The Relationship Between Video Game Use and Couple Attachment Behaviors in Committed Romantic Relationships

Jamie McClellan Smith

Brigham Young University - Provo

Follow this and additional works at: https://scholarsarchive.byu.edu/etd

Part of the Family, Life Course, and Society Commons

BYU ScholarsArchive Citation

https://scholarsarchive.byu.edu/etd/3606

This Thesis is brought to you for free and open access by BYU ScholarsArchive. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu, ellen_amatangelo@byu.edu.
The Relationship Between Video Game Use and Couple Attachment Behaviors in Committed Romantic Relationships

Jamie M. Smith

A thesis submitted to the faculty of Brigham Young University in partial fulfillment of the requirements for the degree of Master of Science

Jeffry H. Larson, Chair
Dean Busby
Jonathan Sandberg

School of Family Life
Brigham Young University
June 2013

Copyright © 2013 Jamie M. Smith
All Rights Reserved
ABSTRACT

The Relationship Between Video Game Use and Couple Attachment Behaviors in Committed Romantic Relationships

Jamie M. Smith
School of Family Life, BYU
Master of Science

This study examines whether the single or shared leisure activity of video gaming or a report of it as a problem is negatively related to couple attachment behaviors (accessibility, responsiveness, and engagement). The model suggests that individual frequency of violent video game use, individual frequency of nonviolent video game use, and couple video game use frequency predict negative couple attachment behaviors. In addition, video game playing that is perceived as a problem in the relationship serves as a mediator variable in the model. Data were collected using the Relationship Evaluation questionnaire (RELATE). The sample includes 2,112 couples who reported seriously dating, engagement, or marriage. The measures include assessing couple attachment behaviors and questions assessing video game use rates. Results indicated that male’s violent video game use predicted the female’s attachment behaviors, while the female’s nonviolent video game use predicted the male’s attachment behaviors. The male’s violent video game use and the female’s nonviolent video game use predicted his/her perception and their partner’s perception that video games were a problem in the relationship, and their perception predicted less attachment behaviors, which was a fully mediated relationship for both. The female’s view that video games were a problem negatively predicted both her and her partner’s attachment behaviors, while the male’s view only predicted his attachment behaviors. Future research directions and clinical implications for couples are discussed.

Keywords: video game use, couple relationship, attachment behaviors
ACKNOWLEDGMENTS

I have felt lead and guided by Heavenly Father to graduate school and throughout the thesis process. I am grateful for His inspiration, help, strength, and guidance. He has been a source of wisdom, endurance, and respite while working on my thesis.

I would also like to thank Dr. Jeffry Larson for all of his hard work and support throughout this process. He worked many hours helping me revise and has been a source of guidance, reassurance, and wisdom. I am very grateful for all his help. I would also like to thank Dr. Dean Busby and Dr. Jonathan Sandberg for all of their help, counsel, and time. Also, I am grateful for the RELATE Institute for allowing me to use and analyze their data.

My parents have also been a constant source of courage, strength, and optimism. I am grateful for their continuous belief in me and my ability to do difficult things in life. I would like to thank them for their support.

Last, but certainly not least, I would like to acknowledge my husband Nate’s great sacrifice and patience throughout this process. He has been very unselfish in putting my graduate schooling before his own and in supporting me throughout this stressful period. I am forever grateful for his constant love, support, and affection. I certainly know that I could not have done this and been so happy without his help and support. I love you Nate.
# TABLE OF CONTENTS

LIST OF TABLES.......................................................................................................................... v
LIST OF FIGURES ........................................................................................................................ v
INTRODUCTION .......................................................................................................................... 1

Theoretical Model and Literature Review .................................................................................. 3
  Attachment Theory .................................................................................................................. 3
  Attachment and Leisure Activities ......................................................................................... 4
  Video Game Use Effects on Relationships ........................................................................... 5
  Video Game Use Effects on Couple Relationships ............................................................... 6
Summary and Research Questions.............................................................................................. 8

Method .......................................................................................................................................... 10
  Sample ....................................................................................................................................... 10
  Measures .................................................................................................................................... 12
    Video game usage measures ................................................................................................. 12
    Attachment behaviors measure............................................................................................ 12
Analyses ........................................................................................................................................ 14
Results .......................................................................................................................................... 15
  Descriptive Statistics ............................................................................................................... 15
  SEM Analyses ........................................................................................................................... 17
Discussion ..................................................................................................................................... 20
  Limitations ................................................................................................................................ 24
  Clinical Implications and Conclusion .................................................................................... 26
References ..................................................................................................................................... 29
LIST OF TABLES

Table 1: *BARE Mean Scores, Standard Deviations, and Factor Loadings.* .................................. 30

Table 2: *Video Game Use as a Problem: Mean Scores, Standard Deviations, and Frequencies.* 31

Table 3: *Video Game Variables: Mean Scores, Standard Deviations, Factor Loadings, and Frequencies.* ................................................................................................................................. 32

