The Influence of Video Games on the Mental Health of College Students and Adolescents

Presented by Andre Taylor

in partial fulfillment of the requirements for completion of the
Evidence and Inquiry certificate and the
Polymathic Scholars honors program in the College of Natural Sciences at
The University of Texas at Austin

Spring 2021

May 11, 2021

Dr. Michael Mackert, PHD
Thesis Supervisor
Moody College of Communication
The University of Texas at Austin

Date

I intend to submit a copy of my Polymathic Scholars thesis to the Texas ScholarWorks (TSW) Repository. For more information on the TSW, please visit https://repositories.lib.utexas.edu/.

The Influence of Video Games on the Mental Health of College Students and Adolescents

May 11, 2021

Andre Taylor

Date

Table of Contents

Acknowledgements

I would like to thank my thesis mentor, Dr. Michael Mackert, for supervising my thesis, helping me to review and explore new avenues of thought as my thesis developed, and aiding me with suggestions and guidance when I needed it most. I would also like to thank Dr. Rebecca Wilcox, who allowed me to push through to get this thesis done and whose organizational skills and teaching are surpassed by none. Also, thank you to my family, who have been intrigued by my thesis and supported me along the way, giving article suggestions and feedback when they were able to fit it in. And a big thank you to Madison Searle, who helped me to develop my topic in the first place as well as encouraging me to apply to the Polymathic Scholars. I am grateful for all the support given to me.

Abstract

As video games experience a rise in popularity, the issues of participating in this hobby become more concerning. For mental health, problems with video games can lead to an exacerbating effect on psychiatric disorders such as anxiety and depression. This thesis gathers sources from across psychology and communication disciplines to determine the effects of video games on the mental health of adolescents and college students. This literature review finds that the effects of video games on the mental health of adolescents and college students are complex. I examined and compared the results of various studies over the last 20 years and offer conclusions and propose solutions to these issues. Using the existing literature, I show that playing video games obsessively can be an issue. However, in the absence of addiction, video games can be used to treat symptoms or aid therapists for mental health issues as they relate to psychiatric disorders. Simply playing video games will generally not affect college students or adolescents negatively. When paired with addiction or obsession, however, video games are correlated with the development of psychiatric disorders. But addiction and obsession are not defined by the amount of time that video games are played. In the case of depression, playing video games through an addiction or obsessively can worsen symptoms or correlate with their development. Some studies show anxiety can be correlated to video game addiction, and others show the opposite result. There is little research in this field of study, and as such, more studies and experiments should investigate this phenomenon. Specifically, research should be done to determine if video game addiction, usage, and psychiatric disorders are correlated and whether video games can be used by health professionals to combat these disorders.

Key words: video games, mental health, anxiety, depression, obsession, addiction, therapy, mental illness, adolescents, college students

Introduction

Gaming is a rising phenomenon. Increasingly, more and more households have video games for their kids, and these children grow up and continue to play video games into their adult lives—in fact, 70% of people younger than 18 within the United States play video games (Entertainment Software Association, 2020). The more and more hours poured into playing video games, the more the consequences of this action become concerning. The primary issue is that some of the consequences are becoming apparent, and people are suffering from them. In 2018, the World Health Organization classified a new disorder: Gaming Disorder (World Health Organization, 2020). This is important because people's lives could potentially be at stake if the consequences of video games are severe enough. These ramifications can include an exacerbation of the symptoms of mental illnesses. In fact, there may be some cause to believe that playing video games can be a factor in the development of mental illnesses like depression (Mikuska & Vaszonyi, 2017).

Research has been done on the topic of video games and their relationship to mental illnesses. Researchers such as Mikuska and Vaszonyi (2017) have demonstrated the effects of video games on mental illnesses in a longitudinal study over six years. They were able to determine that video games and mental illness are linked and that the presence of one can lead to the development of the other (Mikuska & Vazsonyi, 2017). Other researchers have performed cross-sectional studies, and others still have performed literature reviews on the topic. These studies have had a variety of findings. In the case of Andreassen et al. (2016), they found that anxiety was negatively correlated with video game addiction and depression was positively correlated with video game addiction. The International Communication Association (2018) has

touched on the topic, holding conferences and gatherings to discuss what is known about the relationship between addiction and video games. They discussed what video game addiction means and classified different types. While focusing on video games, this thesis also focuses more specifically on the symptoms of depression, anxiety, and stress and their relationship to video games.

The main bulk of research lies with adolescents and children. The research does not dive into adult gaming as much or does not consider age at all. From this, it is clear to see that the current literature is limited. Though the literature is limited, it is important to recognize that issues in adult gaming can arise from issues in adolescence. Still, it is important to recognize that issues can arise for young adults who are playing video games for the first time. This is the issue that this thesis hopes to address: how do video games affect depression, anxiety, and stress in adolescents and college students? I hypothesize that video games have the ability to exacerbate or cause symptoms of depression, anxiety, and stress. Through a review of existing literature, I examine the relationship between video game use and symptoms of depression, anxiety, and stress.

First, this thesis addresses video games, types of video games, and how they are used. This will then lead to an explanation of psychiatric disorders and how they relate. Afterward, the combined relationship between video games and mental illness will be examined through their relationship to one another. This thesis will also provide a potential solution and show that though video games can be detrimental, they can also be beneficial. By the end of this thesis, it will be clear that video games should be played carefully. If they are not, psychiatric disorders such as depression and anxiety can get the better of a person, leading to suffering or worse.

Video Game Usage and Playing: What Does It Mean to Play?

This section describes the ideas and ways that a person might play video games and provides information about video games and the different types of video games that exist. Video games are important to understand as a medium; by showing examples of different types of games, the reader will better understand the process as well as the conclusions this thesis makes. By discussing the different types of video games, I can better explore what playing video games constitutes. and show what exactly is being investigated when examining the relationship between video games and symptoms of psychiatric disorders.

