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VIOLENT VIDEO GAMES AND SYMPTOMS OF DISTRESS AND TRAUMA

by

BRENDAN J. McCOLLUM

(Under the Direction of Thresa Yancey)

ABSTRACT

Much of the research involving detrimental effects of violent video games has focused primarily on aggression and desensitization of pain. To date there is no known research that examines whether video games can cause traumatic symptoms. However, there is research that suggests horror movies cause traumatic symptoms (Carleton et al., 2011). Given that video games can immerse people far more than a movie in terms of active participation, one could infer that traumatic symptoms would be even greater when playing a violent video game. The purpose of the current study was to determine whether violent video games could elicit symptoms related to distress and trauma (e.g., feelings of involvement and presence, anxiety, aggression, stress, and peritraumatic dissociation) and to examine whether there were gender differences in the reported levels of symptoms. One hundred and twenty participants played either a violent or nonviolent video game and completed self-report measures of distress and trauma. Results were inconsistent with previous research suggesting that violent video games increase symptoms of distress and trauma in males. However, results do indicate that females have an increase in state anxiety, aggressive affect, acute stress and peritraumatic dissociation when playing violent video games. Methodological, theoretical, and practical implications are explored.

INDEX WORDS: Violent video games, aggressive affect, anxiety, stress, peritraumatic dissociation, feelings of presence, feelings of involvement, gender differences

VIOLENT VIDEO GAMES AND SYMPTOMS OF DISTRESS AND TRAUMA

by

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A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in Partial

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VIOLENT VIDEO GAMES AND SYMPTOMS OF DISTRESS AND TRAUMA

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DEDICATION

This dissertation is dedicated to my wife Ashley McCollum. This amazing woman is my rock and has been standing by me and pushing me to succeed since we've been together. She's been there through every victory and defeat and has helped foster the ability within me to do my best. Without her, nothing I do would seem as grand or special. I love you, sweetheart. Additionally, I dedicate this to my parents, Jim and Carole McCollum; my sister, Ginny McCollum; and my mother-in-law, Joan Gowgiel, for their unconditional support and love throughout this process and my life.

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CHAPTER 1

INTRODUCTION

Statement of Problem

To date, there is no known research examining whether violent video games cause traumatic symptoms. However, Carleton and colleagues (2010) recently examined the elicitaion of posttraumatic symptoms by fictional events and which factors increase vulnerability to these symptoms. They found that state anxiety significantly increased immediately after watching a horror movie. Additionally, state anxiety and peritraumatic dissociation were predictive of participants' endorsement of PTSD symptoms at a four-week follow-up of reported symptoms (Carleton et al., 2010).

According to Tamborini and Skalaski (2006), it is possible for video games to immerse people more than television or other media; one could infer that traumatic symptoms would be even greater due to a more active participation in video games than in the use of any other media. To date, however, there have been no studies on this relationship. The current study was conducted to facilitate a better understanding of whether video games can elicit significant traumatic symptoms (i.e., state anxiety, acute stress, and peritraumatic dissociation) and distress (i.e., aggressive affect, feelings of involvement, and feelings of presence), while also examining possible differences in the report of symptoms of distress and traumatic symptoms across gender.

Background and Significance

Over the past several decades, it has been well established in media research that violent media elicits an increase in aggressive thoughts and behaviors, and this relationship is causal and significant (Anderson et al., 2003). Additionally, there is an effect of desensitization of other emotions in response to exposure to violent video games (See: Anderson & Bushman, 2001; Anderson et al., 2004; Anderson & Ford, 1986; Anderson & Murphy, 2003; Bartholow et al.,

2005; Bushman & Anderson, 2002, 2009; Carnagey & Anderson, 2004, 2005; Carnagey, Anderson, & Bushman, 2007). Although this research is rich in content and valuable in message, the available research on other detrimental effects of violent video games and gender differences in response to violent video games is minimal.

It is important to consider additional implications of the effects that violent media, and more specifically violent video games, have on our society. Video games have become one of the most popular technologies created, with more than 65% of households reporting video game play (Entertainment Software Association, 2008; Lenhart, Jones, & Macgill, 2008). Of those who play, males report more than double the game play compared to females (Kaiser Family Foundation, 2009). More importantly, approximately 89% of all video games that are produced are considered violent (Carnagey & Anderson, 2004).

As so many people play video games, research on other detrimental effects of violent video games is important due to a possible relationship of anger with psychiatric diagnoses, specifically post-traumatic stress disorder (PTSD; Olatunji, Ciesielski, & Tolin, 2010). Given the high comorbidity between PTSD and other anxiety disorders (Ehlers, 2001; Hashemian et al., 2006; Mayou, Bryant, & Ehlers, 2001; McFarlane & Papay, 1992; Sundquist et al., 2005; Zayfert, Becker, Unger, & Shearer, 2002), the relationship between anger and PTSD may also be present in other anxiety disorders. The current study examined whether violent video games not only increased aggression, but also anxiety, stress, feelings of presence, feelings of involvement, and peritraumatic dissociation. Also, gender differences for these symptoms were examined.

Definition of Terms

The following concepts were measured within the context of the current study. The subsequent section will highlight basic definitions and descriptive features of each concept.

Feelings of Involvement. Witmer and Singer (1998) stated that involvement is "a psychological state experienced as a consequence of focusing one's energy and attention on a coherent set of stimuli or meaningfully related activities and events" (p. 227). Ivory and Kalyanaraman (2007) further defined involvement to mean the level of intensity of a person's engagement with the presented stimuli.

Feelings of Presence. The feeling of presence has been defined in multiple ways throughout research on media. Lombard and Ditton (1997) described presence as the "perceptual illusion of nonmediation(NEED A PAGE NUMBER)." Lee (2004) described it as "a psychological state in which virtual objects are experienced as actual objects in either sensory or nonsensory ways." (p. 37). However, Ivory and Kalyanaraman (2007) simplified these terms and stated that "presence describes a media user's feeling that mediated representations are real" (p. 534). This study adopted Ivory and Kalyanaraman's definition.

Peritraumatic Dissociation. Dissociation has been referred to as the experience of depersonalization, derealization, amnesia, and fugue states (Briere et al., 2005). Therefore, peritraumatic dissociation occurs when a person dissociates during or immediately after a traumatic situation (Briere et al., 2005).

Aggressive Affect. Anderson and colleagues (2008) defined aggression as "behavior that is intended to harm another person who is motivated to avoid that harm. In other words, aggression is an act conducted by 1 person with the intent of hurting another person; it is not an emotion, thought, or intention" (p. e1068). Subsumed within the context of aggression is aggressive affect. Affect refers to the conscious subjective aspect of an emotion considered apart

from bodily changes (Merriam-Webster, 2013), or put more simply, a feeling. Therefore, the definition of aggressive affect is a feeling one person has related to hurting another person.

State Anxiety. Lazarus (1991) describes state anxiety as an aroused state that is emotionally unpleasant for the person when faced with a threatening or dangerous situation.

Acute Stress. Acute stress was defined by Lovibond and Lovibond (1995) as an arousal that can be seen through difficulty relaxing, nervous arousal, being easily agitated or upset, and a sense of irritableness.

CHAPTER 2

LITERATURE REVIEW

Video Game Play and Aggression

Since their inception, video games have caused numerous controversies in Western society. However, with their increasing popularity, it is sometimes difficult to illuminate their possible detrimental effects due to new genres of video games being released as well as new technology that expands the playing experience (e.g., Xbox 360 Kinect®, Nintendo Wii®, the Playstation® Move Controller). Video games have become one of the most popular technologies created, with more than 65% of households reporting video game play (Entertainment Software Association, 2008; Lenhart et al., 2008). Of those who play, males report more than double the game play compared to females (Kaiser Family Foundation, 2009).

Depending on the content, some video games can have a positive effect on the player. Greitemeyer, Osswald, and Brauer (2010) examined the effects of prosocial video games on a person's interpersonal empathy and the notion of "shaudenfreude." The concept of shaudenfreude refers to deriving pleasure from another's misfortune (Greitemeyer et al., 2010). When participants played a video game with prosocial themes, their interpersonal empathy increased and they reported less pleasure in hearing about another's misfortunes compared to participants who played a neutral video game.

In a related study, Russoniello, O'Brien, and Parks (2009) examined the effects of casual video games on the improvement of mood and the reduction of stress in participants. Casual video games are those considered fun, quick to access, easy to learn, and requiring no previous video game skills, mastery, or sufficient time to play (e.g., Zuma®). Participants played one of three casual video games or participated in an internet search of articles pertaining to health related topics. Results indicated that participants who played casual video games produced brain

waves consistent with improving mood as well as an improvement in self-reported mood compared to the control group. Those in the casual game group, compared to the control group, also displayed a reduction in physical stress (Russoniello et al., 2009).

Although the effects of prosocial and casual video games can lead to personal improvements, approximately 89% of video games produced are considered violent (Carnagey & Anderson, 2004). Violence in video games began to increase in what is known as the "Nintendo era" when Nintendo gaming systems were the most popular game console in terms of sales. Even those games designed for children may contain a form of violence prevalent in the media which is referred to as cartoon violence (Carnagey & Anderson, 2004). One of the reasons violence in video games may be so prevalent is due to more violent content leading to greater sales. In 1993, *Mortal Kombat* was released for both Sega and Nintendo consoles. However, Nintendo released a less violent version of the game than Sega. As a result, Sega outsold Nintendo units 3 to 1 (Carnagey & Anderson, 2004). When *Mortal Kombat 2* was released, both systems released the same version and Nintendo outsold Sega, mainly due to the popularity of the Nintendo system (Carnagey & Anderson, 2004). Due to the continual enhancement in technology and improvement in graphics over previous gaming systems, this trend has continued and games are increasingly more violent and realistic (Carnagey & Anderson, 2004). The increase in more violent and realistic video games is alarming due to significant literature illustrating adverse effects of violent media, especially violent video games.

Anderson and Ford (1986) were among the first to examine adverse effects of violent video games. They examined the effects of mildly and highly aggressive video games on the affect of young adults (e.g., hostility, anxiety, depression) compared to a no-game control group. Playing highly aggressive and mildly aggressive video games resulted in an increase in hostility

and anxiety, but not depression, when compared to the no-game control group (Anderson & Ford, 1986). Following this initial research by Anderson and Ford illuminating the link between aggressive and violent video games and aggression, further research replicated this correlation in video games (Anderson, & Bushman, 2001; Bartholow, Bushman, & Sestir, 2005; Bushman & Anderson, 2002, 2009; Carnagey, Anderson, & Bushman, 2007; Konijn, Bijvank, & Bushman, 2007), violent music (Anderson, Carnagey, & Eubanks, 2003; Lennings, & Warburton, 2011), violent radio (Dennis, 1998), and violent films (Bushman, 1998; Bushman & Anderson, 2005; Bushman & Geen, 1990; Mullen & Linz, 1995). Even televised news that depicts violent acts, such as terrorism, is linked to anxiety when compared to news that is unrelated to national danger situations (Slone, 2000). Similarly, physical threats, such as terrorism, may also lead to an increase in viewing television programs that are more serious, violent, and sexual in content, when compared to economic threat (Gowgiel & McIntosh, 2010).

In 2002, Bushman and Anderson sought to explore why violent video games, specifically, appear to cause aggressive affect, thoughts, and behaviors. The researchers examined whether violent video games caused participants to have an expectation that others will react with aggression toward potential conflicts. Participants played either a violent or nonviolent video game and were then given ambiguous story stems containing possible conflicts with another person. Participants were asked to speculate about the main character's actions, words, thoughts, and affect as the story continues. Participants who played the violent video game perceived the main character to react with more aggression than participants who played the nonviolent video game. This study suggests that people who play violent video games may become more aggressive due to their own perceptions that another person will act aggressively towards them.

There are also aspects within violent video games that can cause an increase in aggression while playing. In most violent video games, violent actions are rewarded in the form of points, money, or prized items. Carnagey and Anderson (2005) examined the effects of rewarding and punishing violent actions while playing violent video games on aggressive affect, thoughts, and behaviors. The researchers measured aggressive cognitive affect with the State Hostility Scale (SHS), aggressive thoughts with the Word Completion Task (WCT), and aggressive behavior with the Taylor competitive reaction time (CRT) task. Participants played either a violent race-car video game in which all violence was punished, one in which all violence was rewarded, or a nonviolent race-car video game. Results indicate that rewarding violent actions in a video game increased aggressiveness in affect, thinking, and behavior (Carnagey & Anderson, 2005). These results indicate that the reward systems for violent acts in most violent video games in combination with the violence within the video game may increase aggression in the player.

Another common feature in violent video games is the presence of blood and gore. This adds a sense of realism to the violence committed on the virtual characters. Farrar, Krcmar, and Nowak (2006) examined the effects of blood, first person versus third person views, and gender on involvement in the game and the subsequent level of aggression. Participants were more aggressive when playing a violent video game with blood than without blood suggesting that the more realistic the violence, through the presence of blood and gore, the more aggressive the player may become.

The presence of blood and the violence in video games now appears more realistic due to advancement of technology and improvements in graphical capacity. Characters are becoming more life-like and may even show emotional capability through virtual facial expressions. Ivory

and Kalyanaraman (2007) assessed the effects of technological advances in video games on a player's feeling of presence, involvement, physiological arousal, and aggressive affect. Participants played one of four video games: a newer violent video game, an older violent video game, a newer nonviolent video game, or an older nonviolent video game. Following game exposure, skin conductance was assessed to measure physiological arousal. Participants were asked about their feelings of presence in the video game (feeling that what they are seeing in the video game is real), feelings of involvement in the video game (amount of attention and energy devoted to the video game) perceived physiological arousal, and state hostility. Participants playing the newer video games reported greater feelings of presence and involvement; however, neither violence nor advancement of technology had an impact on participant report of aggressive affect (Ivory & Kalyanaraman, 2007). The advancement in the technology of violent video games does not appear to have a significant impact on a player's aggressive affect, but does allow for greater immersion in the game compared to older games which are not as technologically advanced.