Table 4: *Correlation Matrix for all Variables.* ...................................................................................... 33

LIST OF FIGURES

Figure 1: *Video Game Use and Attachment Behaviors Model.* .......................................................... 34

Figure 2: *Video Game Use and Attachment Behaviors Model with Standardized Beta Weights.* 35
Introduction

Over the last few decades the use of computer-based technology has greatly expanded, especially technology that is used in the home. Video games which were once only found in an arcade have now moved to homes all over the world, which has led to a fundamental shift in the video game industry (Zackariasson & Wilson, 2010). In 2009, 42% of households had a video game console and 68% of American households reported playing video and computer games (Entertainment Software Association, 2009). Perhaps it is most surprising that 75% of game players were over the age of 18 and that the average age of game players was 35 years old (Entertainment Software Association, 2009). Clearly, video games are not just for children and adolescents, but are in fact, something that adults do, too.

For the purpose of this study, video games are defined as electronic interactive entertainment on a computer, game console, or handheld device. Research has been done worldwide to assess the impacts video game playing has on an individual’s close relationships and physical and mental health. In a study assessing how such technology use affected married couples, when asked about how they would feel if their partner played games on the internet, 35% of the couples disagreed about whether or not gaming was an acceptable activity (Helsper & Whitty, 2010). This means that a third of couples have differing opinions about whether playing video games is acceptable or not, and this disagreement may cause relational distress. Also, individuals who play video games extensively may be at risk for obesity, seizures, and physical discomfort (Chuang, 2006). It is estimated in a meta-analytic review of literature that potentially 3.1% of adults in America may have play video games compulsively (Ferguson, Coulson, & Barnett, 2011). In one study, the authors Han, Hwang, & Renshaw (2011) gave
individuals who compulsively played video games Bupropion while they were using a video game. Releasing the chemical Bupropion into the brain is a technique used with treating substance dependence. After 6 weeks of treatment, the participants played less video games and craved them less (Han et al., 2011). The success of this study implies that overuse of video games may can be helped by chemicals which affect brain chemistry. Video game use affects many aspects of an individual’s life and can have both positive and negative repercussions on couples and families worldwide.

Most recent research has focused on the effect of video game use on children and the wider impact of violent video game use (Anderson et al., 2010). However, there is very little research on the impact of video game use on adults and their romantic relationships. There especially is an inadequate amount of research examining the possible impact of excessive video game use on couple’s attachment behaviors. Couple attachment is important for many reasons, and secure attachment is related to higher relationship quality and mental health (Butzer & Campbell, 2008; McWilliams & Bailey, 2010).

The purpose of this study is to examine if video game use is associated with attachment behaviors in romantic relationships. This study will examine how different types of video gaming or the frequency of video game playing, whether independently or with a marital partner, may affect couple relationships differently. The study will also examine the video game use variables that may result in problems in romantic relationships, and whether the perception of frequency of media use (such as video games) as a problem in the relationship makes a difference in its impact on attachment behaviors. The attachment behaviors to study include accessibility, responsiveness, and engagement (Sandberg, Busby, Johnson, & Yoshida, 2012).
Theoretical Model and Literature Review

Attachment Theory

The theoretical framework for this study is attachment theory, which was originally developed by Bowlby. He postulated that a child created an attachment with its caregiver (1969). Hazan & Shaver (1987) extended this theory to continue into adulthood and proposed that couples tend to be similarly attached. Secure attachment provides security and social support from stress (Ainsworth, 1991; Bowlby, 1969). The couples influence and shape each other’s attachment through their behaviors and couple processes (Johnson and Whiffen, 1999).

Quality couple relationships have healthy attachment bonds between the partners. Multiple studies have shown that partners who are securely attached have higher marital satisfaction than couples who are insecurely attached (Banse, 2004; Senchak & Leonard, 1992; Butzer & Campbell, 2008). Insecure attachment styles, anxious and avoidant, are related to mental illness such as depressive disorders, anxiety disorders, and alcohol and substance related disorders (McWilliams & Bailey, 2010). Also insecure attachment is related to lower sexual satisfaction (Butzer & Campbell, 2008) and certain physical health conditions such as arthritis, headaches, chronic pain, stroke, heart attack, high blood pressure, and ulcers (McWilliams & Bailey, 2010). In another study, women who were insecurely attached scored themselves as less attractive and reported more infidelity (Bogaert & Sadava, 2002). It is clear that secure attachment in couple relationships produces favorable outcomes in many ways.