Different Types of Video Games

Video games are expansive in their scope and range of genres. Much like books and other mediums for storytelling, video games are often driven by their plot and narrative elements, supplemented by the player using active control in areas of the story. These active elements can range from killing zombies to making quick decisions to save another character. Other games are not driven by their stories, and some have no story at all, providing a platform where players can compete in challenges and tasks to win—not unlike sporting events. Other games combine these elements, giving separate spaces for competition against other players and a more story-driven experience. The range of video games is incredibly vast, and thus this thesis will focus on describing the most common and broadest types of video games currently played .

One genre of video games is Massive Multiplayer Online games (MMO). MMOs are video games that generally have a large number of players who are interconnected and online simultaneously. In most of these games, players can see other players and occasionally interact with them. Oftentimes, these players can group up to complete objectives that would be difficult to complete on their own. A popular MMO that currently exists is Elder Scrolls Online (ESO),

with over 15 million players (Jagneaux, 2020). ESO is set in the Elder Scrolls world and lore, so players from other Elder Scrolls titles can enjoy dungeon-crawling and completing quests with friends or other players they happen to meet. In this way, MMOs provide an excellent way for players to communicate with new people and bond over shared experiences.

Since players can see and potentially interact with other players in the nearby vicinity within the game, one can connect and communicate with a person they have never seen before. In this way, MMOs can act like online chat rooms. Though MMOs offer opportunities for communication, they can also come with the same issues as other online spaces, such as cyberbullying. Some MMOs experience a phenomenon called "griefing," where players purposefully irritate or harm other players within the game, making the game fun for some players by ruining others' experiences (Fragoso, 2015). These kinds of behaviors show that MMOs are prone to the same faults as other online spaces, though they offer the benefits of being an online space as well.

Because MMOs have such a capacity for virtual interactions between players, they can potentially have an impact on the social lives of those who play. In the context of social anxiety, researchers investigated whether or not MMORPGs (Massive Multiplayer Online Role-Playing Games) would constitute a good space for social support, finding that in the case of anxiety, the MMORPG tested did not provide any extra social support (Lee & Leeson, 2015). This shows that while MMOs may have the potential for communication and interconnection, they do not necessarily provide support as an outlet for the social anxiety the player may experience.

Though MMOs are popular, perhaps an even more popular type of video game are multiplayer games. Multiplayer games require multiple people to play, whether they are online and across the world or sitting in the same room. One example of a multiplayer game would be

the games within the Call of Duty franchise. Like MMOs, many games allow players to play together on a server. Unlike MMOs, however, multiplayer games generally involve small teams. In fact, professional video game players compete for money and prestige, competing on single player or multiplayer games (Trent & Shafer, 2020). In this way, many view this usage of video games as "e-sports," or electronic sports. Though most gamers are not professionals, they do often compete in video games. Many video games are popular in this fashion, and because of this, much of the industry thrives on its competitive aspects (Trent & Shafer, 2020). Even children are not immune to the effects of competitive multiplayer games. In fact, in a study that investigated the effect of competitive games on children, the researchers found that the competitive games had a positive impact on the children's prosocial behavior over the course of three years (Lobel et al., 2019). Participating in these activities can have some benefits, and because gaming is becoming more popular, people as a whole should continue to seek them out.

Unlike multiplayer games, single player games are as they are described: single player. These games are often driven narratively and offer the player choices capable of influencing the narrative in varying degrees. One popular and widely controversial game is The Last of Us II. Some single player games have "butterfly effects," which means the player's choices throughout the game can result in different endings. This is based on the "butterfly effect" related to chaos theory (Riley, 2006). For example, if a player makes choice A at one point in the game, then the player may receive a different conclusion to their game than a player who made choice B. Generally, with these games, one choice alone does not determine a specific ending. Instead, an accumulation of choices throughout the game guide a player to the ending they will receive. Not all single player games have this concept integrated into the story and gameplay, however.

When the interconnection between players is not the focus of a study, single player games are often used. Studies such as the Hitman study (Ferguson & Rueda, 2010) and a study looking at Personal Investigator, a therapy-driven game (Matthews et al., 2006), both used a single player game to study its effects. The two studies themselves differ greatly, but the usage of a single player game remains a component for both. Both studies will be described in more depth in a later section.

Single player games and multiplayer games encompass all types of games. Though some games contain both multiplayer and single player aspects, every game falls into at least one of the two categories. MMOs fall under the multiplayer umbrella and are often studied for interactions between players due to their unique classification as both a video game and an open online space. These broad categories of video games exemplify what gamers are playing and what people do when they say, "I play video games."

Gaming Addiction

Types of video games are incredibly important for understanding how video games are played. Without this insight, it can be difficult to show how playing games can be detrimental. Though the types of games are important to this understanding, perhaps even more important is understanding how gamers play these games. Gaming can act as an escape for some, and many use gaming for self-therapy, attempting to escape their problems (Lee & Leeson, 2015). The issue, then, is when video games become addicting. Gaming addiction is a serious phenomenon; as of 2018, about 2 million men and 1 million women suffer from internet addiction in Japan (Humphrey, 2019). However, most people would not be able to diagnose addiction to video games at first glance.

Gaming addiction is often thought of as spending too much time playing video games, and many people think someone is addicted when they cannot "put the controller down" (World Health Organization, 2020). However, researchers associated with the International Communication Association found that gaming addiction is not characterized by the time played at all; rather, gaming addiction is characterized by the intent behind the gaming (Liu & Peng, 2008). Since gaming addiction is not characterized by the amount of time played, gamers can play video games for hours on end and still not be addicted. This is non-intuitive, as one major characteristic of addiction in general is an inability to stop (American Society of Addiction Medicine, 2019). Though gaming addiction cannot be characterized by the amount of time one plays video games, addicted gamers will likely fall into the category of gamers who spend a significant amount of time playing video games. This means that if someone plays video games for a large and continuous amount of time, they may be addicted, but the amount of time alone cannot be used as the sole factor in determining whether someone is addicted.