Another common feature in video games, especially violent video games, is frustration. As a player progresses through a video game, the levels and/or enemies tend to become progressively harder to beat, until the game comes to an end with a final battle with the hardest character in the game. In 2009, Williams examined the effects of frustration and violent content in a video game on participant hostility. Participants were randomly selected to be in one of four conditions: playing a violent and frustrating video game, playing a violent and low frustrating video game, playing a nonviolent and frustrating video game, or playing a nonviolent and low frustrating video game. Williams found that both violence and frustration resulted in an increase in reported state hostility. Additionally, when violence and frustration were involved in the same

video game, reported state hostility was greater when compared to nonviolent and low frustrating video games (Williams, 2009).

As the levels in a violent video game become progressively harder and frustration levels increase, video game players may spend more and more time playing to surpass the greater challenges. This phenomenon was examined by Barlett, Harris, and Baldassaro (2007) through measuring heart rate, aggression, hostility, physiological arousal, and frustration before playing a violent video game (Time 1), after fifteen minutes (Time 2), and after thirty minutes (Time 3) of gameplay. Bartlett et al. found significant increases in physiological arousal and aggression from Time 1 to Time 2 and Time 3. This suggests that as play continues during a violent video game, players experience an increase in physiological arousal and aggression (Bartlett et al., 2007)

A similar study by Anderson et al. (2004) explored the short- and long-term effects of violent video game exposure on aggressive thoughts and behaviors. The results indicate playing violent video games increases the accessibility of aggressive thoughts and behaviors, even when a participant's arousal and affect were controlled. In addition, a link between repeated violent video game exposure and trait aggressiveness was reported (Anderson et al., 2004).

Finally, the majority of violent video games incorporate a progressive story into game play. The story helps players become more immersed and interested in the characters in the game. Schneider, Lang, Shin, and Bradley (2004) examined the effect that the presence of a story in a first-person shooter game has on level of identification, presence, emotional experience, and physiological arousal. Participants were allowed to customize and name their character in all conditions. Schneider et al. found that the use of a story in first-person shooter video games resulted in participants feeling greater identification with the video game, a greater sense of

presence within the video game, and a greater level of physiological arousal (Schneider et al., 2004).

Violent video games have been shown to have multiple negative effects. With so many aspects of violent video games increasing negative effects, research on the effects of violent video games on aggression is important due to multiple factors: there is a greater prevalence of violent video games compared to casual video games; and violent video games increase aggressive affect, aggressive thoughts, and aggressive behavior. Based upon previous literature examining the effects of violent video games and the different aspects of violent video games (e.g., blood and gore, story, frustration) it can be expected that when a participant plays a violent video game, they will report greater levels of aggression when compared to participants playing a nonviolent video game.

Violent Video Games and Anxiety

While there is substantial literature examining the effects of violent video games on aggression, there is limited research to enlighten us about the relationship between violent video games and levels of anxiety. Anderson and Bushman (1986) were the first to examine the relationship between anxiety and violent video games. They found that playing a violent video game leads to a greater report of anxiety when compared to mildly violent video games and nonviolent video games.

Another study conducted by Ravaja and colleagues (2008) examined participants' emotional responses during different phases of violent video games. One of these emotional responses was anxiety. They found that when a participant was wounding or killing an opponent, they reported a higher feeling of anxiety compared to those playing a nonviolent video game. This shows that anxiety can increase when a person is immersed in the game, especially when

they are wounding or killing another character, which is a common theme in violent video games.

In addition to violent video games, violent movies directed towards children can also elicit feelings of anxiety (Wilson, 2008). based on the findings of both Raveja and colleagues (2008) and Wilson (2008), it can be expected that people will experience an increase in anxiety while playing violent video games, compared to nonviolent video games.

Violent Video Games and Gender Differences

Violent video games have profound negative effects in terms of aggression and anxiety; however, few studies examine gender differences related to these effects. One of the first examinations of gender differences and violent media was performed in 2001 by Koukounas and McCabe. Male and female participants viewed five violent film segments and five nonviolent films (e.g., nature scenes). All participants reported levels of curiosity, anxiety, disgust, anger, and entertainment and completed an eye-blink startle response measuring aversive responses to the films. Participants reported higher indications of curiosity, anxiety, disgust, and anger and lower levels of positive emotions and boredom when watching the violent film clips. However, men reported experiencing greater positive feelings, entertainment, and curiosity during the violent films and women reported more disgust, boredom, and anger along with experiencing a greater startle response during violent films.

The impact for women of playing violent video games was uninvestigated until 2003 when Anderson and Murphy examined the effects of violent video games on young women. Anderson and Murphy (2003) compared women playing violent video games to those playing nonviolent video games on a competitive reaction time task as an indicator of immediate aggressive behavior. Further, women reported their aggressive motivation during the competitive reaction time task. Women who played the violent video game were significantly more

aggressive in their behaviors compared to the nonviolent video game group, and this increase in aggressive behavior was mediated by a motivation for revenge (Anderson & Murphy, 2003). These findings were similar to those found in men by Anderson and Ford (1986) which suggests that brief exposure to violent video games increases short-term aggression in women as well as men (Anderson & Ford, 1986). However, it is unclear if there is a larger affect on one gender compared to the other.

One of the few studies that found no difference between nonviolent and violent video games in terms of aggression was in a study by Fleming and Rickwood (2001). However, subjective arousal reported by participants was found to be similar to findings by Anderson and Bushman (2001). Fleming and Rickwood proposed that the similarity between men and women on measured variables may be due to increased experience with video games for both genders. Further, the investigators posit that increased gaming experience may result in desensitization to the violence (Fleming & Rickwood, 2001). Although differences in aggression were reported by participants, the researchers do not dispute that violent video games cause an increase in aggression.

Aggression and PTSD

Recent literature further suggests a link between aggression and Posttraumatic Stress Disorder (PTSD). A meta-analytic review by Olatunji, Ciesielski, and Tolin (2010) evaluated the extent to which anger is a specific symptom of PTSD and not of other anxiety disorders. Olatunji et al. found that participants with anxiety disorders reported greater anger difficulties than participants who did not meet criteria for any psychiatric disorder, those exposed to traumatic experiences but who did not meet criteria for PTSD, and those who had a psychiatric diagnosis other than an anxiety disorder. A PTSD diagnosis had the greatest relationship to anger difficulties when compared to other anxiety disorders. Finally, PTSD was specifically related to

problems with anger control, anger directed inward, and anger directed outward (Olatunji et al., 2010).

Similarly, Ehring and Quack (2010) explored the relationship between trauma type and symptom severity with difficulties in emotion regulation. Participants completed an online survey regarding history of traumatic events and reported PTSD symptom severity, emotion regulation, and experiential avoidance. After completion, Ehring and Quack categorized participant experiences into one of four categories: survivors of noninterpersonal traumas, survivors of late-onset interpersonal traumas, survivors of early-onset single or repeated interpersonal traumas that lasted less than one year, or survivors of early-onset chronic interpersonal traumas that lasted for at least a year. Ehring and Quack found that symptom severity was related to difficulties in emotion regulation. Further, survivors of early-onset chronic interpersonal trauma tended to have greater difficulty with emotion regulation as opposed to survivors of early-onset single interpersonal trauma, late-onset interpersonal trauma, and non-interpersonal trauma.

This difficulty with emotional regulation may explain the high comorbidity of 80% or more between PTSD and other psychological disorders (Breslau, Davis, Andreski, & Peterson, 1991; Creamer, Burgess, & McFarlane, 2001; Kessler et al., 1995). PTSD tends to be specifically highly comorbid with other anxiety disorders (~39-97%; Hashemian et al., 2006; Mayou, Bryant, & Ehlers, 2001; McFarlane & Papay, 1992; Sundquist et al., 2005; Zayfert, Becker, Unger, & Shearer, 2002), and specifically social phobia (Collimore, Carleton, Hofmann, & Asmundson, 2010).

Possible explanations for the comorbidity of PTSD with anxiety disorders have only recently been significantly examined. In a study by Forbes et al. (2011), a structural model of

PTSD and how it relates to anxiety and mood disorders was examined. The researchers found that comorbidity between PTSD and other anxiety disorders could be explained by re-experiencing, active avoidance, hypervigilance, and startle factors. These related highly to panic disorder, agoraphobia, and social phobia (Forbes et al., 2011).

Female gender is a demonstrated risk factor for an increased chance of developing an anxiety disorder (Angst & Dobler-Mikola, 1985; Bruce et al., 2005; Regier, Narrow, & Rae, 1990) or PTSD (Breslau et al., 1998; Kessler et al., 1995; Tolin & Foa, 2006). Other risk factors have been identified for comorbid diagnoses of PTSD, anxiety and depression. Some were assessed in Chinese adolescents who lived in China during the 2008 Wenchuan earthquake by Fang et al. (2011). The participants were examined six months after the earthquake and were assessed for symptoms of PTSD, anxiety, and depression. The researchers found that PTSD, anxiety, and depression were highly comorbid and that risk factors for the development of these disorders were female gender, older age, and earthquake disaster exposure (e.g., exposure to death, missing and/or injury to family members, house damage, property loss, and direct witness of the tragic disaster) (Fang et al., 2011).

In a similar study, McLean, Asnaani, Litz, and Hofmann (2011) assessed gender differences in prevalence, course of illness, comorbidity, and burden of illness for anxiety disorders in U.S. adults. The researchers found that women had higher lifetime incidence rates for each of the anxiety disorders except social phobia when compared to men. Women also had a higher incidence rate of developing more than one anxiety disorder, bulimia nervosa, and depression (McLean et al., 2011).

Ohrmann et al. (2010) examined possible reasons behind the higher prevalence of anxiety disorders in women compared to men. The researchers investigated neural activation

during facial emotion processing in 20 patients diagnosed with panic disorder using functional magnetic resonance imaging (fMRI). Overall, a stronger activation in the amygdala, prefrontal cortex, temporal and occipital cortical areas, basal ganglia, and thalamus occurred in women during the processing of angry, fearful, and neutral facial expressions. This difference was not found in happy facial expressions. This suggests that women process negative emotions more strongly than men and may account for the higher prevalence of anxiety disorders for women (Ohrmann et al., 2010).

In an effort to further understand gender differences in PTSD symptomatology, Irish et al. (2011) examined whether initial responses and peritraumatic dissociation to trauma contribute to the gender differences in PTSD symptoms. Participants were patients who recently experienced a motor vehicle accident (MVA). Participants reported peritraumatic dissociation, perception of life threat, and initial posttraumatic stress symptoms along with analysis of their heart rate and urinary cortisol levels at the initial hospital visit, six weeks later, and six months later. Initial posttraumatic stress symptoms and peritraumatic dissociation were marginally significant six weeks later and significant six months later with males lower than females. There were no significant differences in heart rate and urinary cortisol levels at either six weeks or six months post MVA. This indicates that posttraumatic stress symptoms and peritraumatic dissociation may explain gender differences in PTSD symptoms (Irish et al., 2011).

Costs of PTSD

The development of PTSD has a long-lasting effect on sufferers as well as the public at large. In a study by Chan et al. (2009), the effects that comorbid PTSD and depression had on the total health care utilization and cost of health care when compared to depression alone among Veteran Affairs (VA) patients was evaluated. Health care utilization, costs and medication usage were analyzed over a 12-month period. The results indicate that the comorbidity of PTSD and

depression caused more emotional distress, higher frequency of mental health specialty visits, and total outpatient visits along with a higher amount of prescribed antidepressants. Together, these needs corresponded to a higher total cost of outpatient mental health care (Chan et al., 2009).

Another detrimental effect of PTSD is the inability for the affected person to control their fears. Jovanovic et al. (2010) examined whether impairment in fear inhibition was a significant biomarker of PTSD. A fear-potentiated startle was assessed in trauma-exposed participants with either no diagnosis, having PTSD alone, having depression alone, or having comorbid PTSD and depression through the use of a novel conditional discrimination procedure. Participants were exposed to certain shapes paired with an aversive blast of air to the back of their throats and other shapes presented without airblasts. Participants with comorbid PTSD and depression were more likely to be unable to control a startle response to the sight of shapes, even shapes not paired with an air blast (Jovanovic et al., 2010).

PTSD also appears to have an effect on amount of medical care consumption. Using a VA sample of returning Operation Enduring Freedom/Operation Iraqi Freedom (OEF/IEF) veterans, Frayne et al. (2011) examined the medical burden in veterans with PTSD, stress-related disorders, other mental health conditions, and no mental health conditions. Veterans with a diagnosis of PTSD had higher rates of medical consumption when compared to veterans with no mental health conditions. Female veterans with a diagnosis of PTSD had the highest rate of medical consumption, and men without PTSD had the lowest rate of medical consumption. Veterans with a diagnosis of PTSD have a higher total cost of medical care than those without a PTSD diagnosis (Frayne et al., 2011).

People who suffer from PTSD may have a negative effect on others, even those unknown to them. Kuhn, Drescher, Ruzek, and Rosen (2010) examined the effects of PTSD on aggressive and unsafe driving in male veterans who were receiving treatment for PTSD. The participants self-reported on driving style in terms of aggressive driving and unsafe driving. PTSD severity was found to be a predictor for aggressive driving. When PTSD severity, age, income, and marital status were controlled for, being an Iraq and Afghanistan War veteran was shown to be a predictor of aggressive driving frequency and infrequent seatbelt use. This suggests that PTSD is correlated with aggressive driving, especially among veterans in the most recent wars, which could significantly affect the public (Kuhn et al., 2010).