Secure attachment is created when a partner is accessible and responsive to the needs of their partner (Bowlby, 1973; Johnson, 2004). Johnson (2004) notes that a partner also must be engaged emotionally with their partner to create this sense of attachment. When partners are
engaged emotionally, they create a feeling of connectedness and intimacy bonds them (Johnson, 2004). These attachment behaviors (accessibility, responsiveness, and engagement) predict both relationship quality and stability (Sandberg, et al., 2012). For this paper, accessibility is defined as a partner being consistently available to give attention to the partner. This is important because if the partner cannot be present emotionally or physically and cannot give attention there are no opportunities for bonding. Responsiveness is defined as a partner readily responding to the emotional bids and the initiations for interaction by his partner. Responsiveness is key because a consistent safe reaction will help the other partner build trust and safety within the relationship. Engagement is defined as the ability to feel close and connected with the partner during an interaction. Engagement is important because it is a bonding event that provides comfort and soothing to build closeness and attachment. These attachments behaviors occur together and are linked. A partner must first be accessible to be able to respond, and how they respond influences how close the partner feels if/when they engage in intimate moments. (Sandberg, et al., 2012)

**Attachment and Leisure Activities**

Research suggests that shared couple leisure activities contribute to relationship satisfaction (Crawford, Houts, Huston, & George, 2002; Johnson, Zabriskie, & Hill, 2006). One study found that when a couple was happy with the couple leisure activities that they did together, they were more likely to be happy in their relationship regardless of the amount of time they spent doing those activities (Johnson, Zabriskie, & Hill, 2006). Another study examining individual and couple leisure activity found that when a husband, alone or with his wife, pursued a recreational activity the wife did not like, it led to the wife’s marital dissatisfaction over time
(Crawford, Houts, Huston, & George, 2002). Since secure attachment is related to relationship satisfaction (Butzer & Campbell, 2008), this study will seek to examine whether leisure activities affect attachment behaviors like they impact relationship satisfaction. This study will examine whether a shared leisure activity such as video game use or a negative perception of video game use spills over to impact couple attachment behaviors.

Video gaming (especially done alone) may negatively spill-over into couple relationships by interfering with couple attachment behaviors. E.g., if one partner is experiencing frustration or anger during video game playing, this frustration may be carried into the relationship by the partner being less accessible, responsive, or engaged with his/her partner. If only one partner plays video games, the other partner may feel isolated and alone because the partner who is playing does not want to stop playing and is not accessible or responsive. Also, if an individual plays a violent video game, will his/her aggressive play carry over into aggressiveness in relationship behaviors? Or, if the spouses experience cooperation, teamwork, and success when they play video games together, will these positive emotions and perceptions carry over into their real life relationship as increased attachment behaviors? Couple attachment is important because of its relationship to mental/physical health and marital quality (McWilliams & Bailey, 2010; Sandberg, et al., 2012).

**Video Game Use Effects on Relationships**

A few studies have found frequent video game use correlated with poorer relationship quality (Padilla-Walker, Carroll, Nelson, & Jensen, 2010; Schmit, Chauchard, Chabrol, & Sejourne, 2011). One study looked at young adults and found that young adult video game use was correlated with poor relationship quality with both friends and parents (Padilla-Walker et al.,
In another study which looked at individuals who displayed gaming dependent behaviors and attitudes (using dependence/abuse criteria from the DSM-IV-TR) and those who did not, found that dependent gamers were found to play video games more and to have lower quality relationships with friends and family (Schmit et al., 2011).

**Video Game Use Effects on Couple Relationships**

Some individuals greatly enjoy playing video games for the social connection it may provide (Colwell & Kato, 2003). In fact, in one study, some individuals reported that they had better quality communication and were more satisfied with an online Second Life virtual partner than they were with their real life romantic partner (Gilbert, Murphy, & Avalos, 2011). This may indicate that as online relationships grow, the real life couple relationship weakens. In fact, Hawkins & Hertlein (2013) have outlined a clinical treatment to help couples who report having issues related to video game use.

Research suggests that frequent video game playing is not problematic in relationships where individuals play together sometimes or are both involved in frequent video game playing. One study assessed problematic online behavior between marital partners and found that 57% of the couples reported similar internet behaviors, and only 35% of the couples disagreed about whether gaming was acceptable or unacceptable (Helsper and Whitty, 2010). Another study found that when both partners gamed about the same amount of time they had higher marital satisfaction than couples where only one partner gamed or where one gamed more than the other (Ahlstrom, Lundberg, Zabriskie, Eggett, & Lindsay, 2012). This suggests that playing a video game together may positively enhance some relationships and perhaps their attachment behaviors if they can engage each other over a shared leisure activity. Some studies have found
that when addictive behaviors such as drinking alcohol are matched by the partner, the behaviors are not viewed as problematic in the relationship (Homish & Leonard, 2005). This indicates that when a spouse/partner games alone or when couples disagree about gaming, the relationship satisfaction suffers and the related attachment behaviors (Sandberg, et al., 2012).