Though the time a person plays video games cannot be used as the sole factor for an unhealthy addiction, it is a factor for classifying an addiction. Still, not all types of gaming addiction are harmful to players (Ozkaya et al., 2011). Two types of gaming addiction were observed by researchers from the International Communication Association, and these types were renamed as passions: obsessive passion and harmonious passion (2018). These types of passion are incredibly distinct from one another. Though both are characterized by their high amount of time spent playing video games, harmonious passion is characterized by its goal of playing video games for sheer enjoyment and love of playing video games. Obsessive passion, on the other hand, is characterized by the inability to quit and the interference of gaming with other activities within one's life, such as sleep or a job. Both of these passions are a form of

addiction, but harmonious passion is clearly healthier for an individual than obsessive passion. In this same crucial study, those classified with harmonious passion were not affected negatively in any significant capacity, and those with obsessive passion were part of a cycle of negativity within their lives (International Communication Association, 2018). Those with obsessive passions were affected by their passion because it interfered with other parts of their life. This could cause them to seek out some form of release or relaxation, which they would find in video games. This continuous cycle has negative effects.

Gaming addiction has several underlying risk factors. Different games will have different draws to them, causing each one to be unique. In competitive games, for example, one can get addicted to the game because of the resources invested—such as money—similar to how gambling addiction can work. Research supports this, as one study on a game called CityVille found that competition was correlated with risk of addiction because of the amount of investment the player had made into the game (Del Moral & Guzman, 2016). This competitiveness was a large risk factor for addiction and dominated that aspect of the study.

Depression and Anxiety: What Are Psychiatric Disorders?

Psychiatric disorders are mental disorders that occur and influence a person's life, as characterized in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). This manual describes many different disorders, classifying anxiety disorders and diving into depth on depressive disorders. These disorders are all mental and affect the behavior and thoughts of those who have them (American Psychiatric Association, 2013). Because these disorders can affect behavior and thoughts, an individual who suffers from them can develop behaviors that result in negative impacts on their lives. Thus, people with psychiatric disorders

can suffer and—in extreme cases—even die. This thesis aims to look at a few disorders; namely, depression and anxiety, with mentions and discussion of other relevant disorders.

Depression and Anxiety

Psychiatric disorders are incredibly complex and can affect individuals in numerous ways. However, this section will focus on depression and anxiety. Depression is a disorder classified by certain parameters that one must show in concurrence to differentiate the disorder from normal emotional experiences (American Psychiatric Association, 2013). If one does not show enough of the parameters, then the individual is not considered to have the diagnosis. Normal emotional experiences can lead to mental disorders, and if a psychiatrist prescribes antidepressants for a patient who does not need them because they are experiencing normal emotional experiences, they can have lasting side effects—such as a dependency on antidepressants or even an addiction—although these outcomes are unlikely (Heinz et al., 2020).

The DSM-V characterizes depression as various types of disorders, but the one most people think of when they refer to depression is major depressive disorder or persistent depressive disorder (dysthymia; American Psychiatric Association, 2013). Major depressive disorder is characterized by the experience of five or more symptoms consistently for a period of at least two weeks. These symptoms include depressed mood, significant reduction in interest, weight loss, fatigue or loss of energy, and more (American Psychiatric Association, 2013). In addition to these symptoms, an individual must experience interference with their life as a result of having the symptoms. Dysthymia, or persistent depressive disorder, is the more chronic version of major depressive disorder. Requirements for this disorder include having symptoms similar to that of major depressive disorder for a period of two years (American Psychiatric Association, 2013). Both disorders are depressive disorders, like substance/medication-induced

depressive disorder and a few others. The scope of depression is broader and deeper than one might initially assume.

Anxiety disorders are prevalent among the population, and anyone can experience anxiety in some form or another. The disorders themselves, however, are characterized by an excessive amount of anxiety or fear from a trigger (American Psychiatric Association, 2013). The most commonly known anxiety disorder is likely social anxiety disorder, where the trigger is social situations that involve communicating with others, whether this entails giving a speech or being observed while eating or drinking (American Psychiatric Association, 2013). In the context of video games and this thesis, the disorders themselves are generally not examined or dictated upon. Though this may be the case, the disorders themselves are important to look at. Those who have psychiatric disorders or who are more prone to developing psychiatric disorders in adolescence often develop these disorders or continue to experience them when playing video games (Mikuska & Vazsonyi, 2017). The relationship between anxiety or depressed mood and video games is important to investigate to help prevent the development of a disorder, which can cause behavior changes and result in things like suicide.

Aggression

Aggression is a topic often covered by research on video games, as it is something much of the community cannot agree on. Many studies have looked at aggression in tandem with the aforementioned psychiatric disorders. Such studies include the Hitman study (Ferguson & Rueda, 2010), although many studies focus mainly on aggression instead of other disorders, such as depression, anxiety, post-traumatic stress disorder (PTSD), or other psychiatric disorders. Though this thesis does not focus on the findings these researchers offer on aggression, it is a

relevant and adjacent topic. Thus, findings on aggression from the studies researched in this thesis may provide a clearer look at aggression.

Video game studies are often done cross-sectionally, with few being longitudinal. The few that are longitudinal, such as Mikuska and Vaszonyi's study describing findings on the correlation of video games and psychiatric disorders (2017), can often provide a helpful and clearer understanding of causation. In the case of aggression, the studies found were primarily cross-sectional. Thus, the lack of longitudinal studies may be part of the contention within the community on aggression. Since causation is not easily established, conflicting results from cross-sectional studies means that the community becomes divided.