Because of these detrimental effects of PTSD, researchers have taken an interest in the factors that cause and exacerbate PTSD symptoms. Hagenaars, Fisch, and van Minnen (2011) assessed the effect of trauma onset and trauma frequency on PTSD severity, depressive symptoms, dissociation, guilt, shame, anger, and interpersonal sensitivity. Although neither trauma onset nor frequency related to depressive symptoms and co-morbidity, multiple traumas resulted in higher dissociation, guilt, shame, interpersonal sensitivity, and higher inward anger. Those participants with a single traumatic experience rated higher anger toward others and those with childhood traumas reported more dissociation and state anger. However, when PTSD severity was controlled, no differences were present. This suggests that the different symptom profiles are dependent on PTSD severity (Hagenaars et al., 2011).

Video Games and Trauma

To date there is no available research on whether video games can cause traumatic symptoms; however, there is research on a similar media construct – movies. Carleton, Sikoski, and Asmunson (2010) examined whether significant posttrauma symptoms could be elicited by fictional events and what factors increase vulnerability to these symptoms. Undergraduate

women completed questionnaires assessing their traumatic symptoms, state anxiety, trait anxiety, anxiety sensitivity, depression, and peritraumatic dissociation before seeing a terrifying movie, immediately after seeing a terrifying movie, and at one and four-week follow ups. State anxiety significantly increased immediately after watching the terrifying movie and state anxiety and peritraumatic dissociation were predictive of participants' endorsement of PTSD symptoms at four weeks follow-up (Carleton et al., 2010). Given that video games can immerse people much more than a movie in terms of active participation due to a person giving their full attention to the video game (Tamborini & Skalaski, 2006), one could infer that traumatic symptoms would be greater than following movie viewing. To date, however, there is no available research to investigate this possibility. The purpose of the current study is to assess whether video games can also elicit significant posttraumatic distress symptoms and what factors may make a person vulnerable to these symptoms by comparing participants randomly assigned to play either a violent or non-violent video game.

Hypotheses

1. It is hypothesized that participants in the violent video game condition will report more aggressive affect than participants in the nonviolent video game condition, reported as differences in the post-condition measure as well as a differential change between the pre-condition and post-condition measures. This is consistent with research by Anderson and Bushman (2001), Anderson, Deuser, and DeNeve (1995), Anderson et al. (2004), Anderson et al. (2008), Anderson and Ford (1986), Bushman (1998), Bushman and Anderson (2002), Bushman and Geen (1990), Carnagey and Anderson (2004), Carnagey and Anderson (2005), and Konijn, Bijvank, and Bushman (2007).
2. It is hypothesized that participants in the violent video game condition will report more peritraumatic dissociation than participants in the nonviolent video game. Although

research has shown that violent movies may cause increased peritraumatic dissociation (Carleton et al., 2010), there seems to be a gap in the research concerning the effects of violent video games on peritraumatic dissociation.

3. It is hypothesized that participants in the violent video game condition will report greater feelings of acute stress than participants in the nonviolent video game. However, there is no known research that examines the effects of violent video games or any other violent media on acute stress.
4. It is hypothesized that participants in the violent video game condition will report more symptoms of anxiety than participants in the nonviolent video game condition demonstrated through differences in the post-condition measure as well as a differential change between the pre-condition and post-condition measures. Research demonstrates a link between violent news on television and anxiety (Slone, 2000), as well as an increase in anxiety while playing a violent video game (Anderson & Bushman, 1986; Ravaja et al., 2008).
5. It is hypothesized that participants in the violent video game condition will experience a greater feeling of presence in the video game than participants in the nonviolent video game condition as consistent with findings from Ivory and Kalyanaraman (2007).
6. It is hypothesized that participants in the violent video game condition will experience a greater feeling of involvement in the video game than participants in the nonviolent video game condition as consistent with findings from Ivory and Kalyanaraman (2007).
7. It is hypothesized that women in the violent video game condition will experience higher levels of state anxiety, peritraumatic dissociation, aggressive affect, feelings of presence, feelings of involvement, and acute stress than men in the violent video game condition

similar to findings by Fleming and Rickwood (2001) and Koukounas and McCabe (2001).

CHAPTER 3

METHOD

Participants

Participants were recruited via Georgia Southern University's SONA system and were awarded class credit for participation. The sample consisted of 120 participants, 60 (50%) men and 60 (50%) women. Participant age ranged from 18 to 25 years, with a mean of 19.73 years. The racial distribution was made up of 77 participants (64.2%) who identified as Caucasian, 30 participants (25%) who identified as Black, 3 participants (2%) who identified as Asian, and 10 participants (8.3%) who identified as "Other". The majority identified college class as Sophomores (44 participants; 36.7%), 40 (33.3%) identified as Freshman, 19 (15.8%) identified as Juniors, 16 (13.3%) identified as Seniors and 1 (0.8%) identified as "Other". Participants were asked where they lived prior to age 18; 14 participants (11.7%) stated they lived in an urban area or large city, 61 participants (50.8%) stated they lived in a suburban area, 36 participants (30%) stated the lived in a small city or small town, and 9 participants (7.5%) stated they lived in a rural area. In regard to experience with playing violent video games, 68 participants (56.7%) reported they had played violent video games before. Participants were also asked to report how long they had been playing violent video games; 44 participants (36.7%) played no violent video games, 12 participants (10%) played violent video games for 1 to 2 years, and 64 participants (53.3%) played violent video games for 3 or more years.

Design

The study is quasi-experimental in nature due to the examination of gender effects. It explored the effects of violence in video games and gender differences on symptoms of distress and trauma. Distress and trauma symptoms were measured through a number of outcomes including feelings of presence and involvement, aggressive affect, anxiety, acute stress, and

peritraumatic dissociation. Participant gender, assigned gaming condition and pre- condition versus post-condition of aggressive affect, acute stress, and anxiety served as independent variables. The subsequent measures of feelings of presence and involvement, aggressive affect, anxiety, acute stress, and peritraumatic dissociation served as dependent variables.

Materials

Xbox 360 from Microsoft®. The Xbox 360 from Microsoft® is a gaming console designed to allow the user to play video games, stream and watch movies, and view other media in up to 1080p high-definition resolution. It utilizes a wireless controller and is able to connect to the internet via Ethernet cable or wirelessly. For this study, we utilized the Xbox 360's gaming capability and the wireless controller. The Xbox 360 was connected to a projector screen through a component HDTV video cable and RCA stereo AV cable.

Video Games. The video games *Medal of Honor 2010* by Electronic Arts®, a first-person shooter based in a military combat setting, and *Geometry Wars: Retro Evolved 2* by Bizarre Creations®, an arcade-style game featuring a top-down view of a ship shooting at objects, were used for the violent and nonviolent conditions, respectively. In the violent video game condition, participants played the third level, *Belly of the Beast,* from *Medal of Honor 2010* by Electronic Arts®. This level involves warfare with graphic depictions of violence and death shown and performed by the player through a first-person viewpoint. In the nonviolent video game condition, participants played five rounds of "Deadline" in *Geometry Wars: Retro Evolved 2* by Bizarre Creations® where they attempted to destroy geometric shapes to increase their score within a 3-minute time frame.

Bejeweled 3 by PopCap Games® was used to assist the participants in relieving any negative effects the violent and nonviolent condition games may have caused. The participants played five minutes of the "Classic" mode in *Bejeweled 3* where they attempted to match as

many like-colored shapes of three or more in a vertical or horizontal manner. This video game was used because it is considered a casual game. Casual games are shown to increase positive mood (Russoniello et al., 2009).

Measures

Feelings of Presence Scale (Ivory & Kalyanaraman, 2007; Schneider et al., 2004). The Feelings of Presence Scale consists of three items that measure perceived presence. These three items were combined to form a single "presence" index. The Feelings of Presence Scale has satisfactory reliability (α =.79 - .88) and construct validity with the Self-Assessment Manikin (SAM) presence scale (Ivory & Kalyanaraman, 2007; Schneider et al., 2004). The questions are answered on a 7-point Likert-type scale with possible scores ranging from 1 to 21. Higher scores indicate greater perceived presence (See Appendix A).

Feelings of Involvement Scale (Ivory & Kalyanaraman, 2007; Kalyanaraman & Sundar, 2006). The Feelings of Involvement Scale consists of six items that measure involvement. These six items were combined to form an "involvement" index. The Feelings of Involvement Scale has good reliability (α = .90, Ivory & Kalyanaraman, 2007). The questions are answered on a 7-point Likert-type scale with possible scores ranging from 1 to 42. Higher scores indicate greater feelings of involvement in the video game (See Appendix B).

State Hostility Scale (SHS; Anderson, Carnagey, & Eubanks, 2003; Anderson, Deuser, & DeNeve, 1995; Carnagey & Anderson, 2005). The SHS consists of 35 items containing anger- and hostility-related adjectives and actions that measure aggressive affect. These 35 items were combined to form an "aggression" index. The SHS has high reliability (α = .90 and .95, Anderson et al., 2003). The questions are answered on a 5-point Likert-type scale. Possible scores range from 1 to 175 with higher scores indicating greater aggressive affect (See Appendix C).

The State-Trait Personality Inventory (STPI; Spielberger, 1995). The STPI consists of 80 items that measure state and trait anxiety, curiosity, anger, and depression and was initially normed on college students. The subscale used in this study was state anxiety.. The anxiety subscale consists of ten questions that are answered on a 4-point Likert-type scale with possible total scores ranging from 10 to 40. These ten items were combined into an "anxiety" index. Higher scores indicate greater anxiety symptoms felt in the immediate moment. The STPI state anxiety subscale demonstrates excellent internal consistency (α = .91-.94) and construct validity with other measures of anxiety (Spielberger, 1995) (See Appendix D).

The Peritraumatic Dissociative Experiences Questionnaire – Self Report Version (PDEQ; Marmar, Metzler, & Otte, 2004). The PDEQ consists of ten items that measure experiences of peritraumatic dissociation, or the experience of dissociation at the time of a trauma. These ten items were combined to form a "pertiraumatic dissociation" index. The PDEQ has good internal consistency (α = .85) and convergent validity (Marmar et al., 2004). The questions are answered on a 5-point Likert-type scale with possible scores ranging from 10 to 50. Higher scores indicate greater experiences of peritraumatic dissociation (See Appendix E).

The Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995). The anxiety subscale consists of seven items that measure experiences of acute, or immediate, stress. These seven items were combined to form an "acute stress" index. The stress scale of the DASS has great reliability (α = .91) and good concurrent validity with other anxiety measures (Antony et al., 1998). The questions are answered on a 4-point Likert-type scale with possible scores ranging from 0 to 28. Higher scores indicate greater experiences of acute stress (See Appendix F).

Demographics Questionnaire. Participants provided basic demographic information (e.g., age, gender, ethnicity, sexual orientation) as well as a manipulation check to assess knowledge of the hypothesis (See Appendix G).

Procedure

Upon arrival, participants were asked to read the informed consent form, given the opportunity to ask questions, and signed the informed consent to participate. Participants then completed the State Hostility Scale (SHS), the state anxiety form of the State-Trait Personality Inventory (STPI) and the stress scale of the Depression Anxiety Stress Scale (DASS). Next, participants were randomly assigned to play either a violent or nonviolent video game for 15 minutes. Participants were not told which video game condition they were in until this point. Before beginning play, basic rules and controls for the video game were explained to the participant. To encourage participants to play to the best of their ability, they were told they would be ranked on how well they did; however, rankings were not used in analyses. Immediately upon completion of 15 minutes of gameplay, participants completed several assessments, including the Feelings of Presence scale (FPS), Feelings of Involvement scale (FIS), the Peritraumatic Dissociative Experiences Questionnaire – Self Report Version (PDEQ), State Hostility Scale (SHS), the stress scale of the Depression Anxiety Stress Scale (DASS) and the state anxiety form of the State-Trait Personality Inventory (STPI). The experimenter then collected the surveys and participants completed the demographics questionnaire. The demographics questionnaire included a suspicion-probing question to assess whether participants knew the hypotheses of the experiment. Participants were then invited to play *Bejeweled 3* for five minutes in order to reduce any negative effects of the violent or nonviolent video game. Upon completion, participants were debriefed about the experiment and given documentation of their participation in the experiment (See Appendix H).

CHAPTER 4

RESULTS

A series of 2 x 2 (Condition [Violent, Nonviolent] x Gender [Men, Women]) Analyses of Variance (ANOVAs) were conducted to examine the effects of violent video games and gender on feelings of involvement, feelings of presence, and peritraumatic dissociation. Additionally, a series of 2 x 2 x 2 (Condition [Violent, Nonviolent] x Gender [Men, Women] x Time Difference [PreCondition Measure, PostCondition Measure]) Mixed Analyses of Variance (ANOVAs) were conducted to examine the effects of violent video games, gender, and pretest versus posttest scores on state anxiety, aggressive affect, and acute stress.

Feelings of Involvement

To assess the effects of violent video games and gender on feelings of involvement, a 2 x 2 ANOVA revealed a significant overall effect, $F(3, 116) = 4.49$, $p < .01$, $\eta^2 = .10$ as well as main effects for condition, $F(1, 116) = 6.98$, $p < .01$, $\eta^2 = .06$, and gender, $F(1, 116) = 5.55$, $p < .05$, $\eta^2 = .05$. However, there was no significant interaction between gender and condition, $F(1, 116) = 0.97$, $p = .33$, $\eta^2 = .01$.

A One-Way ANOVA was conducted to explore the main effect of condition on feelings of involvement. There was a significant difference between the nonviolent video game condition and the violent video game condition, $F(1,118) = 6.72$, $p < .05$, with participants in the nonviolent video game condition reporting greater feelings of involvement ($M = 31.02$, $SD = 8.00$) than participants in the violent video game condition ($M = 27.30$, $SD = 7.70$).