Ahlstrom et al. (2012) found that when only one partner gamed (38% of the study’s couples), the marital satisfaction was lower than in marriages where both spouses gamed equally or where one gamed more and the other less (62% of the study’s couples). The study reported that frequently quarreling about gaming and less frequently retiring to bed at the same time were correlated with lower levels of marital satisfaction. Since attachment behaviors predict marital quality and satisfaction (Sandberg, et al., 2012), they will also likely suffer from these variables. Over 50% of couples where only one partner gamed reported quarreling about gaming. In the sample, about 72% of independent gamers and their non-gaming spouses reported that video game playing negatively affected their couple relationship. However, about 76% of the couples where one partner gamed more and the other gamed less said playing video games had a positive effect on their couple relationship. The study demonstrates that a couple’s perception of how video game playing affects their relationship is somewhat dependent on whether the activity is played by both or only one.

Although it is unclear whether gaming is an addiction, Ahlstrom, et al. (2012) found that the level of gaming compulsivity and frequency of video game playing was not related to marital satisfaction for independent gamers or their spouse, indicating that large amounts of time spent video game playing is not what causes distress in the relationship. For couples where both gamed, the level of gaming compulsion was related to lower levels of marital satisfaction for
both partners. Perhaps this is because when both play video games excessively it leaves less time to do other things. This study demonstrates that video game use effects on couple relationships, and their attachment behaviors, are at least partially dependent on whether both partners game or only one partner games.

Coyne et al. (2012) looked at video game play and physical and relational aggression in couple relationships where partners were seriously dating, engaged, or married. The study found that video game use was not directly related to aggression in the relationship. The study found that the amount of time men spent playing video games was related to increased couple conflict over media use, and that conflict over media use was related to increased aggression, both physical and relational, in the couple relationship. This finding suggests that actual frequency of play is not as important as the couple’s perception of whether frequency of playing video games is a problem. This same relationship was not significant for women, perhaps because women were found to play video games for lesser amounts of time than men making it less problematic to the relationship. Another explanation that Coyne et al. (2012) also suggested is that men may view women’s video game play more positively because it can become a joint recreational activity.

**Summary and Research Questions**

In summary, relationship satisfaction and quality, and thereby attachment behaviors (Sandgerg, et al., 2012), are affected in different ways by video game use (Ahlstrom, et al., 2012; Coyne, et al., 2012). Some researchers suggest that video game use may lead to poorer quality relationships with friends and family (Padilla-Walker et al., 2010). In a study of heterosexual couples, video game playing by either partner was not related to aggression in romantic
relationships (Coyne et al., 2012). Research suggests that video game use may be beneficial in couple relationships when both partners game (together and separately) and agree that it has mostly a positive effect on their relationship (Ahlstrom et al., 2012).

This study will test a new model (see Figure 1) in an attempt to answer these questions:

1. Which of these independent variables: frequency of violent video game use alone (for males only), frequency of nonviolent video game use alone (for males only), or frequency of together couple video game use, best predicts media use as a reported problem in the relationship? Answering this question will help clinicians know more precisely what factors contribute most to video game use frequency being perceived as a problem in romantic couple relationships.

2. Which of these independent variables (whether frequency of video gaming use is perceived as a problem in the relationship by either partner, frequency of violent video game use by either partner, frequency of nonviolent video game use by either partner, or frequency of together couple video game use) best predict the attachment behaviors of accessibility, responsiveness, and engagement? Answering this question will help clinicians know more precisely which types of video game use variables best predict attachment behaviors. This is especially important to know if these variables diminish attachment behaviors.

3. This model will also test to see if the perception of “time spent using media such as video games, internet, or television is a problem” mediates the relationship between video game use frequencies and types of play and attachment behaviors.
4. The control variable of length of relationship is included in the model. This will help determine if the length of the couple relationship and the dependent variable BARE are related. It is possible that the length of relationship may be negatively related to attachment behaviors since marital quality usually declines over the marital life course, especially in the first five years (VanLaningham, Johnson, & Amato, 2001; Veroff, Douvan, & Hatchett, 1995). Thus, it is important to find out if this variable may interfere with the statistical tests, so we will control for length of relationship.

Method

Sample

The sample for this quantitative survey study will be taken from a data base of participants who took the Relationship Evaluation Questionnaire (RELATE; Busby, Holman, & Taniguchi, 2001) between 2009 and 2012. Busby, Holman, & Taniguchi (2001) reported that all RELATE subscales have high reliability (Chronbach’s alpha), high test-retest reliability, high construct validity (correlations ranged between .45 and .65), and high concurrent validity. After reading and signing a consent form, the participants completed RELATE online. Thirty percent of the sample were referred to RELATE by a class instructor, 18% were referred by a therapist, 7% were referred by a clergy member, 4% found the RELATE website while searching on the web, 25% were referred by a friend or family member, 2% found RELATE through an advertisement, and 14% found RELATE through “other” sources.