Some studies try to look at aggression for both the short term and the long term. The Hitman study, done by researchers Ferguson and Rueda (2010), shows both can be done. In the Hitman study, Ferguson and Rueda measured the aggression of college students through a short experimental procedure and the long-term effects of violent video games by doing a survey of behaviors that the participants had for a long amount of time. For the short-term effects, they used a Taylor Competitive Reaction Time Test (TCRTT), which is a test that assesses aggression by measuring the intensity of a sound blast that the winning participant of a competitive scenario gives to the losing participant. Since the blasts can be given back and forth, the intensity of the blasts as they start and how they progress can measure aggression if the TCRTT is done after playing a game that would induce aggression. The results of this short-term aggression measurement showed that violent video games do not affect aggressive or depressive symptoms. However, with the survey covering video game habits in the long term, they surprisingly found that violent video games reduced hostile feelings and depressive symptoms (Ferguson & Rueda, 2010). This finding is subject to self-report bias, but both the findings on aggression and

depressive symptoms conflict with many other studies done. If it is just bias, then the results can be ignored. But the existence of conflicting research means that more research on the causation of specific video game types for depressive symptoms needs to be conducted.

One study that directly conflicts the Hitman study with regard to aggression is a study done by Saleem et al. (2012), which looked at college students and their relation to prosocial, neutral, and violent video games. This study analyzed surveys done in other studies and extrapolated data from what they collected. What they found was that prosocial video games had more positive effects on prosocial behaviors than either neutral or violent video games. In turn, they also found that violent video games produced more hostile and aggressive behavior than the neutral and prosocial games (Saleem et al., 2012). This finding conflicts with the previous finding from the Hitman study (Ferguson & Rueda, 2010) by showing that violent video games do have a greater effect on aggression in the short term than other games.

Another study may help shed light on the conflicting studies. A survey was given to undergraduate students from various universities and evaluated five characteristics: aggressiveness, anxiety, hostility, arousal, and time spent playing video games (Arriaga et al., 2006).. For aggressiveness, anxiety, hostility, and arousal, a second survey was conducted after the study to determine if there were any shifts. Participants were in four groups—two groups were given neutral games and two groups were given violent games. The neutral games were neutral with respect to violence. After playing, the results the researchers uncovered were that the violent video games had a short-term effect on hostility and aggressiveness but no effect on anxiety (Arriaga et al., 2006). This provides more evidence for short-term effects of violent video games on aggression.

All three studies focused on college students, so their results should be similar if violent video games are the cause of aggression. Since they do not agree, it is likely that violent video games are not the reason for aggressive behaviors. Competitive and violent video games may make someone angry and aggressive, but this may only be for the short term. Thus, the two results we saw from the Hitman study (Ferguson & Rueda, 2010) and the study by Arriaga et al. (2006) make sense, though they still do not provide causation. As we have seen with these three studies, violent video games and aggression are linked in some capacity, but research has yet to discover whether violent video games are the cause of aggression, aggression cause people to play violent video games, or if the correlation should even be investigated at all.

Post-Traumatic Stress Disorder (PTSD)

Video games are not limited in their effects to aggression, depression, and anxiety. Other disorders, such as PTSD, are also important to mental well-being. The DSM-V defines an individual with PTSD as someone who has experienced one or more traumatic events. For these people, there are stressors from the traumatic events, such as dreams related to the event or stimuli that remind the individual of the traumatic events and evoke an aversion to that stimuli (American Psychiatric Association, 2013). Symptoms need to last for at least a month to be classified as PTSD. These stressors can be harmful and traumatic for the individual, and thus the disorder is deemed post-traumatic stress disorder (PTSD; American Psychiatric Association, 2013). This would mean studying the relationship between this disorder and video games is also important, as video games may have an effect on the stress induced by PTSD.

Certain studies have looked at PTSD and the stress related to it. One study done by researchers Etter et al. (2017) focused on PTSD in veterans and how video games affected their symptoms. By surveying veterans and asking if they played video games and if they had PTSD,

the researchers were able to investigate shooter games in relation to the PTSD of said veterans. Shooting games are incredibly popular among veterans, so if they exacerbate or help with PTSD, they could prove harmful or useful for veterans (Etter et al., 2017). Etter et al. (2017) found that playing shooting games—in particular, Modern Warfare—was not correlated with higher levels of PTSD. This would mean that even though veterans experiencing PTSD from their participation in warfare might have an adverse effect to stimuli that represent their trauma, in the case of video games, there is no correlation between playing shooter games and experiencing worse PTSD. Though this is true, it does not mean that shooting games help with symptoms of PTSD. What this study shows is that more research should be done to learn about the effects of shooter games on PTSD to see if it can lead to a positive outcome.

Video Game Playing Can Increase the Symptoms of Psychiatric Disorders

Based on the reason why they are played, video games can be predictors of depression. A large part of this connection comes from the aforementioned types of gaming addiction, which will be revisited in this section relating to psychiatric disorders and the effects for adolescents and young adults. Gaming addiction is useful in determining if an individual has other underlying issues, such as a tendency for addiction or a higher risk for developing psychiatric disorders.

Gaming Addiction (Revisited)

As mentioned in the previous section on gaming addiction, there are two different types of addiction to video games. These two kinds of addiction can be neutral or have a harmful

influence on mental health (International Communication Association, 2018). In fact, obsessive gaming is at the heart of the issue with video games and mental health. If gamers play games in a fashion that is not characterized by an unhealthy addiction, then they are often able to enjoy video games without any issues or repercussions. The main issue arises when gamers have an obsessive addiction, and this type of addiction is correlated with gamers being more likely to develop problems with their mental health (International Communication Association, 2018). Most of the research in this area has found that gamers with an unhealthy addiction are the ones seriously affected by video games. In general, it has been found that this group of gamers has positive predictors of depression and other disorders in association with their gaming. In addition to this, it is imperative to reiterate the idea that gaming time does not correlate with gaming addiction—instead, gaming addiction is correlated with the intent behind the usage (Liu & Peng, 2008). If the intent is to escape problems and use video games as a self-treatment method, then complications may occur, such as dependency on the video game.