Finally, a One-Way ANOVA was analyzed to observe the main effect of gender on feelings of involvement. There was a significant difference between men and women, $F(1,118) =$

5.29, $p < .05$, with men reporting greater feelings of involvement ($M = 30.82$, $SD = 7.02$) than women ($M = 27.50$, $SD = 8.69$).

Feelings of Presence

To analyze the effects of violent video games and gender on feelings of presence, a 2 x 2 ANOVA revealed a significant overall effect, $F(3, 116) = 3.15$, $p < .05$, $\eta^2 = .08$, and a significant main effect of condition, $F(1, 116) = 9.30$, $p < .01$, $\eta^2 = .07$. There was no significant main effect for gender, $F(1, 116) = .06$ $p = .81$, $\eta^2 = .00$ and no significant interaction between gender and condition, $F(1, 116) = .10$, $p = .75$, $\eta^2 = .00$.

A One-Way ANOVA was analyzed to observe the main effect of condition on participants reported feelings of presence. There was a significant difference between the nonviolent video game condition and violent video game condition, $F(1,118) = 9.45$, $p < .01$, with participants in the nonviolent video game condition ($M = 14.69$, $SD = 4.89$) reporting greater feelings of presence compared to participants in the violent video game condition ($M = 12.03$, $SD = 4.58$).

Peritraumatic Dissociation

To assess the effects of violent video games and gender on peritraumatic dissociation, a 2 x 2 ANOVA revealed a significant overall effect, $F(3, 116) = 4.33$, $p < .01$, $\eta^2 = .10$, and a significant main effect of condition, $F(1, 116) = 6.03$, $p < .05$, $\eta^2 = .05$. The main effect for gender approached significance, $F(1, 116) = 5.55$, $p = .07$, $\eta^2 = .03$. The interaction between condition and gender also approached significance, $F(1, 116) = 3.54$, $p = .06$, $\eta^2 = .03$.

A One-Way ANOVA was analyzed to observe the main effect of condition on participants reported levels of peritraumatic dissociation. There was a significant difference

between the nonviolent video game condition and the violent video game condition, $F(1,118) = 5.78$, $p < .05$, with participants in the violent video game condition ($M = 20.82$, $SD = 8.47$) reporting higher levels of peritraumatic dissociation than participants in the nonviolent video game condition ($M = 17.68$, $SD = 5.49$).

Pre-Condition Measures

Three One-Way ANOVAs were analyzed to determine if there were any significant differences between the nonviolent video game condition and violent video game condition in state anxiety, $F(1,118) =1.27$, $p = .26$, aggressive affect, $F(1,118) = .521$, $p = .47$, and acute stress, $F(1,118) = 1.17$, $p = .28$. These ANOVAs were analyzed to ensure that there were no differences between conditions. There were no significant differences found which indicates that any differences in the 2 x 2 x 2 Mixed ANOVAs are due to the independent variables.

State Anxiety

To assess the effects of violent video games, gender, and the difference between precondition measures and postcondition measures on state anxiety a 2 x 2 x 2 Mixed ANOVA was utilized. The 2 x 2 x 2 ANOVA revealed a significant overall effect, F (1, 116) = .72, $p <$ .001, $\eta^2 = .28$. There was also a significant main effect of gender, $F(1,116) = 13.11$, $p < .05$, $\eta^2 =$ .10. There was no significant main effect of condition. There were no significant interactions. A paired-samples t-test was analyzed to observe the main effect of measure difference before and after the assigned condition. The analysis revealed a significant difference between the precondition measure and the postcondition measure, $t(119) = 6.62$, $p < .001$, with participants reporting higher state anxiety at postcondition, ($M = 18.98$, $SD = 5.17$), than at precondition ($M = 15.88$, $SD = 4.72$).

Two One-Way ANOVAs were analyzed to observe the main effect of gender on state anxiety at both pre-condition measure and post-condition measure. The analysis found that there is a significant difference between men and women, $F(1,118) = 4.94$, $p < .05$, at precondition with women reporting higher levels of state anxiety ($M = 16.82$, $SD = 5.31$) than men ($M = 14.93$, $SD = 3.87$). There was also a significant difference between men and women, $F(1,118) = 14.42$, $p < .001$, at postcondition with women reporting higher levels of state anxiety ($M = 20.68$, $SD = 5.22$) than men ($M = 17.28$, $SD = 4.57$).

Aggressive Affect

A 2 x 2 x 2 ANOVA was utilized to test the effects of violent video games, gender, and the difference between the precondition measure and the postcondition measure on feelings of aggressive affect. It revealed a significant overall effect, $F(1, 116) = 48.20$, $p < .001$, $\eta^2 = .29$. There was a significant three-way interaction between measure difference, condition, and gender, $F(1, 116) = 5.18$, $p < .05$, $\eta^2 = .04$. The interaction between measure difference and gender was approaching significance, $F(1, 116) = 3.76$, $p = .055$, $\eta^2 = .03$. There was no significant interaction between measure difference and condition. There were no significant main effects for condition, $F(1,116) = .11$, $p = .74$, or gender, $F(1,116) = .30$, $p = .59$. A paired-samples t-test was analyzed to observe the main effect of measure difference before and after the assigned condition. The analysis revealed a significant difference between the precondition measure and the postcondition measure, $t(119) = 6.78$, $p < .001$, with participants reporting higher aggressive affect at the postcondition, ($M = 74.20$, $SD = 22.53$), than at the precondition ($M = 61.85$, $SD = 15.47$).

For participants in the violent video game condition, two Univariate analyses were utilized to determine if there were differences in aggressive affect between men and women at

precondition and postcondition measures of the violent video game condition. For the premeasure, there was no significant difference between men and women, $F(1,58) = .02$, $p > .05$. For the postmeasure, there was a significant difference between men and women, $F(1,58) = 7.21$, $p < .01$, with women ($M = 81.97$, $SD = 26.14$) reporting higher levels of aggressive affect than men ($M = 67.40$, $SD = 14.11$).

For participants in the nonviolent video game condition, two Univariate analyses were utilized to determine if there were differences in aggressive affect between men and women at precondition and postcondition measures of the nonviolent video game condition. There were no significant differences between men and women at the precondition, $F(1,58) = .43$, $p = .52$, or postcondition measures, $F(1,58) = .53$, $p = .47$.

Acute Stress

A 2 x 2 x 2 ANOVA was utilized to test the effects of violent video games, gender, and the difference between precondition measures and postcondition measures on levels of acute stress. It revealed a significant overall effect, $F\ (1, 116) = 34.18$, $p < .001$, $\eta^2 = .23$. There was a significant interaction between measure difference and condition, $F(1, 116) = 40.84$, $p < .05$, $\eta^2 = .05$. The test of between subjects showed a significant interaction between condition and gender, $F(1,116) = 5.67$, $p < .05$. There were no other significant interactions or main effects. A paired-samples t-test was analyzed to observe the main effect of measure difference before and after the assigned condition. The analysis revealed a significant difference between the precondition measure and the postcondition measure, $t(119) = 5.66$, $p < .001$, with participants reporting higher acute stress at the postcondition measure, ($M = 5.23$, $SD = 4.54$), than at the precondition measure ($M = 3.19$, $SD = 3.65$).

Two One-Way ANOVAs were analyzed to observe any differences in acute stress between participants in the nonviolent condition and the violent condition at precondition and postcondition measures. There were no significant differences between participants in the nonviolent condition and the violent condition when looking at precondition, $F(1, 118) = 2.69$, $p = .10$, or postcondition measures, $F(1,118) = .47$, $p = .50$.

Two One-Way ANOVAs were analyzed to examine for any differences in acute stress between men and women in the nonviolent and violent conditions. There was a significant difference between men and women in the violent video game condition, $F(1,58) = 10.80$, $p < .01$, with women reporting higher levels of acute stress ($M = 6.70$, $SD = 4.95$) than men ($M = 3.20$, $SD = 3.09$). There was no significant difference between men and women in the nonviolent video game condition, $F(1,58) = .41$, $p = .53$.

Rurality

A MANOVA was utilized to examine the differences between living in a small town/rural area and an urban /suburban area on participant's reports of feelings of involvement, feelings of presence, peritraumatic dissociation, state anxiety, aggressive affect, and acute stress. The results indicate there was no significant difference between participants who lived in a small town/rural are and an urban/suburban area, $F(6, 113) = .621$, $p > .05$.

CHAPTER 5

DISCUSSION

The purposes of the current study were to: 1) examine the effects that violent video games had on feelings of involvement, feelings of presence, peritraumatic dissociation, aggressive affect, state anxiety, and acute stress; and 2) to determine if there were any difference in responses on feelings of involvement, feelings of presence, peritraumatic dissociation, aggressive affect, state anxiety, and acute stress between men and women.

Feelings of Involvement

Surprisingly, current findings indicate that both men and women experienced higher feelings of involvement when playing a nonviolent video game compared to those playing a violent video game. These results are inconsistent with the proposed hypothesis and past research showing that violent video games elicit higher feelings of involvement when compared to nonviolent video games (Ivory & Kalyanaraman, 2007). A possible explanation for this effect may be a lack of narrative presented in the violent video game. Schneider and collegues (2004) found that the presence of narrative in video games increased the players identification with their characters and made them more enjoyable. Future studies should incorporate violent and nonviolent video games that have narratives to control for the possible effect this may have on the variables.

In addition, men showed higher reported feelings of involvement when compared to women, regardless of condition. This is inconsistent with the hypothesis that women would feel greater feelings of involvement when compared to men. One possible explanation for this finding is that previous research by Koukounas and McCabe (2001), showed that men experienced greater positive feelings and a higher entertainment value while watching violent films,

compared to women who reported more disgust and boredom. As such, it can be inferred that men had a greater feeling of involvement due to positive feelings toward the violent video game while women reported lower feelings of involvement due to feelings of disgust and boredom.

Feelings of Presence

The results from the current study indicate that both men and women experienced a greater feeling of presence when playing nonviolent video games when compared to violent video games. This is inconsistent with the hypothesis and past research which indicate that participants playing a violent video game report greater feelings of presence compared to those who play a nonviolent video game (Ivory & Kalyanaraman, 2007).

It is possible that lack of narrative within the video games used in the current study may contribute to the unexpected greater feelings of presence in the nonviolent video game condition. Schneider and colleagues (2004) reported that when a violent video game is paired with an in-depth narrative, participants have a greater feeling of presence within the video game. However, in the current study, the violent video game was queued to a particular point for each participant, which limited the back story and narrative of the game. Further, when presented with violent stimuli without the presentation of the story line, it is likely that the participants reacted in a way to separate themselves psychologically from the stressor. This phenomenon was shown in a study by DeWall and Baumeister (2011) that found that when participants were presented with a stressor (e.g., being told they have a lonesome future), they showed significant reduction in sensitivity to physical pain as well as a reduction in emotional sensitivity.

In the future, studies should examine the effect of allowing participants to fully immerse themselves in each game. One way to do so would be to have participants learn and play the

game over several sessions in the lab to identify when feelings of presence start to increase and to see how other variables change as a result.

Peritraumatic Dissociation

Results indicate that participants who played a violent video game reported significantly more peritraumatic dissociation than participants who played the nonviolent video game. However, in looking at gender differences, women showed greater peritraumatic dissociation when playing a violent video game when compared to playing a nonviolent video game. There was little difference between men playing the violent video game and nonviolent video game. These results support the proposed hypothesis that violent video games elicit peritraumatic dissociation and further support the research by Carleton and colleagues which showed that horror movies can elicit peritraumatic dissociation (Carleton et al., 2011). The results also support the hypothesis that violent video games effect men and women differently, with women experiencing more peritraumatic dissociation than men. Further studies should examine the specific content that may lead to this effect. As stated above, many aspects of violent video games (e.g., blood and gore) have been shown to elicit aggressive responses. It is possible that these same aspects of violent video games may lead to greater pertitraumatic dissociation.

These findings further elucidate that a person who experiences a possible significant stressor, in this case playing a violent video game, can experience feelings of depersonalization and derealization. In addition, they feel that what is happening within the video game is actually happening to them and experience an altered sense of time where it is moving either slower or faster than in reality.

State Anxiety

Results from a 2 x 2 x 2 Mixed ANOVA indicate an increase in state anxiety in both the nonviolent and violent video game conditions from precondition to postcondition; both video games caused an increase in reported state anxiety. These results are inconsistent with the hypothesis and previous research that violent media causes a higher report of anxiety when compared to nonviolent media (Anderson & Bushman, 1986; Ravaja et al., 2008).

It may be that both video games were frustrating to the participants. In the violent condition, the level became increasingly more difficult due to a greater number of enemies as the player progressed through the level. The same can be said about the nonviolent condition; as the player earned more points, the geometric shapes became more difficult and greater in number. Past research shows that higher frustration can lead to higher levels of aggression (Berkowitz, 1989; Fox & Spector, 1999) and that one of the factors causing frustration to increase the level of aggression was the presence of anxiety (Fox & Spector, 1999). Future studies should look at the presence of frustration and how it may lead to a greater feeling of anxiety, regardless of level of violence.

With regard to the differences in gender and reports of state anxiety, women reported higher levels of state anxiety than men. These results are consistent with the hypothesis that women would feel more anxiety when playing violent video games compared to men. Future studies should examine which specific characteristics (eg. gore, violent acts, violent language, etc.) show the greatest increase in state anxiety, particularly in for women.

Aggressive Affect

Results indicate that both men and women reported a significant increase in aggressive affect, regardless of condition. However, when men and women were examined separately,

women showed a greater increase in aggressive affect when playing violent video games versus nonviolent video games. In men, this effect was reversed, lower reported aggressive affect in the violent video game versus nonviolent video game conditions. These findings are inconsistent with the proposed hypothesis and fail to support research indicating that aggressive affect increases when people play violent video games, compared to playing nonviolent video games (Anderson & Bushman, 2001; Anderson & Ford, 1986; Bushman & Anderson, 2002).