Although RELATE can be taken by couples in wide variety of relationships, the sample in the present study includes 2,112 heterosexual couples (4,224 individuals) who reported that
they are seriously dating, engaged, or married. Thirty percent of the sample were married ($n=632$), 44% were engaged ($n=931$), and 26% were seriously dating ($n=549$). In the sample, 81% of the participants identified themselves as Caucasian, 5% as African American, 5% as Asian, 4% as Latino, 3% as biracial, and 2% as “other.” The age of the participants ranged from 18 to 79 with a mean age of 31.31 ($SD=10.1$) for males and 29.22 ($SD=9.3$) for females. Most of the participants had completed an undergraduate or a graduate degree; 29% completed or had some graduate or professional education, 24% completed a bachelor’s degree, 7% completed an associate’s degree, 27% were currently in college, 9% had some college and were not enrolled, 4% had a high school diploma or equivalence, and .5% had less than a high school education. In the sample, 8% reported no income, 32% reported earning under $20,000, 17% reported earning $20,000 to 39,999, 14% reported earning $40,000 to 59,999, 9% reported earning $60,000 to 79,999, 5% reported earning $80,000 to 99,999, 4% reported earning $100,000 to 119,999, 10% reported earning over $120,000. The mean length of marriage was 5 years ($SD=2.6$); the mean length of serious dating and engaged relationships was 1 year ($SD=1.4$). In the sample, 20% were dating for 6 months or less, 19% were dating for 7 to 12 months, 31% were dating for 1 to 2 years, 24% were dating for 3 to 5 years, 7% were dating for 6 to 10 years, .7% were dating for more than 10 years. In the married couples, 9% were married for 1 year or less, 5% were married 1 to 2 years, 4% were married for 3 to 5 years, 4% were married for 6 to 10 years, 2% were married for 11 to 15 years, 2% were married for 16 to 20 years, 9% were married for more than 20 years. Thus, most couples were married or engaged (about 75%), about 30 years old, and have known each other for about 1-5 years.
Measures

RELATE participants complete about 300 questions, and then are given feedback regarding family of origin, relationship, and individual strengths and challenges in a 13-page self-interpretation report. For the purpose of this study only questions and measures regarding attachment behaviors and video game use were used.

Video game usage measures. On RELATE, each partner in a couple relationship was asked to identify how often they played video games together as a couple on a 7 point scale (1= never, 2= less than once a month, 3= once a month, 4=2-3 times a month, 5= once a week, 6= once a day, and 7= more than once a day). Individuals were then asked if they played video games alone, and if they did play, they then indicated how often they played (based on the same 7 point scale above) each of the certain types of video games including: role playing games, fighting games, massively multiplayer online role playing games (MMORPGS), sports, music/party games, and exercise/fitness games. A latent variable of violent video game use was created by combining the scores of role playing games, fighting games, and MMORPGS. A latent variable of nonviolent video game use was created by combing the frequency variables of music/party games and exercise/fitness games. Couples were also asked to rate on a 5 point scale (1=never, 2=rarely, 3=it depends, 4=often, and 5=very often) how often “time spent using media such as video games, the internet, or television has been a problem in [their] relationship”.

Attachment behaviors measure. Attachment behaviors were measured using a scale developed by Sandberg, et al. (2012) called the Brief Accessibility, Responsiveness, and Engagement Scale (BARE). The scale consists of 12 items with a possible high score of 60 and a possible low score of 12 with higher scores indicating more frequent attachment behaviors by the
individual. The BARE is composed of six subscales measuring these attachment behaviors: an accessibility scale composed of 2 questions (i.e. I am rarely available to my partner. It is hard for my partner to get my attention. Both items are reverse scored.), an accessibility of partner scale composed of 2 questions (i.e. It is hard for me to get my partner’s attention. My partner is rarely available to me. Both items are reverse scored.), a responsiveness scale with 2 questions (i.e. I listen when my partner shares her/his deepest feelings. Even when we are apart, I reach out to my partner.), a responsiveness of partner scale composed of 2 questions (i.e. Even when we are apart, my partner reaches out to me. My partner listens when I share my deepest feelings.), an engagement scale composed of 2 questions (i.e. I struggle to feel close and engaged in our relationship. It is hard for me to confide in my partner. Both items are reverse scored.), and an engagement by partner scale composed of 2 questions (i.e. It is hard for my partner to confide in me. My partner struggles to feel close and engaged in our relationship. Both items are reverse scored.). The participants answered each question using a 5 point Likert scale (1=Never True, 2=Rarely True, 3=Sometimes True, 4=Usually True, and 5=Always True). The Cronbach’s alphas for the six subscales range from .66 to .85, and the test-retest reliabilities range from .60 to .75 (Sandberg, et al., 2012).

The instrument has demonstrated both concurrent and construct validity and test-retest and Cronbach’s alpha reliabilities (Sandberg, et al., 2012). The subscales are moderately correlated. The average subscale correlation between the BARE subscales for men is .45 and for women it is .41. Since this study has examined only self-report of video game use behaviors, only the 6 self-report BARE subscales were included in the analyses and not the BARE questions where individuals report on their partner’s attachment behavior. This was done to
create consistency in the type of measurement used from predictor variables to outcome variables. This means that for this study the possible high score for the BARE was 30 and the possible low score was 6. The mean scores of the self-report BARE subscales were averaged to create an overall BARE total score (range= 1-5) for this study.