Usage of Games as an Escape

How video games are played is an incredibly important aspect of how psychiatric disorders arise in gamers. Oftentimes, gamers will use video games as a means of escape (Lee & Leeson, 2015). When gamers use video games as a means of escape, it is possible that the underlying issues for psychiatric disorders may already exist. If this is the case, then video games would not be a cause for disorders like depression and anxiety. On the one hand, it would make video games dangerous because they may be used for self-medication as opposed to entertainment. For the specific case of anxiety, on the other hand, Lee and Leeson (2015) found that the sheer amount of play time does not correlate to higher anxiety levels within an

individual. Because usage time for video games is not correlated with gaming addiction, this suggests another factor must be present to develop the symptoms of psychiatric disorders.

Predictors of Depression and Other Psychiatric Disorders in the Context of Video Games

Two different types of studies were analyzed to investigate whether or not video games were a predictor for the exacerbation or development of symptoms of depression and other psychiatric disorders. These two types of studies were longitudinal and cross-sectional studies. On their own, these studies often have lacking components—for example, cross-sectional studies are unable to determine if the effects are long-term. Without cross-sectional studies for reference, longitudinal studies may not be able to isolate and determine which variables to study and for what periods of time to establish causation. Many longitudinal studies are also unable to completely establish causation, though many can have overwhelming correlations.

A longitudinal study by researchers Mikuska and Vaszonyi looked at the relationship of depression and video games over the course of several years (2017). When looking at this particular area, they found that playing video games was a significant predictor of developing depression later in life (Mikuska & Vaszonyi, 2017). This study supports the hypothesis made by this thesis and shows that video games are in fact a predictor for depression. Since this is a longitudinal study, many aspects are held constant, and this correlation is incredibly strong. Further supporting this idea, another longitudinal study showed that pathological (or obsessive) gaming is a predictor of negative behaviors in the future (Coyne et al., 2020). Negative behaviors can lead to antisocial attitudes, and these behaviors are connected with psychological disorders such as anxiety and depression.

Cross-sectional studies capture a moment in time and describe the relationship between variables in the short term. One such cross-sectional study examined social media and video game usage with respect to anxiety and depression. Andreassen et al. (2016) found through their investigation that video game addiction and depression were positively correlated. This cross-sectional study exemplifies the finding that video game addiction is positively correlated with depressive symptoms. Thus, there is further evidence that the unhealthy and addictive use of video games can cause the emergence of symptoms of depression.

Contrary to these findings, however, is the finding by Ferguson and Rueda (2010) that violent video games not only do not affect depressive or aggressive symptoms in the short term but reduce these symptoms in the long term. This means that the kind of video games played may need to be researched more, as the findings here contradict much of the previously established literature. As has already been established, it does not matter how long a gamer plays—what matters is how they play and what they are playing. The issue is complex, and the connections made in this work are not as simple as one might infer.

Anxiety is another commonplace psychiatric disorder that needs to be addressed. The results of studies on anxiety overall are fairly mixed. In a study done to investigate the relationship between aggression, anxiety, and violent video games, the researchers determined that the violent video games had a short-term effect on hostility and aggressiveness but did not have any short-term effects on a person's anxiety (Arriaga et al., 2006). Similarly, video game addiction has a unique effect on anxiety when compared to the same effect on depression. Anxiety has been found to be negatively correlated with video game addiction but positively correlated with social media addiction (Andreassen et al., 2016). Both of these findings show that while depression is heavily linked to video game addiction, anxiety is not. Anxiety and

depression are entirely different from one another, but comorbidity can often exist. Based on this research, it is likely that video games and video game addiction are not related to anxiety in this fashion.

In opposition to this research on anxiety, another longitudinal study found that pathological gaming is a significant predictor of negative behaviors in the future from adolescence to young adulthood (Coyne et al., 2020). This study similarly found that pathological gaming and psychiatric disorders can occur regardless of which one occurred first, and anxiety was one of those disorders (Coyne et al., 2020). This means that a longitudinal study found a link between anxiety and gaming addiction, though the cross-sectional studies did not. Thus, it is possible that the development of video game addiction can have an effect on anxiety, but only over a relatively long period of time.

Another study looked at the effects of smartphones on young adults and their mental health (Tayana et al., 2020). This study did a survey of university students in three countries, including the United States of America (USA), Colombia, and Spain, and it examined their phone usage and symptoms of anxiety, depression, and stress. Though this study in general does not apply to this work, a small subsection of it does. One of the ways these undergraduate students used their phones was for mobile gaming. Mobile gaming is largely understudied, and due to this, few studies exist—especially ones investigating whether there is a link between mobile gaming and symptoms of psychiatric disorders. For this study, however, the only correlation between mobile gaming and mental health found was in the USA, and mobile gaming was found to have a positive correlation with anxiety. This same result was not the case for Colombia or for Spain (Tayana et al., 2020). Because these results were specific to the USA, it is possible that cultural influences might increase anxiety for mobile gamers. At the same time, the

study itself was unable to show causation. As such, it is possible that those with more anxiety seek out mobile games instead of mobile games negatively impacting anxiety. Either way, studying mobile games and their effects on mental health should be a priority as smartphones spread and access to mobile gaming increases.

Solutions and Benefits

Video games are usually not inherently bad for gamers. Though they can become devices through which a player begins an unhealthy obsession or addiction, they can also have positive uses. Video games can have some positive effects on those who play them, from children to those experiencing old age. These benefits make video games a desirable option for a hobby or for enjoyment, as long as the player does not become addicted. At the same time, video games can be used to treat the same illnesses and addictions with which they are correlated. However, this usually requires tailoring a video game for this specific purpose. There has been some success with this in the past. Studies such as the one behind the creation of the video game Personal Investigator (Matthews et al., 2006) show this success through self-report surveys after patients and therapists utilized the game, and the ability for video games to become a tool for mental health professionals is an exciting proposition.