It is possible that the nonviolent video game was more frustrating compared to the violent video game. Berkowitz (1989) found that the more frustration a person feels, the greater the exhibited aggression by that person. Anderson and Bushman (2001) stated that nonviolent games can cause aggressive responses if they are frustrating. During this study, it is possible that the participants playing the nonviolent video game may have experienced more frustration due to the difficulty of the game and the high frequency of times their geometric shape was hit. Due to the potential frustrating aspect of the nonviolent video game, it can be postulated that the nonviolent video game could have caused an equal increase in aggressive affect on these players when compared to the players playing a violent video game.

Additionally, Anderson and Morrow (1995) found that violent video games that incorporate competition cause players to report situations as more aggressive than violent video games that do not have competitive components. They also found that participants killed more video game characters when competition was present. This also partially explains the findings. Even though participants in both conditions were told they would be scored on how well they did in the video game, the nonviolent video game kept track of participants' scores while the violent video game did not have a scoring system and had the participants move through a linear level completing objectives. In future studies, researchers should choose conditions in which both the

violent and nonviolent games allow the participants to view their score, as to keep the competitive aspect of both games equal.

When examining gender differences, these results support the hypothesis and similar research that women experience greater feelings of aggressive affect than men when playing a violent video game (Fleming & Rickwood, 2001; Koukounas & McCabe, 2001). Fleming and Rickwood's (2001) suggest that a person may become desensitized to violence as they continue to play violent video games. Statistics show that twice as many men than women play violent video games (Kaiser Family Foundation, 2009). Considering this evidence, it is noteworthy to point out that in this particular sample, men reported greater experience with violent video games (88.3%) than women (15%). However, given the amount of men with experience playing violent video games being far greater than women, the current study could not examine this factor.

Koukounas and McCabe (2001) found that men experienced more positive emotions when playing violent video games while women experienced more negative emotions. Due to these differences in experienced emotions, it can be inferred that hostility would be lower for men than women after playing a violent video game.

Acute Stress

Results indicate that acute stress increased for participants in both conditions. However, participants who played a nonviolent video game had a more significant increase in their acute stress. These results do not support the hypothesis suggesting violent video games will have a greater impact on acute stress compared to nonviolent video games.

These findings can be explained by the possibility that the nonviolent video game was more frustrating than the violent video game condition. The participants in the nonviolent video

game condition may have experienced more frustration due to the difficulty of the game. This increase in frustration may have resulted in the participants in the nonviolent video game condition experiencing more stress than the participants in the violent video game condition.

In regard to gender differences, results indicate that women who played the violent video game had a significant increase in reported acute stress when compared to men who played the violent video game. These results support the hypothesis that women would report a greater increase in acute stress than men when playing violent video games. Future research should identify if there are specific aspects of the game which cause this effect and also should examine whether there are specific components that could cause this effect with men.

Practical Implications

The current study highlights a variety of practical implications worth noting. The implications may serve researchers who wish to conduct further investigation into the effects of violent video games on both men and women and also mental health practitioners who are concerned about aggression, anxiety, stress, and peritraumatic dissociation in clinical populations.

Research Method Implications. Given that 65% of households play video games (Entertainment Software Association, 2008; Lenhart, Jones, & Macgill, 2008) and approximately 89% of those video games are violent in nature (Carnagey & Anderson, 2004), it is important to examine the effects of violent video games in media research. As stated previously, much research has investigated the negative effects of violent video games pertaining to aggression. Little research is available on other negative effects of violent video games. Although the results were varied regarding the effects of violent video games, the current study expands upon

previous research and concludes that violent video games can cause immediate increases in stress, aggressive affect, anxiety, and peritraumatic dissociation. Specifically, this study shows women have greater reports of acute stress, aggressive affect, state anxiety, and peritraumatic dissociation than men when playing a violent video game. Further research should identify if there are specific aspects of the video games which are causing these effects. Furthermore, future research needs to identify if there are components of the video games which cause any similar effects in males. If not, future research needs to identify the innate factors between this gender differential to determine what protective factors are at play with men.

Finally, new hardware and software (e.g., graphics cards, Xbox One, PS4) are coming out on a continuous basis which make video games more realistic then they have ever been. A recent article posted to IGN interviewed a major video game developer when he stated that he expects video games to have photorealistic graphics within the next ten years (Warr, 2013). Little research has been performed to examine the effects of photorealistic graphics have on players.

Theoretical Implications. Although some of the current findings were unexpected in regard to the relationship between violent video games and symptoms of distress and trauma, the results may offer some important insights into the theories of violent video games and their negative effects. The current study proposed that violent video games may cause an increase in reports of feelings of involvement and presence, peritraumatic dissociation, state anxiety, aggressive affect, and acute stress. Based on the results of the current study, it seems that violent video games may have an opposite effect than expected with men. For instance, it is possible that men reported lower levels of symptoms of distress and trauma when playing a violent video game due to desensitization to violence, as has been suggested in past research (Fleming & Rickwood, 2001). It is also possible that women may have an increase in state anxiety,

aggressive affect, and acute stress when playing video games regardless of whether the games are violent or nonviolent. As a result, future researchers may need to measure these symptoms utilizing different video games which specifically control for frustration, narrative, and graphical quality. Additionally, future research should utilize a more varied population (e.g., age groups, experience levels) to ensure that these effects are present in more than the studied demographics. Furthermore, future research should identify whether this gender difference can be explained by prior exposure to violent stimuli or whether a true gender difference exists.

Mental Health Implications. The implications of the current study may offer some useful perspectives on violent media eliciting symptoms consistent with a diagnosis of PTSD or acute stress disorder (ASD). Currently, the diagnostic criteria states that a person must experience or witness a traumatic event (APA, 2000). The current study demonstrated that a person can experience some symptoms related to PTSD and ASD by playing a violent video game. With this study and continued research examining similar aspects, the DSM criterion for PTSD and ASD may be expanded from witnessing a traumatic event to include watching, participating, or listening to media that can be stressful or traumatic in nature. This expansion may assist in realizing that use of violent media may be related to symptoms of PTSD or ASD.

Furthermore, this study, like countless studies previously conducted, indicates the need for parental supervision and involvement in the decisions their children are making regarding the media they consume. Effective interventions may be the single best deterrent when dealing with youth below the age of consent for violent media. While there are rating systems in place to prevent underage children from accessing inappropriate video games, parents must play an active role in this process in order for the system to be effective.

Rurality Implications

Finally, the results of the current study lead to some rural implications. The results of the MANOVA indicated that there was no significant difference between people who lived in a rural/small town area and people who lived in an urban/suburban area when looking at feelings of involvement, feelings of presence, peritraumatic dissociation, state anxiety, aggressive affect, and acute stress. A possible explanation for this may be that technology is consistently becoming more advanced and cheaper to make. This may make it easier for people to access violent media, especially violent video games. Additionally, access to violent video games may have increased due to an influx of stores (e.g., Wal-Mart) that sell violent video games, especially in small town/rural areas.

Limitations

A number of limitations to the current study warrant discussion. First, this study cannot be generalized to children, adolescents, or older adults due to the age range of 18 to 25 years for the sample. Also, the sample's demographics revealed a limitation in diversity. Specifically, the majority of the participants were Caucasian (64.2%) and had previously played violent video games for at least 3 years (53.3%). As a result, the generalizability of the results may be limited.

Furthermore, while the proposed study attempted to examine whether violent video games can elicit symptoms of distress and trauma, this is a sub-area of research not previously explored. Therefore, not all symptomatology relating to PTSD was examined in this study. It may be important for future research to focus on other symptoms related to PTSD.

This study also did not account for participants experiencing different amounts of reported frustration between the nonviolent and violent conditions. It is likely that the nonviolent

video game was more frustrating to players due to a steeper increase in difficulty compared to the violent condition and a possible greater sense of competition due to the presence of a score in the nonviolent video game. Future research could utilize video games that are equal in frustration and competition levels.

Consideration for the effect of violent video games is desensitization to violence and pain (Gowgiel & McIntosh, 2010). In the current study men showed an increase in state anxiety, aggressive affect, and acute stress when playing a nonviolent video game when compared to playing a violent video game. This may be due to a desensitization to violence in the violent video games in men. However, this could not be determined due to a minimal number of males who had no experience with violent video games.

Another limitation is that the current study utilized a quasi-experimental design. A limitation of this design is that at least one viariable cannot be randomly assigned which could cause unexpected differences in the measures between variables. Additionally a quasi-experimental design cannot show cause and effect. Another limitation related to the design of the study is that multiple ANOVAs were utilized to analyze the data. Using multiple tests on the same data set causes Family-wise error which increases the chances of a Type 1 error (Field, 2013).

Finally, the generalizability of this study must be taken into account. The current study was conducted in a conference room setting with the video game projected from an overhead projector. The study was also not able to utilize technology (e.g., HDTV and HDMI cable) that would allow for the best graphical presentation of the video game. Both the size and the graphical quality of the presented content are inconsistent with what typical video game players

would encounter in a home setting. As such, the findings of the current study are limited to these settings.

Overall Conclusions

The current findings offer some insight into the relationship between violent video games, gender, and symptoms of distress and trauma. Most notably, this study revealed that violent video games can cause peritraumatic dissociation in women, but this effect was not found in men. Also, video games increased women's state anxiety, aggressive affect, and acute stress, regardless of whether the game was violent or nonviolent. In men, nonviolent video games increased the participant's state anxiety, aggressive affect, and acute stress compared to the violent condition. This was an unexpected result and could be explained by experience with violent video games causing desensitization and the nonviolent video game possibly being more frustrating than the violent video game. However, neither of these aspects were measured in the current study and all results should be considered within the limitations of the study. Due to these factors, it is recommended that future studies re-examine these questions using a more diverse sample, especially comparing participants who consistently play violent video games and those who have no experience with violent video games. It is also recommended that future studies utilize violent and nonviolent video games that are more similar in level of frustration. While this current study successfully looked at the difference between a violent video game and nonviolent video game in regard to symptoms of distress and trauma, levels of frustration were not measured to determine effects on the stated measures.

In terms of practical application, this study could lead to future research on other negative effects of violent video games. Specifically, just as this study found that women experienced higher peritraumatic dissociation in violent video games, future studies may examine other

symptoms of PTSD such as re-experiencing events. In regard to future applications, therapists may be able to encourage clients to reduce play of violent video games due to their detrimental effects not only on aggression, but on anxiety, stress, and peritraumatic dissociation. Instead, clients may be encouraged to participate in prosocial and casual video games to encourage better mood and prosocial behaviors.

REFERENCES

Anderson, C. A., & Bushman, B. J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of the scientific literature. *Psychological Reports, 12*(5), 353-359. doi: 10.1111/1467-9280.00366

Anderson, C. A., Carnagey, N. I., & Eubanks, J. (2003). Exposure to violent media: The effects of songs with violent lyrics on aggressive thoughts and feelings. *Journal of Personality and Social Psychology, 84*(5), 960-971. doi: 10.1037/0022-3514.84.5.960

Anderson, C. A., Carnagey, N. L., Flanagan, M., Benjamin, Jr., A. J., Eubanks, J., & Valentine, J. C. (2004). Violent video games: Specific effects of violent content on aggressive thoughts and behavior. *Advances in Experimental Social Psychology, 36*, 199-249. doi: 10.1016/S0065-2601(04)36004-1

Anderson, C. A., Deuser, W. E., & DeNeve, K. M. (1995) Hot temperatures, hostile affect, hostile cognition, and arousal: Tests of a general model of affective aggression. *Personality and Social Psychology Bulletin, 21*(5), 434-448. doi: 10.1177/014167295215002

Anderson, C. A., & Ford, C. M. (1986). Affect of the game player: Short-term effects of highly and mildly aggressive video games. *Personality and Social Psychology Bulletin, 12*(4), 390-402. doi: 10.1177/0146167286124002

Anderson, C. A., & Morrow, M. (1995). Competitive aggression without interaction: Effects of competitive versus cooperative instructions on aggressive behavior in video games.

Personality and Social Psychology Bulletin, 21(10), 1020-1030. doi: 10.1177/01461672952110003

Anderson, C. A., & Murphy, C. R. (2003). Violent video games and aggressive behavior in young women. *Aggressive Behavior, 29*(5), 423-429. doi: 10.1002/ab.10042

Anderson, C. A., Sakamoto, A., Gentile, D. A., Ihori, N., Shibuya, A., Yukawa, S.,… Kobayashi, K. (2008). Longitudinal effects of violent video games on aggression in Japan and the United States. *Pediatrics, 122*(5), e1067-e1072. doi: 10.1542/peds.2008-1425

Angst, J., & Dobler-Mikola, A. (1985). The Zurich study: V. Anxiety and phobia in young adults. *European Archives of Psychiatry and Neurological Sciences, 235*(3), 171-178.

Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the depression anxiety stress scales in clinical groups and a community sample. *Psychological Assessment, 10*(2), 176-181.

Bartholow, B. D., Bushman, B. J., & Sestir, M. A. (2005). Chronic violent video game exposure and desensitization to violence: Behavioral and event-related brain potential data. *Journal of Experimental Social Psychology, 42*(4), 532-539. doi: 10.1016/j.jesp.2005.08.006

Barlett, C. P., Harris, R. J., & Baldassaro, R. (2007). Longer you play, the more hostile you feel: Examination of first person shooter video games and aggression during video game play. *Aggressive Behavior, 33*(6), 486-497. doi: 10.1002/ab.20227

Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin, 105*(1), 59-73.