Analyses

All preliminary analyses were conducted in SPSS version 20 (IBM, 2011). First, the mean scores and standard deviations for the self-report subscales of BARE and the total self-report BARE scores were calculated by gender. Then, the means, frequencies, and percentages of responses for all the video game use questions were tabulated by gender according to the type of video game and the overall frequency of violent or nonviolent video game use. Also, the percentages of individuals who report playing video games together and their frequencies and means were tabulated. Then, the means, frequencies, and percentages of partners who perceive frequency of video game use as a problem in their relationship were tabulated by gender. Next, a correlation matrix was created of all the video game use variables and self-report BARE total scores to see how they were related.

Based on recommendations by Anderson and Gerbing (1988), a confirmatory factory analysis was conducted first for the latent variables (violent video game use, nonviolent video game use, and the overall ARE scale) then followed by full structural equation modeling (SEM) to test the model’s fit to the data while taking into account measurement error using MPlus version 7 (Muthén, & Muthén, 1998-2012). In the model, each individual BARE question, the mediating variable (about video games being a problem), and the predictor video game variables were correlated across gender.
1. In confirmatory factory analysis, the measurement properties of all of the latent constructs was estimated including factor loadings (see Tables 1 and 3) and factor correlations among the partners to make sure the latent variables were measured well. Items or indicators of these latent constructs that have low factor loadings (below 0.40) were eliminated from further analysis.

2. A full structural equation model was estimated. This model included both the actor and partner variables and the direct and indirect effects were estimated in this process. Missing variables were treated with maximum likelihood estimation so that cases with missing variables could be included in the analysis. Also goodness of fit was assessed to test whether the model fit the data.

3. Indirect and direct effects were estimated using SEM to test mediating effects and direct relationships between the variables. The indirect effects were also examined using Bootstrapping (with 2000 iterations) (Kline, 2011).

Results

Descriptive Statistics

The mean scores and standard deviations for the BARE subscales and total scores by gender (see Table 1) reflect that the sample distribution was skewed. The sample tended to answer in a positive direction on the BARE attachment behaviors and total score. The frequencies, means, and standard deviations for the study’s video game variables (Table 2 and 3) reflect similarly that the sample data was skewed and not normally distributed, especially for females. Scores on video game use were also skewed as less than half of the male participants reported that they never play video games (42%), and more than half of the female participants
reported that they never play video games (66%). However, male reports of all types of video game use, except for exercise and fitness games, were significantly higher than the female reports according to t-tests (total violent video game use: $t = -27.34, p < .001$; total nonviolent video game use: $t = -6.24, p < .001$; role playing games: $t = -17.19, p < .001$; fighting games: $t = -25.74, p < .001$; music/party games: $t = -6.87, p < .001$; MMORPGS: $t = -10.10, p < .001$).

There were some interesting correlations identified in the correlation matrix of the study’s variables (see Table 4). The relationship length variable was significantly associated with all the study variables except the male’s report of together video game play and the female’s report of violent/nonviolent video game play. The total BARE scores for the male and female partners were significantly positively correlated ($r = .40; p < .01$).

Both partners’ report of video games as a problem in their relationship were significantly ($p < .01$) negatively correlated with both partners’ total BARE scores ($r = -.19$ to -.32). This suggests that couple’s attachment behaviors are less likely to occur if playing video games is seen as a problem in the relationship. Partners’ perceptions of video games as a problem in their relationship was positively related ($r = .56; p < .01$). Both male and female’s perceptions of video games as a problem were also positively associated ($p < .01$) with the other video game variables (such as male/female’s together play, male’s violent video game play, and male/female’s nonviolent video game play), with the exception that the partners’ perceptions of a problem were not significantly associated with how much she plays violent video games. This suggests that the more couples perceive that video games are not a problem in the relationship, the less likely they are to play video games and vice versa.
Only the female’s report of together play was significantly positively associated with the male and female’s total BARE scale (see Table 4), but the correlations were very small ($r = .05$, $p < .05$); the male’s report of together play was not significantly associated with the total BARE scores for males and females. The male and female partner’s reports of couple together video game use are significantly positively correlated with their perceptions of video game use as a problem in the relationship, although the correlations were again, very small (male together play and male problem: $r = .11$, $p < .01$; female together play and female problem: $r = -.07$, $p < .01$; male together play and female problem: $r = .09$, $p < .01$; female together play and male problem: $r = .08$, $p < .01$).

The female’s nonviolent video game play was positively associated ($p < .05$) with the male’s total BARE score ($r = .06$). The male’s violent video game use was also positively related to the female’s total BARE score ($r = .05$, $p < .05$). This suggests a consistent but small positive relationship between video game play and some of the attachment behaviors. It should be noted that although many correlations were significant, many were very small (e.g. $r = .05$).