Benefits of Playing Video Games

Playing video games can benefit players in unexpected ways. For example, in a study performed with children and the usage of competitive multiplayer video games, children exemplified behavior that showed progress in their prosocial aspects and an inhibition to their negative behaviors (Lobel et al., 2019). This means that the children who participated in this study had a clear benefit from playing video games. However, since this was done specifically

with children, the application of these same results to the general public may not be appropriate. Though this may be the case, it still stands that for children, video games can benefit their lives by improving their behaviors. Similarly, if children benefit from video games, then it may be possible that adolescents, young adults, and adults can also benefit from playing video games. Thus, even though it seems like the results of this study cannot be generalized for the larger population, video games may have the potential to benefit other age groups. More research would be needed to confirm this.

Some research already supports this idea. Researchers have found that competitive video games can boost self-esteem and can help players participate in other competitive activities (such as sports) to further boost their self-esteem (Ingram & Cangemi, 2019). By boosting self-esteem, gamers have the ability to mitigate certain mental illnesses by using video games. Self-esteem is a large factor in many psychiatric disorders, including but not limited to depression. By boosting self-esteem, risk for these disorders likely decreases, and thus the player may enjoy benefits from playing competitive video games. However, in the two studies discussed, both studies used competitive video games. Competition is prevalent in video games, and many games that exhibit competition differ in key aspects. Competitive games can range from violent video games such as Call of Duty to non-violent games such as Madden or Rocket League. Since video games are intertwined and interconnected within their respective genres, making a statement based on one aspect of a video game could be considered a limitation—other aspects of the games could be the influencing factor instead of the desired factor of competition. This exemplifies one issue with using video games created for commercial use in experiments. Nonetheless, the results of these studies can still be appreciated in that the underlying factor of video games is the correlated variable to the benefits gained.

Usage of Video Games as Treatment

Video games can offer benefits from simply playing them. Additionally, video games can be created to work as tools for specific benefits. For example, if a video game was created so that the content of the game or the gameplay could benefit the user in a specific way, then that game would become a potential tool for others to use. This principle has already seen success in various cases. From treating depression to helping patients open up to their therapists, using video games as a tool can be a fortuitous and helpful example of the influence they can have.

There are several examples of video games used as tools. One such video game was made and tailored to treat depression, specifically late-life depression. The researchers tested to see the game's effects on late-life depression by utilizing the traditional technique of cognitive behavioral therapy within the game, and the study showed that playing video games can have a positive impact on late-life depression (Anguera et al., 2016). By showing that a tailored game can improve the lives of those who suffer from an onset of depression later in life, these researchers have helped show how video games can be used to treat psychiatric disorders. Because video games had a positive impact in this scenario, it is imperative to consider the impact video games could have on other psychiatric disorders—or for mental health overall.

Another example of a video game as a treatment tool was Personal Investigator, a game created and tested by researchers (Matthews et al., 2006). The researchers aimed to create a game that could help therapists and their adolescent patients communicate better by investigating personal issues and breaking down communication barriers between the therapist and the patient (Matthews et al., 2006). Personal Investigator is a prime example of how mental health professionals can use video games to help them connect and work through issues with their patients. The researchers tested their game in a live setting with therapists and adolescent

patients and achieved significant success with it, breaking down barriers and aiding in the resolution of issues the patients were working through. The researchers measured this success from surveys given to both the patients and therapists after playing the game (Matthews et al., 2006). Due to the success of this game, it is clearly possible to use video games to heal—video games are not simply a negative hobby resulting in time wasted or worse. Aside from Personal Investigator, other video games have been created and tailored to treat depressive symptoms and have experienced success (Fish & Saul, 2019). These games, created for the specific purpose of treating depression, showed successful results. Studies of games like these are empowering, as they suggest that one could use video games for other uses—such as rehabilitation—in other healthcare settings.

The fact that video games can be used for treatment should not detract from the fact that video games can still be a factor in psychiatric disorders. However, because these factors depend on how one uses video games, it may be possible to use them in a healthcare setting. This is shown by the evidence, as long as patients do not become addicted to the video game designed to help them. If this were to happen, the video games would have the opposite of their intended effect, causing the person to rely too heavily upon the game and damaging their mental health. Thus, these tailored video games could be used in a limited fashion—or only by healthcare professionals—to prevent widespread access to these tools and lower the risk of players becoming addicted to them.

In the hands of healthcare professionals, video games could be useful, but what about the video games themselves? Researchers have actually devised a foundation for creating a video game designed to benefit mental health (Turner et al., 2016). This literature review looked at many studies concerning the development of video games for mental health benefits and broke

them down into basic components to describe and establish a foundation for creation. This foundation contains four main principles: way-finding and signposting, difficulty curves and player ability, core game mechanics, and practice test cycles. Way-finding and signposting refers to a player's ability to navigate through the game, or how well the player is able to get from A to B using cues from the developers. Difficulty curves and player ability refer to how difficult the game is and how quickly the player is able to adapt or develop the skills necessary to progress through the game. The third principle, core game mechanics, has to do with the rules and mechanics of play, the limits the player is given, and the consistency and maintenance of these boundaries. The fourth and final principle—practice test cycles—is described as testing the game many times to make sure everything runs smoothly and there are no glitches. In this step, according to the researchers, it is important to gather both professionals and non-professionals to test the game. With these principles in mind, the researchers describe a set of questions one would proceed to ask. When the questions are complete, the game would have the potential to benefit mental health (Turner et al., 2016). The nature of this study shows there are several other studies where video games were created to help with mental health issues. This means that this field is burgeoning. It will likely become popular, and it could potentially enter practice as these games make their way into the hands of mental health professionals.