Breslau, N., Davis, G. C., Andreski, P., & Peterson, E. L. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry, 48*(3), 216-222.

Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: The 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry, 55*(7), 626-632. doi: 10.1001/archpsyc.55.7.626

Bruce, S. E., Yonkers, K. A., Otto, M. W., Eisen, J. L., Weisberg, R. B., Pagano, M.,… Keller, M. B. (2005). Influence of psychiatric comorbidity on recovery and recurrence in generalized anxiety disorder, social phobia, and panic disorder: A 12-year prospective study. *The American Journal of Psychiatry, 162*(6), 1179-1187. doi: 10.1176/appi.ajp.162.6.1179

Bushman, B. J. (1998). Priming effects of media violence on the accessibility of aggressive constructs in memory. *Personality and Social Psychology Bulletin, 24*(5), 537-545. doi: 10.1177/0146167298245009

Bushman, B. J., & Anderson, C. A. (2002). Violent video games and hostile expectations: A test of the general aggression model. *Personality and Social Psychology Bulletin, 28*(12), 1679-1686. doi: 10.1177/014616702237649

Bushman, B. J., & Anderson, C. A. (2009). Comfortably numb: Desensitizing effects of media violence on helping others. *Psychological Science, 20*(3), 273-277. doi: 10.1111/j.1467-9280.2009.02287.x

Bushman, B. J., & Geen, R. G. (1990). Role of cognitive-emotional mediators and individual differences in the effects of media violence on aggression. *Journal of Personality and Social Psychology, 58*(1), 156-163. doi: 10.1037/0022-3514.58.1.156

Carleton, R. N., Sikorski, J., & Asmundson, G. J. G. (2010). Terrifying movie stimuli: A new design for investigation precursors for posttraumatic stress. *Psychological Trauma: Theory, Research, Practice, and Policy, 2*(3), 206-217. doi: 10.1037/a0020100

Carnagey, N. L., & Anderson, C. A. (2004). Violent video game exposure and aggression: A literature review. *Minerva Psychiatr, 45*(1), 1-18.

Carnagey, N. L., & Anderson, C. A. (2005). The effects of reward and punishment in violent video games on aggressive affect, cognition, and behavior. *Psychological Science, 16*(11), 882-889. doi: 10.1111/j.1467-9280.2005.01632.x

Carnagey, N. L, Anderson, C. A., & Bushman, B. J. (2007). The effect of video game violence on physiological desensitization to real-life violence. *Journal of Experimental Social Psychology, 43*(3), 489-496. doi: 10.1016/j.jesp.2006.05.003

Chan, D., Cheadle, A. D., Reiber, G., Unützer, J., & Chaney, E. F. (2009). Health care utilization and its costs for depressed veterans with and without comorbid PTSD symptoms. *Psychiatric Services, 60*(12), 1612-1617. doi: 10.1176/appi.ps.60.12.1612

Collimore, K. C., Carleton, R. N., Hofmann, S. G., & Asmundson, G. J. G. (2010). Posttraumatic stress and social anxiety: The interaction of traumatic events and interpersonal fears. *Depression and Anxiety, 27*(11), 1017-1026. doi: 10.1002/da.20728

Dennis, P. M. (1998). Chills and thrills: Does radio harm our children? The controversy over program violence during the age of radio. *Journal of the History of the Behavioral Sciences, 34*(1), 33-50. doi: 10.1002/(SICI)1520-6696(199824)34:1<33::AID-JHBS3>3.0.CO;2-K

Dewall, C. N., Twenge, J. M., Koole, S. L., Baumeister, R. F., Marquez, A., & Reid, M. W. (2011). Automatic emotion regulation after social exclusion: Tuning to positivity. *Emotion 11*(3), 623-636. doi: 10.1037/a0023534

Ehring, T., & Quack, D. (2010). Emotion regulation difficulties in trauma survivors: The role of trauma type and PTSD symptoms severity. *Behavior Therapy, 41*(4), 587-598. doi: 10.1016/j.beth.2010.04.004

Entertainment Software Association. (2008). Essential facts about the computer and video game industry. Washington, D.C.: ESA, 2008. www.theesa.com/facts/pdfs/esa_ef_2008.pdf

Fang, F., Zhang, Y., Yang, Y., Mo, L., & Liu, X. (2011). Symptoms of posttraumatic stress disorder, depression, and anxiety among adolescents following the 2008 Wenchuan earthquake in China. *Journal of Traumatic Stress, 24*(1), 44-53. doi: 10.1002/jts.20599

Farrar, K. M., Krcmar, M., & Nowak, K. L. (2006). Contextual features of violent video games, mental models, and aggression. *Journal of Communication, 56*(2), 387-405. doi: 10.1111/j.1460-2466.2006.00025.x

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). California: Sage Pulications.

Fleming, M. J., & Rickwood, D. J. (2001) Effects of violent versus nonviolent video games on children's arousal, aggressive mood, and positive mood. *Journal of Applied Social Psychology, 31*(10), 2047-2071. doi: 10.1111/1559-1816.2001.tb00163.x

Forbes, D., Lockwood, E., Lehai, J. D., Creamer, M., O'Donnell, M., Bryant, R.,… Silove, D. (2011). An examination of the structure of posttraumatic stress disorder in relation to the anxiety and depressive disorders. *Journal of Affective Disorders, 132*(1-2), 165-172. doi: 10.1016/j.jad.2011.02.011

Fox, S., & Spector, P. E. (1999). A model of work frustration-aggression. *Journal of Organizational Behavior, 20*(6), 915-931. doi: 10.1002/(SICI)1099-1379(199911)20:6<915::AID-JOB918>3.0.CO;2-6

Frayne, S. M., Chiu, V. Y., Iqbal, S., Berg, E. A., Laungani, K. J., Cronkite, R. C.,… Kimerling, R. (2011). Medical care needs of returning veterans with PTSD: Their other burden. *Journal of General Internal Medicine, 26*(1), 33-39. doi: 10.1007/s11606-010-1497-4

Gowgiel, A. A., & McIntosh, W. D. (2010). Physical versus economic societal threat: How 9-11 and the Great Recession of 2008 influenced viewers' consumption of serious, sexual and violent television content. *Journal of Media Psychology, 15*(3), 1-17.

Greitemeyer, T., Osswalk, S., & Brauer, M. (2010). Playing prosocial video games increases empathy and decreases shadenfreude. *Emotion, 10*(6), 796-802. doi: 10.1037/a0020194

Gros, D. F., Simms, L. J., & Acierno, R. (2010). Specificity of posttraumatic stress disorder symptoms: An investigation of comorbidity between posttraumatic stress disorder

symptoms and depression in treatment-seeking veterans. *The Journal of Nervous and Mental Disease, 198*(12), 885-890. doi: 10.1097/NMD.0b013e3181fe7410

Hagenaars, M. A., Fisch, I., & van Minnen, A. (2011). The effect of trauma onset and frequency on PTSD-associated symptoms. *Journal of Affective Disorders, 132*(1-2), 192-199. doi: 10.1016/j.jad.2011.02.017

Hashemian, F., Khoshnood, K., Desai, M. M., Falahati, F., Kasl, S., & Southwick, S. (2006). Anxiety, depression, and posttraumatic stress in Iranian survivors of chemical warfare. *JAMA: Journal of American Medical Association, 286*(5), 560-565. doi: 10.1001/jama.296.5.560

Irish, L. A., Fischer, B., Fallon, W., Spoonster, E., Sledjeski, E. M., & Delahanty, D. L. (2011). Gender differences in PTSD symptoms: An exploration of peritraumatic mechanisms. *Journal of Anxiety Disorders, 25*(2), 209-216. doi: 10.1016/j.anxdis.2010.09.004

Ivory, J. D., & Kalyanaraman, S. (2007). The effects of technological advancement and violent content in video games on players' feelings of presence, involvement, physiological arousal, and aggression. *Journal of Communication, 57*(3), 532-555. doi: 10.1111/j.1460-2466.2007.00356.x

Jovanovic, T., Norrholm, S. D., Blanding, N. Q., Davis, M., Duncan, E., Bradley, B., & Ressler, K. J. (2010). Impaired fear inhibition is a biomarker of PTSD but not depression. *Depression and Anxiety, 27*(3), 244-251. doi: 10.1002/da20663

Kaiser Family Foundation. (2009). Generation M^2: Media in the lives of 8- to 18-year-olds. Retrieved 4, March 2011 from http://www.kff.org/entmedia/upload/mh012010presentL.pdf

Kalyanaraman, S., & Sundar, S. S. (2006). The psychological appeal of personalized content in Web portals: Does customization affect attitudes and behavior? *Journal of Communication, 56*(1), 110-132. doi: 10.1111/j.1460-2466.2006.00006.x

Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry, 52*(12), 1048-1060.

Konijn, E. A., Bijvank, M. N., & Bushman, B. J. (2007). I wish I were a warrior: The role of wishful identification in the effects of violent video games on aggression in adolescent boys. *Developmental Psychology, 43*(4), 1038-1044. doi: 10.1037/0012-1649.43.4.1038

Koukounas, E., & McCabe, M. P. (2001). Emotional responses to filmed violence and the eye blink startle response: A preliminary investigation. *Journal of Interpersonal Violence, 16*(5), 476-488. doi: 10.1177/088626001016005006

Kuhn, E., Drescher, K., Ruzek, J., & Rosen, C. (2010). Aggressive and unsafe driving in male veterans receiving residential treatment for PTSD. *Journal of Traumatic Stress, 23*(3), 399-402. doi: 10.1002/jts.20536

Lazarus, R. S. (1991). Emotion and adaptation. New York: Oxford Univ. Press

Lee, K. M. (2004). Presence, explicated. *Communication Theory, 14*(1), 27-50.

Lenhart, A., Jones S., & Macgill, A. R. (2008). Adults and video games. Washington D.C.: Pew Internet and American Life Project, 2008, www.pewinternet.org/pip_adult_gaming_memo.pdf

Lombard, M., & Ditton, T. B. (1997). At the heart of it all: The concept of presence. *Journal of Computer-Mediated Communication, 3*(2). Retrieved March 25, 2013, from http://jcmc.indiana.edu/vol3/issue2/lombard.html.

Lennings, H. I. B., & Warburton, W. A. (2011). The effect of auditory versus visual violent media exposure on aggressive behavior: The role of song lyrics, video clips, and musical tone. *Journal of Experimental Social Psychology, 47*(4), 794-799. doi: 10.1016/j.jesp.2011.02.006

Marmar, C. R., Metzler, T. J., & Otte, C. (2004). The peritraumatic dissociative experiences questionnaire. In J. Wilson & T. Keane (Eds.), Assessing psychological trauma and PTSD (pp. 144-167). New York: Guilford Press.

Mayou, R., Bryant, B., & Ehlers, A. (2001). Prediction of psychological outcomes one year after a motor vehicle accident. *The American Journal of Psychiatry, 158*(8), 1231-1238. doi: 10.1176/appi.ajp.158.8.1231

McFarlane, A. C., & Papay, P. (1992). Multiple diagnoses in posttraumatic stress disorder in the victims of a natural disaster. *Journal of Nervous and Mental Disease, 180*(8), 498-504. doi: 10.1097/00005053-199208000-00004

McLean, C. P., Asnaani, A., Litz, B. T., & Hofmann, S. G. (2011). Gender differences in anxiety disorders: Prevalence, course of illness, comorbidity and burden of illness. *Journal of Psychiatric Research, 45*(8), 1027-1035. doi: 10.1016/j.psychires.011.03.006

Ohrmann, P., Pedersen, A., Braun, M., Bauer, J., Kugel, H., Kersting, A.,… Suslow, T. (2010). Effect of gender on processing threat-related stimuli in patients with panic disorder: Sex does matter. *Depression and Anxiety, 27*(11), 1034-1043. doi: 10.1002/da.20721

Olatunji, B. O., Ciesielski, B. G., & Tolin, D. F. (2010). Fear and loathing: A meta-analytic review of the specificity of anger in PTSD. *Behavior Therapy, 41*(1), 93-105. doi: 10.1016/j.beth.2009.01.004

Ravaja, N., Turpeinen, M., Saari, T., Puttonen, S., & Keltikangas-J□rvinen, L. (2008). The psychophysiology of James Bond: Phasic emotional responses to violent video game events. *Emotion, 8*(1), 114-120. doi: 10.1037/1528-3542.8.1.114

Regier, D. A., Narrow, W. E., & Rae, D. S. (1990). The epidemiology of anxiety disorders: The epidemiological catchment area (ECA) experience. *Journal of Psychiatric Research, 24*(Suppl. 2), 3-14.

Russoniello, C. V., O'Brien, K., & Parks, J. M. (2009). The effectiveness of casual video games in improving mood and decreasing stress. *Journal of CyberTherapy & Rehabilitation, 2*(1), 53-66.

Schneider, E. F., Lang, A., Shin, M., & Bradley, S. D. (2004). Death with a story: How story impacts emotional, motivational, and physiological responses to first-person shooter games. *Human Communication Research, 30*(3), 361-375. doi: 10.1093/hcr/30.3.361

Slone, M. (2000). Responses to media coverage of terrorism. *Journal of Conflict Resolution, 44*(4), 508-522. doi: 10.1177/0022002700044004005

Spielberger, C. D. (1995) *State-Trait Personality Inventory research manual sampler set*. Menlo Park, CA: Mind Garden Inc.