**SEM Analyses**

When conducting the SEM analysis, the error terms across spouses were correlated because the measures for couples are not independent (Keny, Kashy, & Cook, 2006). The model fit was good for the proposed model ($\chi^2 = 730.98$, $df=269$, $p < .001$; Comparative Fit Index (CFI) = 0.98; Root Mean Square Error of Approximation (RMSEA) = 0.029) indicating that the data fit the model well. The model accounted for 26.5% of the variance for the male’s total BARE score and 23.8% of the variance for the female’s total BARE score.
Direct and indirect effects were examined in the SEM model (Figure 2) with solid lines indicating direct significant relationships and dotted lines indicating insignificant direct relationships. The analysis revealed a number of significant direct effects. The female’s nonviolent video game use ($\beta = .247, p < .05$) was positively related to the male’s BARE score, while the male’s violent video game use ($\beta = .179, p = .056$) was positively related to his BARE score at trend level. The length of the relationship ($\beta = -.249, p < .001$) and the male’s ($\beta = -.303, p < .001$) and female’s ($-.105, p < .05$) perception of video games being a problem negatively predicted the male’s BARE score (see Figure 2). The male’s violent video game use also predicted the female’s BARE score ($.204, p < .05$). The female’s BARE score was also predicted by the relationship length ($\beta = -.254, p < .001$) and the female’s perception of video games being a problem ($\beta = -.391, p < .001$). The male’s perception that video games were in a problem in the relationship was predicted by his violent video game use ($\beta = .427, p < .001$), the relationship length ($\beta = .310, p < .001$), and the female’s nonviolent video game use ($\beta = .169, p < .05$). Trend level significance suggested that the female’s violent video game use ($\beta = -.166, p = .069$) also predicted the male’s perception that video game use was a problem in the relationship. The female’s perception that video game use is a problem in the relationship was predicted by the male’s violent video game play ($\beta = .460, p < .001$), the female’s violent video game play ($\beta = -.256, p < .05$), the female’s nonviolent video game play ($\beta = .288, p < .01$), and the relationship length ($\beta = .299, p < .001$). In summary, there were many significant direct relationships from the relationship length (four out of a possible four), and the male and female’s perception that video games are a problem, and are negatively related to attachment behaviors (self-report).
The possible mediating effect of reporting gaming as a problem on BARE scores was examined using M-Plus (Muthén, & Muthén, 1998-2012). All of the indirect effects described below were found to be fully mediating with no resultant direct effects between video gaming independent variables and attachment behaviors. There was a significant indirect effect found between male’s violent video game use, male’s perception of video games being a problem, and male’s lower BARE score ($\beta = -.129$, $p < .001$). The female’s violent video game use and lower BARE scores were mediated by the female’s perception of a problem, too ($\beta = -.10$, $p < .05$). The last significant mediation effect for problem perception was found between the female’s nonviolent video game use and the female’s BARE score ($\beta = -.113$, $p < .01$). This may indicate that perception of video game use as a problem increases the chance that BARE scores will be low.

Bootstrapping was also performed to adjust the standard errors for the indirect effects and examine mediation effects (Kline, 2011). Results indicated that the indirect effect between the male’s violent video game use, male’s perception of video games being a problem, and male’s BARE score was significant ($\beta = -.108$, $p < .01$). The female’s violent video game use, the female’s perception of video games being a problem, and the female’s BARE score also had a significant mediation effect at $\beta = .093$ ($p < .05$). The female’s nonviolent video game use and her perception that video games are a problem showed an indirect effect on her BARE scores ($\beta = -.046$, $p < .05$). These results suggest that perception of a problem with video game use was a key mechanism for lower BARE scores compared to the simple reporting of video game use (direct effects).
Discussion

To answer question 1, the male’s violent video game use best predicted whether video games were a problem in the relationship; the beta coefficients for this variable were the largest in size in this study. The male’s violent video game use predicts his perception and the female’s perception of video games being a problem in the relationship indicating that when the male partner plays violent video games more frequently, both partners report that video games are more frequently a problem in the relationship. This finding is similar to Coyne et al. (2012) who found that the male’s video game play predicted conflict over video game use (video games being a problem) in the relationship dyad.

There is a bulk of research and popular press portraying violent video games as detrimental to individuals, thus, perhaps these females have a negative view of the effects of violent video games and are thus more upset with their male partners playing these video games (Ferguson, 2007). Or perhaps men tend to play violent video games more frequently than nonviolent video games and that frequency of use is the major issue rather than the type of video game. This explanation is supported by Crawford et al. (2002) who found that when a husband pursued activities alone that the wife did not like or approve of, it created dissatisfaction in the marriage.