Conclusion

Gaming can have many consequences, and these consequences can impact people for the rest of their lives. As shown by several studies throughout this thesis, video games can have a negative impact on depression and depressive symptoms. However, this is likely due to the interconnection between addiction, video games, and mental health. As Mikuska and Vazsonyi

(2017) show, being at risk for psychiatric disorders while also playing video games is correlated with the rise of those disorders over time. This thesis focuses on some of the more widely known psychiatric disorders, such as depression. Depression is a large factor in suicide, which is one of the world's leading causes of death every year for people aged 15 to 19 (World Health Organization, 2019). This further reinforces the idea that research in this area is imperative.

Though video games can induce psychiatric symptoms, they can also provide incredible benefits. If tailored, they can improve people's lives and be used to treat those who suffer from psychiatric disorders. These video games can be tailored to help patients with mental health problems. By following a guideline, researchers and mental health professionals will soon be able to take video games and implement them into their treatment routines, giving them an additional avenue for them to explore. This is in addition to the benefits that can arise from simply playing video games. As discussed previously, children have benefited from playing video games (Lobel et al., 2019), and these same principles may apply to more general populations. For example, the study by Lobel et al. (2019) showed that the children gained the same levels of prosocial behaviors from competitive games as they did from playing team sports. Staying inside to play video games with your friends may be just as good as playing outside.

Despite the conclusions and correlations drawn from the research in this thesis, limitations do exist. First, this thesis is limited by the sources used. Though many sources were used, it should still be considered only a sample of the larger amount of work that likely exists. As such, it may not entirely represent the research and work done on video games as they relate to mental health. Second, this thesis is limited by any of the limitations of the studies themselves. Many of the sources utilized in this work evaluated success based on self-reported surveys, for example, so self-report biases may exist.

In addition, more research needs to be done in this field of study. of the sources used in this thesis do not focus on college students, even though many of the ones that look at a variety of ages have average ages that correspond to being a young adult (around 21). With the emphasis on adolescents and how their mental health is affected, there is less research on the mental health of young adults. College students in particular exemplify a unique and specific number of stressors for their age, and they generally have living situations that are unique to their location and age group. As adolescents who play video games grow up, they may develop mental disorders. But what happens afterward? More research needs to be done with this group. With the access that universities have to students, why has more research not been conducted? I would suggest that researchers within this field of study should focus on specific age groups outside of the extremes of childhood, adolescence, and seniority.

Further research in the area of video games and their relationship to mental health should also focus more on the types of video games played. Many studies ignored the potential impact of the type of video game studied. For example, the Hitman study by researchers Ferguson and Rueda (2010) focused on the violent aspects of the video game but did not examine the fact that it a single player game. Could multiplayer violent video games see a different effect because the violence is done to other players instead of computer-generated characters? Could these same ideas be applied to mental health and video games? Research done in this area does not focus on the video games themselves enough. A game designed by Anguera, Gunning, and Arean (2016) showed success in helping treat late-life depression. However, since the game was based on existing therapies, could a multiplayer game work even more successfully? Exploring video games and various types of video games in new ways may produce even more effective results. In addition, more video games could be studied for their benefits in the same way the

competitive games were researched in the Lobel et al. (2019) study. Thus, I would again suggest that researchers investigate these potential aspects of video games in the future.

Though research in this area may be limited, the research that does exist allows for applicable circumstances in everyday life. If one plays video games, it can be helpful to know whether it can impact their lives. In general, video games will not become harmful unless one has become negatively addicted to them. Addiction can be spotted when someone plays video games for long periods of time and their usage interferes with their daily life or they are unable to stop (World Health Organization, 2020). The amount of time itself is not important (International Communication Association, 2018), but the interference in daily life or inability to stop can be harmful. The research I discovered did not cover the general benefits of games at varying ages, but the fact that video games can have similar benefits to playing sports for children (Lobel et al., 2019) means that playing video games can have positive effects. Similarly, they could potentially have hidden detriments. Overall, though, playing video games should not be dangerous unless one has a risk for psychiatric illness and an addiction to them, and it should not be thrown to the wayside because of the amazing potential benefits it can bring.

In the future, looking at the issues and benefits that video games may bring to mental health and overall well-being could result in powerful tools used to help treat psychiatric disorders or improve quality of life. I personally feel tied to this topic, as I have long had experiences with video games and have a great interest in the well-being and mental health of others. With the rise of mental health awareness, issues from COVID-19, and the enormous popularity of gaming, other researchers should feel as I do about the importance of the relationship between mental health and video games. With this, I offer the reader one final

statement: video games should be utilized for their great potential, but players should be aware of their potential consequences as the world continues to create and enjoy video games.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed). American Psychiatric Publishing. https://doi.org/10.1176/appi.books.9780890425596

American Society of Addiction Medicine. (2019, September 15). *Definition of addiction*. American Society of Addiction Medicine. https://www.asam.org/Quality-Science/definition-of-addiction

Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors*, *30*(2), 252-262. http://doi.org/10.1037/adb0000160

Anguera, J. A., Gunning, F. M., & Arean, P. A. (2016). Improving late life depression and cognitive control through the use of therapeutic video game technology: A proof-of-concept randomized trial. *Depression and Anxiety*, *34*, 508-517. http://doi.org/10.1002/da.22588

Arriaga, P., Esteves, F., Carneiro, P., & Monteiro, M. B. (2006). Violent computer games and their effects on state hostility and physiological arousal. *Aggressive Behavior*, *32*(2), 146-158. http://doi.org/10.1002/ab.20134/abstract

Coyne, S. M., Stockdale, L. A., Warburton, W., Gentile, D. A., Yang, C., & Merrill, B. M. (2020). Pathological video game symptoms from adolescence to emerging adulthood: A 6-year longitudinal study of trajectories, predictors, and outcomes. *Developmental Psychology*, *56*(7), 1385-1396. http://doi.org/10.1037/dev0000939

Del Moral, M. E. y Guzmán, A. (2016). Jugar en red social: ¿adicción digital versus comunicación e interacción en CityVille? [Social Network Game: Digital addiction versus communication and interaction in CityVille?] *Cuadernos.info*, (38), 217-231. http://doi.org/10.7764/cdi.38.810

Entertainment Software Association. (2020). 2020 essential facts about the video game industry. *Entertainment Software Association.* https://www.theesa.com/resource/2020-essential-facts/#:~:text=More%20than%20214%20million%20people,18%20regularly%20play%20video%20games.