Sundquist, K., Johansson, L., DeMarinis, V., Johansson, S., & Sundquist, J. (2005). Posttraumatic stress disorder and psychiatric co-morbidity: Symptoms in a random sample of female Bosnian refugees. *European Psychiatry, 20*(2), 158-164. doi: 10.1016/j.eurpsy.2004.12.001

Tamborini, R., & Skalski, P. (2006). The role of presence in the experience of electronic games. In Vorderer, P & Bryant, J. (Eds.), *Playing video games: Motives, responses, and consequences* (pp. 225-240). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Tolin, D. F., & Foa, E. B. (2006). Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychological Bulletin, 132*(6), 959-992. doi: 10.1037/0033-2909.132.6.959

Warr, P. (2013). *Epic founder predicts photorealistic graphics within ten years.* Retrieved from http://www.wired.co.uk/news/archive/2013-07/12/tim-sweeney-photorealistic-graphics

Williams, K. D. (2009). The effects of frustration, violence, and trait hostility after playing a video game. *Mass Communication and Society, 12*(3), 291-310. doi: 10.1080/15205430802461087

Witmer, B. G., & Singer, M. J. (1998). Measuring presence in virtual environments: A presence questionnaire. *Presence: Teleoperators and Virtual Environments, 7*(3), 225-240.

Zayfert, C., Becker, C. B., Unger, D. L., & Shearer, D. K. (2002). Comorbid anxiety disorders in civilians seeking treatment for posttraumatic stress disorder. *Journal of Traumatic Stress, 15*(1), 31-38. doi: 10.1023/A:1014379127240

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Table 1

Frequencies Table

Demographic	N	Percent (%)
Gender		
Men	60	50
Women	60	50
Race		
Caucasian	77	64.2
Black	30	25
Asian	3	2
Other	10	8.3
College Class		
Freshman	40	33.3
Sophomore	44	36.7
Junior	16	13.3
Senior	1	0.8
Area Lived Prior to age 18		
Urban Area or Large City	14	11.7
Suburban Area	61	50.8
Small City/Small Town	36	30
Rural Area	9	7.5
Experience with Violent Video Games		
Yes	68	56.7
No	52	43.3
Years Playing Violent Video Games		
0 years	44	36.7
1 to 2 years	12	10
3 years or more	64	53.3

Table 2

Means, Standard Deviations, and F Values for Reported Feelings of Involvement

	Mean	*SD*		
Violent Condition	27.30	7.70		
Men	28.27	7.29		
Women	26.33	8.10		
Nonviolent Condition	31.02	8.00		
Men	33.37	5.80		
Women	28.67	9.23		
2 x 2 ANOVA	*df*	*F*	*p*	η^2
Overall	3	4.50	.005**	.104
Condition	1	6.98	.009**	.057
Gender	1	5.55	.020*	.046
Condition*Gender	1	.97	.328	.008
One-Way ANOVA (Main Effect)				
Condition	1	6.72	.011*	
Gender	1	5.29	.023*	

*$p < .05$
**$p < .01$

Table 3

Means, Standard Deviations, and F Values for Reported Feelings of Presence

	Mean	*SD*		
Violent Condition	12.03	4.58		
Men	12.00	4.31		
Women	12.07	4.91		
Nonviolent Condition	14.69	4.89		
Men	14.93	4.86		
Women	14.45	5.00		
2 x 2 ANOVA	*df*	*F*	*p*	η^2
Overall	3	3.15	.028*	.075
Condition	1	9.30	.003**	.074
Gender	1	.06	.812	.000
Condition*Gender	1	.10	.753	.001
One-Way ANOVA (Main Effect)				
Condition	1	9.45	.003**	
Gender	1	.05	.817	

*$p < .05$
**$p < .01$

Table 4

Means, Standard Deviations, and F Values for Reported Peritraumatic Dissociation

	M	*SD*		
Violent Condition	20.82	8.47		
Men	18.43	7.05		
Women	23.20	9.19		
Nonviolent Condition	17.68	5.49		
Men	17.70	5.02		
Women	17.67	6.01		
2 x 2 ANOVA	*df*	*F*	*p*	η^2
Overall	3	4.33	.006**	.101
Condition	1	6.03	.016*	.049
Gender	1	3.44	.066	.029
Condition*Gender	1	3.54	.063	.030
One-Way ANOVA (Main Effect)				
Condition	1	5.78	.018*	
Gender	1	3.23	.075	

*$p < .05$
**$p < .01$

Table 5

Means, Standard Deviations, and F Values for Reported Levels of State Anxiety

	Mean	*SD*		
PreCondition Measure				
Violent Condition	16.48	4.51		
Men	15.13	3.69		
Women	17.83	4.90		
Nonviolent Condition	15.27	4.88		
Men	14.73	4.09		
Women	15.80	5.58		
PostCondition Measure				
Violent Condition	19.05	5.21		
Men	16.43	3.50		
Women	21.67	5.36		
Nonviolent Condition	18.92	5.19		
Men	18.13	5.36		
Women	19.70	4.96		
ANOVA (Within-Subjects)	*df*	*F*	*p*	η^2
Measure Difference	1	44.59	.000**	.278
Measure Difference*Condition	1	1.35	.247	.012
Measure Difference*Gender	1	2.65	.106	.022
Measure Difference*Condition*Gender	1	1.19	.277	.010
ANOVA (Between-Subjects)				
Condition	1	.86	.357	.007
Gender	1	13.11	.000**	.102
Condition*Gender	1	3.30	.072	.028

**$p < .01$

Table 6

Means, Standard Deviations, and F Values for Reported Levels of Aggressive Affect

	Mean	*SD*		
PreCondition Measure				
Violent Condition	62.38	11.62		
Men	62.60	11.75		
Women	62.17	11.70		
Nonviolent Condition	61.32	18.63		
Men	62.90	21.97		
Women	59.73	14.77		
PostCondition Measure				
Violent Condition	74.68	22.09		
Men	67.40	14.11		
Women	81.97	26.14		
Nonviolent Condition	73.72	23.14		
Men	75.90	25.75		
Women	71.53	20.42		
ANOVA (Within-Subjects)	*df*	*F*	*p*	η^2
Measure Difference	1	48.20	.000**	.294
Measure Difference*Condition	1	.001	.978	.000
Measure Difference*Gender	1	3.76	.055	.031
Measure Difference*Condition*Gender	1	5.18	.025*	.043
ANOVA (Between-Subjects)				
Condition	1	.11	.736	.001
Gender	1	.30	.585	.003
Condition*Gender	1	3.23	.075	.027

*$p < .05$
**$p < .01$

Table 7

Means, Standard Deviations, and F Values for Reported Levels of Acute Stress

	Mean	*SD*		
PreCondition Measure				
Violent Condition	3.73	3.84		
Men	3.13	3.08		
Women	4.33	4.45		
Nonviolent Condition	2.65	3.38		
Men	3.00	3.42		
Women	2.30	3.37		
PostCondition Measure				
Violent Condition	4.95	4.46		
Men	3.20	3.09		
Women	6.70	4.95		
Nonviolent Condition	5.52	4.64		
Men	5.90	4.94		
Women	5.92	4.69		
ANOVA (Within-Subjects)	*df*	*F*	*p*	η^2
Measure Difference	1	34.18	.000**	.228
Measure Difference*Condition	1	5.58	.020*	.046
Measure Difference*Gender	1	2.56	.113	.022
Measure Difference*Condition*Gender	1	2.87	.093	.024
ANOVA (Between-Subjects)				
Condition	1	.16	.691	.001
Gender	1	1.56	.214	.013
Condition*Gender	1	5.67	.019*	.047

*$p < .05$
**$p < .01$

Figure 1. Interactive Effects of Gender and Violent Video Game Condition on Feelings of Involvement

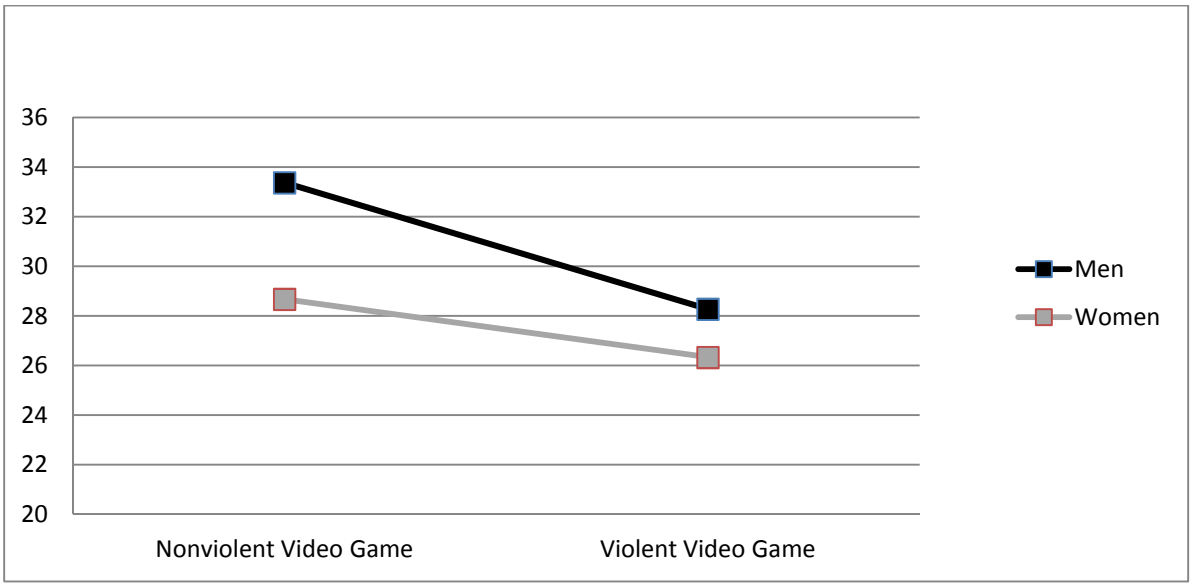


Figure 2. Interactive Effects of Gender and Violent Video Game Condition on Feelings of Presence

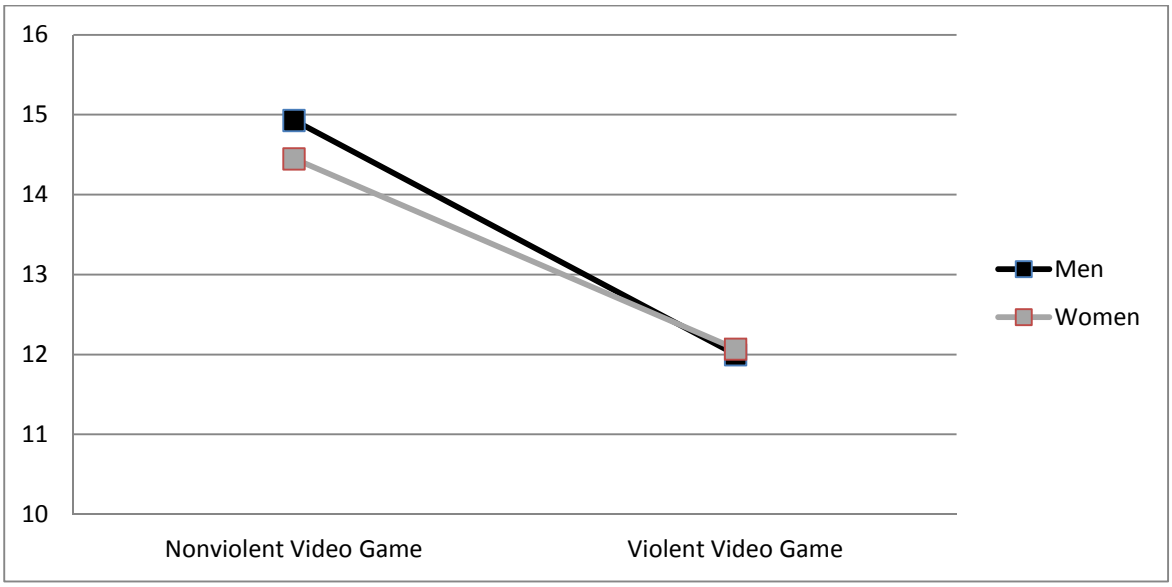


Figure 3. Interactive Effects of Gender and Violent Video Game Condition on Peritraumatic Dissociation

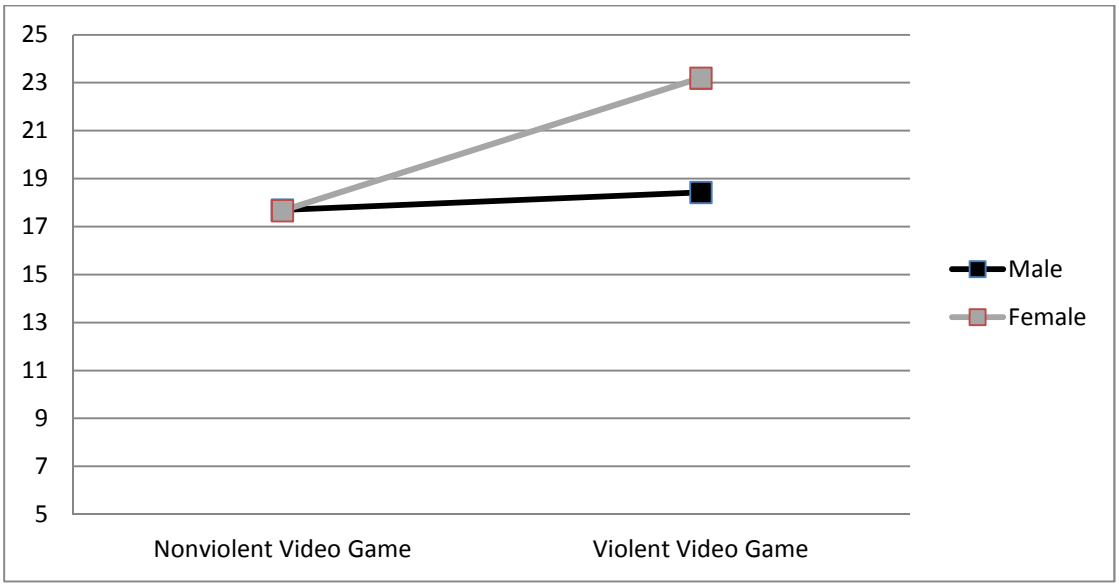


Figure 4. Interactive Effects of Gender and Violent Video Game Condition at PreCondition and PostCondition Measures of State Anxiety

