medications – Depressants		
<input type="radio"/> Prescription Medications – Stimulants		
<input type="radio"/> Prescription Medications – Opioid Pain Relievers		
<input type="radio"/> Other (specify) _____		

Appendix D

Internet Gaming Disorder Scale-Short Form

Internet Gaming Disorder Scale–Short-Form (IGDS9-SF) (Pontes & Griffiths, 2015)

Instructions: These questions will ask you about your gaming activity during the past year (i.e., last 12 months). By gaming activity we understand any gaming-related activity that has been played either from a computer/laptop or from a gaming console or any other kind of device (e.g., mobile phone, tablet, etc.) both online and/or offline.

	Never	Rarely	Sometimes	Often	Very Often
1. Do you feel preoccupied with your gaming behavior? (Some examples: Do you think about previous gaming activity or anticipate the next gaming session? Do you think gaming has become the dominant activity in your daily life?)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Do you feel more irritability, anxiety or even sadness when you try to either reduce or stop your gaming activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Do you feel the need to spend increasing amount of time engaged gaming in order to achieve satisfaction or pleasure?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Do you systematically fail when trying to control or cease your gaming activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Have you lost interests in previous hobbies and other entertainment activities as a result of your engagement with the game?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Have you continued your gaming activity despite knowing it was causing problems between you and other people?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Have you deceived any of your family members, therapists or others because the amount of your gaming activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Do you play in order to temporarily escape or relieve a negative mood (e.g., helplessness, guilt, anxiety)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Have you jeopardized or lost an important relationship, job or an educational or career opportunity because of your gaming activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

VITA

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