Etter, D., Kame, C., Etter, K., & Gore-Felton, C. (2017). Modern Warfare: Video game playing and posttraumatic symptoms in veterans. *Journal of Traumatic Stress, 30,* 182-185. http://doi.org/10.1002/jts.22172

Ferguson, C. J., & Rueda, S. M. (2010). The Hitman study: Violent video game exposure effects on aggressive behavior, hostile feelings, and depression. *European Psychologist*, *15*(2), 99-108. http://doi.org/10.1027/1016-9040/a000010

Fish, M. T., & Saul, A. D. (2019). The gamification of meditation: A randomized-controlled study of a prescribed mobile mindfulness meditation application in reducing college students' depression. *Simulation and Gaming*, *50*(4), 419-435. https://doi.org/10.1177/1046878119851821

Fragoso, S. (2015). "HUEHUEHUE eu sou BR": spam, trollagem e griefing nos jogos online. *Revista FAMECOS*, *22*(3), 129-163. https://doi.org/10.15448/1980-3729.2015.3.19302

Heinz, A., Daedelow, L.S., Wackerhagen, C., & Di Chiara, G. (2019). Addiction theory matters—Why there is no dependence on caffeine or antidepressant medication. *Addiction Biology*, *25*, 1-5. https://doi.org/10.1111/adb.12735

Humphrey, G. (2019). Sharpening the focus on gaming disorder. *Bulletin of the World Health Organization*, *97*(6), 382-383. https://dx.doi.org/10.2471/BLT.19.020619

Ingram, J. & Cangemi, J. (2019). Video games: motivation, effects, and clinical implications of self esteem. *College Student Journal*, *53*(1), 1-12. https://www.ingentaconnect.com/content/prin/csj/2019/00000053/00000001/art00001

International Communication Association. (2018). *It depends on how you play! Examining video games' efficiency as a coping tool for distressing life situations*. International Communication Association.

Jagneaux, David. (2020, March 30). 'Elder Scrolls Online' is 'still growing, not slowing down' with over 15 million players. *Forbes.* https://www.forbes.com/sites/davidjagneaux/2020/03/30/elder-scrolls-online-is-still-growing-not-slowing-down-with-over-15-million-players/?sh=5d96d6435ec3

Lee, B. W., & Leeson, P. R. C. (2015). Online gaming in the context of social anxiety. *Psychology of Addictive Behaviors*, *29*(2), 473-482. http://doi.org/10.1037/adb0000070

Liu, M., & Peng, W. (2008). *Antecedents and consequences of online gaming addiction: A preliminary study in China*. International Communication Association.

Lobel, A., Engels, R. C. M. E., Stone, L. L., & Granic, I. (2019). Gaining a competitive edge: Longitudinal associations between children's competitive video game playing, conduct problems, peer relations, and prosocial behavior. *Psychology of Popular Media Culture*, *8*(1), 76-87. http://doi.org/10.1037/ppm0000159

Matthews, M., Coyle, D., & Anthony, K. (2006). Personal investigator. *Therapy Today, 17*(7), 30-33. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.387.7786&rep=rep1&type=pdf

Mikuska, J., & Vazsonyi, A. T. (2017). Developmental links between gaming and depressive symptoms. *Journal of Research on Adolescence, 28*(3), 680-697. http://doi.org/10.1111/jora.12359

Ozkaya, E., LaRose, R., & Wohn, D. Y. (2011). *Online game addictions: An overview.* International Communication Association.

Riley, K. (2006). The butterfly effect. *Business Communication Quarterly, 69*(4), 369-373. http://doi.org/10.1177/1080569906294445

Saleem, M., Anderson, C. A., & Gentile, D. A. (2012). Effects of prosocial, neutral, and violent video games on college students' affect. *Aggressive Behavior, 38*, 263-271. http://doi.org/10.1002/ab.21427

Tayana, P., Carbonell, X., Chamarro, A., & Puerta-Cortes, D. X. (2020). Specific smartphone uses and how they relate to anxiety and depression in university students: a cross-cultural perspective. *Behavior & Information Technology, 39*(9), 944-956. http://doi.org/10.1080/0144929X.2019.1633405

Trent, L. D., & Shafer, D. M. (2020). Extending disposition theory of sports spectatorship to esports. *International Journal of Communication, 14*, 1049-1069.

Turner, W. A., Thomas, B., & Casey, L. M. (2016). Developing games for mental health: A primer. *Professional Psychology: Research and Practice, 47*(3), 242-249. http://doi.org/10.1037/pro0000082

World Health Organization. (2019, September 2). *Suicide*. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/suicide

World Health Organization. (2020). *International classification of diseases for mortality and morbidity statistics* (11th ed.). World Health Organization. https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f338347362

Author Biography

Andre Taylor is an undergraduate student at The University of Texas at Austin, majoring in Biochemistry. Originally from Colorado, he moved to Texas around age 13 and has lived there ever since. He was interested in The University of Texas at Austin in part because his brother decided to attend there, and with family spread out all over the United States, he decided that The University of Texas at Austin was the place to go. There, he met some of his greatest friends, joined the Polymathic Scholars Program, and even attended a club for creative writing. After graduating, he hopes to take time to continue to build his resume to apply to medical school, so that one day he can help others by treating psychiatric disorders as a psychiatrist.