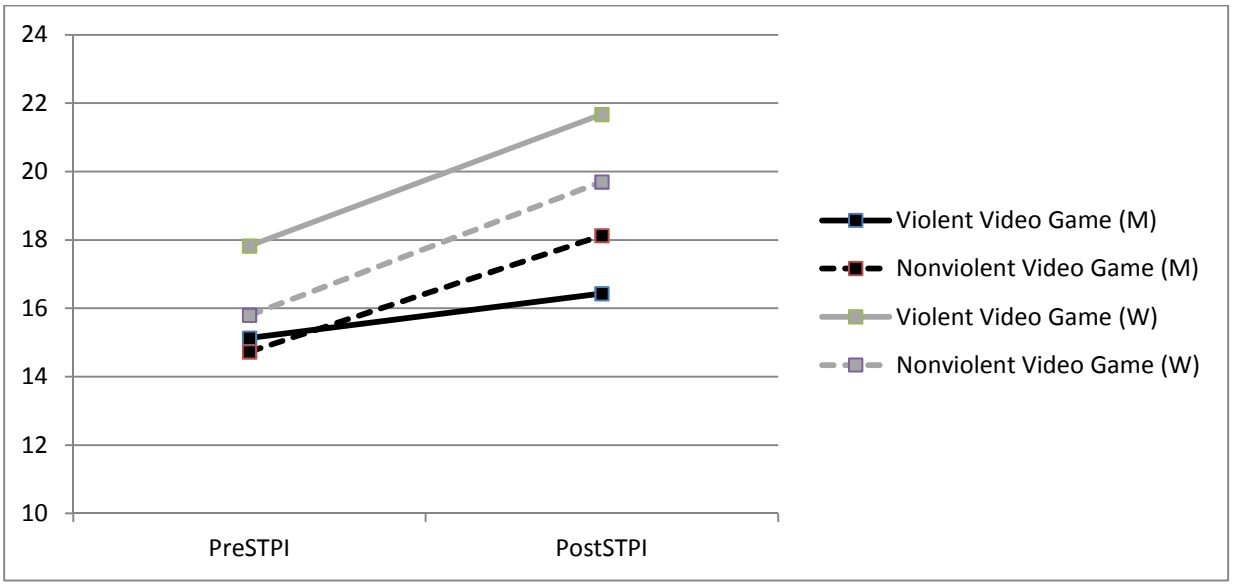


Figure 5. Interactive Effects of Gender and Violent Video Game Condition at PreCondition and PostCondition Measures of Aggressive Affect

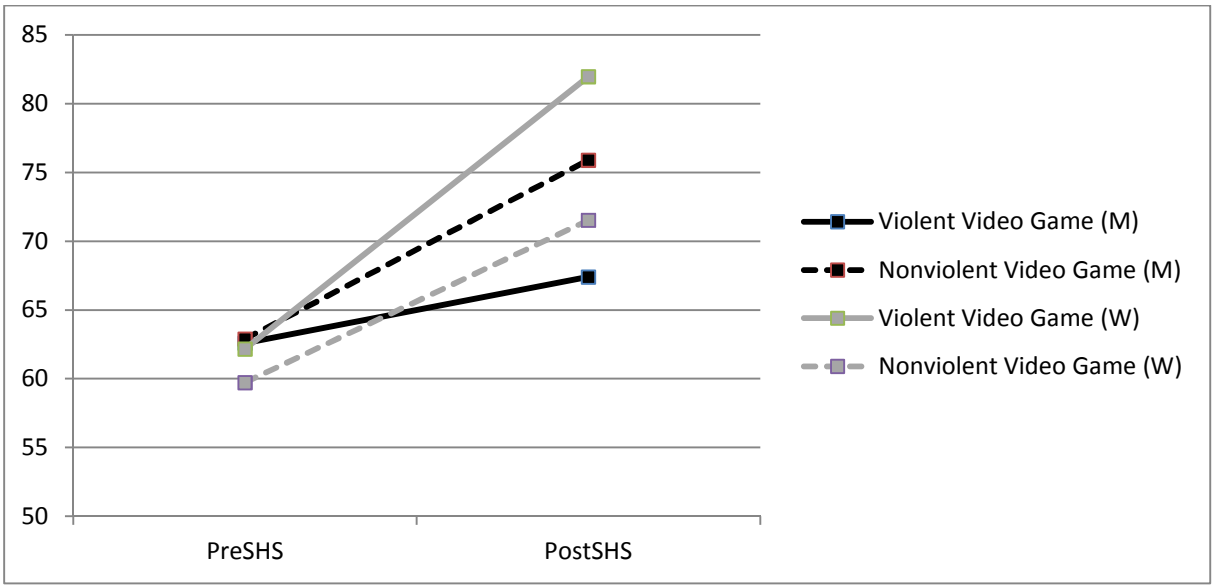
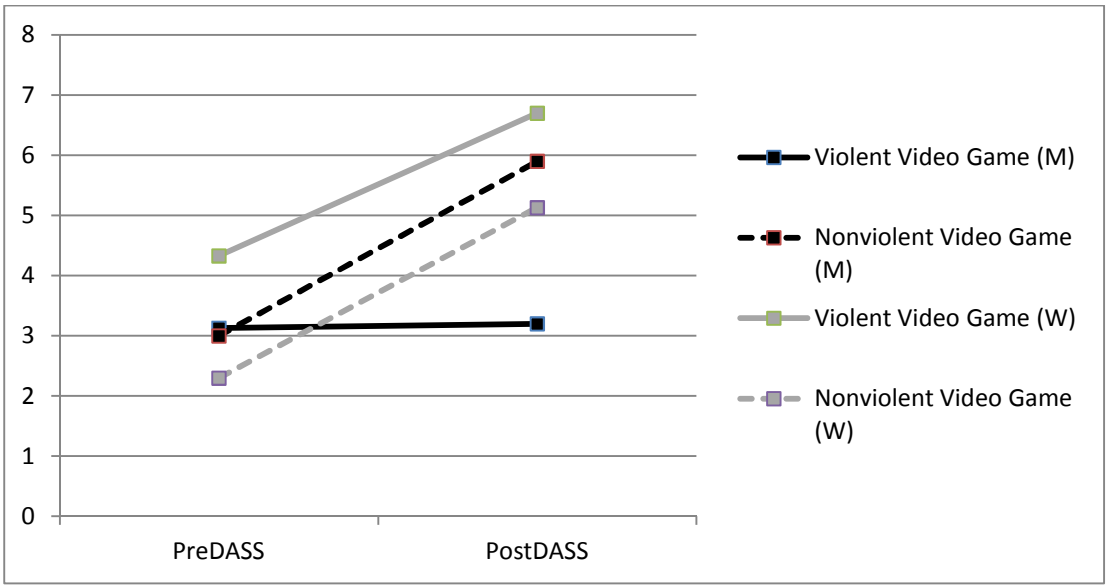


Figure 6. Interactive Effects of Gender and Violent Video Game Condition at PreCondition and PostCondition Measures of Acute Stress



APPENDICES

APPENDIX A

Feelings of Presence Scale

1. While playing the game, how much did you feel like you were “there” in the game environment?

   1----------2----------3----------4----------5----------6----------7

There Not There

2. While playing the game, how much did you feel like the game environment was a real place?

   1----------2----------3----------4----------5----------6----------7

There Not There

3. While playing the game, how much did you feel like other characters in the game were real?

   1----------2----------3----------4----------5----------6----------7

There Not There

APPENDIX B

Feelings of Involvement Scale

1. I paid a lot of attention to this game when I was playing

1----------2----------3----------4----------5----------6----------7

Strongly Disagree — Strongly Agree

2. I was extremely focused on this game when I was playing

1----------2----------3----------4----------5----------6----------7

Strongly Disagree — Strongly Agree

3. I found myself responding strongly to this game

1----------2----------3----------4----------5----------6----------7

Strongly Disagree — Strongly Agree

4. I got involved with the goal of this game

1----------2----------3----------4----------5----------6----------7

Strongly Disagree — Strongly Agree

5. I got emotionally involved with this game

1----------2----------3----------4----------5----------6----------7

Strongly Disagree — Strongly Agree

6. I experienced emotion while playing this game

1----------2----------3----------4----------5----------6----------7

Strongly Disagree — Strongly Agree

APPENDIX C

State Hostility Scale

Current Mood

Please indicate the extent to which you agree or disagree with each of the following mood statements. Use the following 5 point rating scale. Write the number corresponding to your rating on the blank line in front of each statement.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5

____ I feel furious.

____ I feel willful.

____ I feel aggravated.

____ I feel tender.

____ I feel stormy.

____ I feel polite.

____ I feel discontented.

____ I feel like banging on a table.

____ I feel irritated.

____ I feel frustrated.

____ I feel kindly.

____ I feel unsociable.

____ I feel outraged.

____ I feel agreeable.

____ I feel angry.

____ I feel offended.

____ I feel disgusted.

____ I feel tame.

____ I feel like I'm about to explode.

____ I feel friendly.

____ I feel understanding.

____ I feel amiable.

____ I feel mad.

____ I feel mean.

____ I feel bitter.

____ I feel burned up.

____ I feel like yelling at somebody.

____ I feel cooperative.

____ I feel like swearing.

____ I feel cruel.

____ I feel good-natured.

____ I feel disagreeable.

____ I feel enraged.

____ I feel sympathetic.

____ I feel vexed.

APPENDIX D

State-Trait Personality Inventory (STPI-State Form)

A number of statements that people have used to describe themselves are given below. Read each statement and then report that value to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to best describe your present feelings.

Not at all	Somewhat	Moderately So	Very Much So
1	2	3	4

1. I feel calm
2. I am tense
3. I feel at ease
4. I am presently worrying over possible misfortunes
5. I feel nervous
6. I am jittery
7. I am relaxed
8. I am worried
9. I feel steady
10. I feel frightened

APPENDIX E

Peritraumatic Dissociative Experiences Questionnaire – Self Report Version

Instructions: Please complete the items below by circling the choice that best describes your experiences and reaction *during the video game and immediately afterward*. If an item does not apply to your experience, please circle "Not at all true."

1. I had moments of losing track of what was going on – I "blanked out" or "spaced out" or in some way felt that I was not part of what was going on.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

2. I found that I was on "automatic pilot" – I ended up doing things that I later realized I hadn't actively decided to do.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

3. My sense of time changed – things seemed to be happening in slow motion.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

4. What was happening seemed unreal to me, like I was in a dream or watching a movie or play.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

5. I felt as though I were a spectator watching what was happening to me, as if I were floating above the scene or observing it as an outsider.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

6. There were moments when my sense of my own body seemed distorted or changed. I felt disconnected from my own body, or that it was unusually large or small.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

7. I felt as though things that were actually happening to others were happening to me – like I was being trapped when I really wasn't.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

8. I was surprised to find out afterward that a lot of things had happened at the time that I was not aware of, especially things I ordinarily would have noticed.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

9. I felt confused; that is, there were moments when I had difficulty making sense of what was happening.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

10. I felt disoriented; that is, there were moments when I felt uncertain about where I was or what time it was.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

APPENDIX F

Depression Anxiety Stress Scales (DASS) (Stress Scale)

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you *at this moment*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0	Did not apply to me at all
1	Applied to me to some degree
2	Applied to me to a considerable degree
3	Applied to me very much

1. I am finding it hard to wind down.	0	1	2	3
2. I feel like I am over-reacting.	0	1	2	3
3. I feel that I am using a lot of nervous energy.	0	1	2	3
4. I feel agitated.	0	1	2	3
5. I am finding it difficult to relax.	0	1	2	3
6. I am intolerant of anything that is keeping me from getting on with what I was doing.	0	1	2	3
7. I feel I am rather touchy.	0	1	2	3

APPENDIX G

Demographics

Gender

1. Male 2. Female

Age: _____

Sexual Orientation

1. Heterosexual 2. Homosexual (Lesbian/Gay) 3. Bi-Sexual 4. Undecided

Race

1. American Indian 2. Asian 3. Black 4. Pacific Islander 5. White 6. Other

Ethnicity

1. Hispanic or Latino 2. Not Hispanic or Latino

Class

1. Freshman 2. Sophomore 3. Junior 4. Senior 5. Other

How would you best describe the area in which you were raised? (lived prior to 18 years of age)

1. Urban/Large City 2. Suburban 3. Small City/Small Town 4. Rural

How would you best describe the area in which you live currently?

1. Urban/Large City 2. Suburban 3. Small City/Small Town 4. Rural

Prior Military Service

1. Yes 2. No

If Yes, How Many Years? _____

Do you usually play violent video games (Over 30% of video games played)

1. Yes 2. No

How many years have you been playing violent video games?

1. 0 years 2. 1-2 years 3. 3+ years

Please write a short explanation about what you think this study was examining.

_____

APPENDIX H

Debriefing Form:

First and foremost, I would like to thank you for taking part in this study. Your participation provides us with valuable information about how various types of media affect people. Without your participation, we would not be able to study the various psychological issues that impact our day to day lives.

Please do not discuss this study with anyone after leaving this room. If you would like to know the results of this study, please give the researcher your printed name and email address and we will email you when the study is complete.

If you become upset as a result of participating in this study, please consider visiting the Counseling and Career Development Center (CCDC), they are located on Forest Drive between the Health Services and Forest Drive classroom building. Their telephone number is 912-478-5541.

If you have any questions, comments, or concerns please ask your researcher now or email Brendan McCollum at bmccoll1@georgiasouthern.edu
Thank you again!