Regarding individual video game use, like the male’s violent video game use, the female’s nonviolent video game use predicts both partners’ perception of video games as being a problem in their relationship. This suggests that the more she plays nonviolent video games, the more frequently video games are perceived as a problem in the relationship for both partners. This finding was similar in effect to the male’s violent video game use although it was not as
strong. This may suggest that type of video game and frequency of use (frequency of use is still low for women in nonviolent video games) are not the issue. Rather it may suggest that there is some type of video game culture in the couple relationship. The female’s use of nonviolent video games is significantly correlated with the male’s use of violent \((r = .20; p < .001)\) and nonviolent \((r = .37; p < .001)\) video games. Perhaps the couple uses video games, and this culture creates an atmosphere where there is less accessibility, responsiveness, and engagement with each other. Lower attachment behaviors also may lead to higher video game use frequency. Other studies have found that individuals play video games for social connection and are sometimes more satisfied with their relationships online than in real life (Colwell & Kato, 2003; Gilbert, Murphy, & Avalos, 2011). For some of these couples, video games may be a substitute for intimacy or a distractor from the pain of not feeling emotionally connected.

The female’s violent video game use predicted her perception that video games are a problem in the relationship. However, the path from violent video game use was negative indicating that the more she plays violent video games, the less frequently video game use is perceived as a problem in the relationship for her. This is similar to what Coyne et al. (2012) found when women’s video game use did not predict video game use being a problem in the relationship. Coyne et al. (2012) suggested that this may be because it may be perceived by men and women as a strength for the relationship if the couple can play together. This idea is supported by the correlations in this study that show a negative relationship between the female’s violent video game play and how often she reports that the couple plays video games together \((r = -.41, p < .01)\). This is also supported by Johnson, Zabriskie, & Hill (2006) who found that when couples were happy with the type of leisure activities they pursued together, the amount of
time spent on the recreational activity did not matter as much. However, contrary to Johnson, Zabriskie, & Hill’s (2006) study, this study’s results found that together video game play was not predictive of whether video games are a problem in the relationship or not.

To answer question 2, the female’s perception that video games are a problem in the relationship predicted both partners’ lower BARE scores, and the male’s opinion that video games are a problem in the relationship predicted his lower BARE score only. Ahlstrom et al. (2012) found similarly that frequent quarreling about video game use is related to lower marital satisfaction. This relationship also supports Coyne et al.’s (2012) finding that when a couple has conflict over video game use, there may be increased aggression in the relationship due to decreased attachment behaviors by both spouses. Perhaps, in the current study when video game use is viewed as being problematic, there is increased aggression or conflict in the relationship which lessens attachment behaviors. If one is angry, he/she is very unlikely to demonstrate BARE behaviors.

The male’s violent video game use positively predicted the female’s BARE score, and the female’s nonviolent video game use positively predicted the male’s BARE score. Each of these associations indicates that the more that a partner plays these types of video games, the more he/she reports showing accessibility, responsiveness, and engagement. These results are similar to Coyne et al. (2012) who found that violent video game play for men and women was not directly associated with increased relationship aggression. However, unlike Coyne et al. (2012), this study did find a small significant, perhaps spurious, relationship between video game use frequency and higher BARE. This finding is surprising since it contradicts the mediated SEM path which indicates that the more a male plays violent video games or a female plays nonviolent
video games the more it is considered a problem in the relationship and the lower the individual’s BARE score is. These contradictory findings indicate the importance of the mediating variable in predicting whether video game use lowers attachment behaviors.

Several of the relationships of video game variables and BARE behaviors were fully mediated by report of video gaming being a problem with no resultant direct effect by the variable that video games are a problem in the relationship. The indirect effect found between male’s violent video game use, male’s perception of video games being a problem, and male’s BARE score was fully mediated and there was no resultant direct effect. The female’s violent video game use, the female’s perception of video games being a problem, and the female’s BARE score was also fully mediated with no resultant direct effect. The female’s nonviolent video game use, the female’s perception that video games are a problem, and the female’s BARE score was also fully mediated. These mediation effects support the relationships that Coyne et al. (2012) discovered. They similarly did not find a significant direct relationship between video game use per se and aggression in relationships. This may indicate that the perception of whether video game playing is a problem in the relationship is the crucial aspect that determines whether video game playing affects a couple’s accessibility, responsiveness, and engagement. Thus, researchers and clinicians cannot automatically assume that frequent video gaming leads to lower attachment behaviors. In fact, in some cases video gaming may increase chances of BARE behaviors occurring especially if video gaming is perceived as recreation and fun that leads to more feelings of couple cohesion and love.

The relationship length did significantly negatively predict both partners’ BARE scores, indicating that it was an important variable to control for in the model and an important variable
in understanding when video game use is a problem and in predicting attachment behaviors. The relationship was negative indicating that the longer a couple was together, the less they reported being accessible, responsive, and engaged in their relationship regardless of game playing. This may be due to a couple’s declining marital quality across the early marital life course that has been shown in many studies (e.g. VanLaningham, Johnson, & Amato, 2001; Veroff, Douvan, & Hatchett, 1995). The relationship length also predicted whether or not the media was a frequent problem in the relationship for both partners. The relationship was positive indicating that the longer couples were in a relationship, the more they struggled with media time being a problem in the relationship. This may be due to waning relationship satisfaction (VanLaningham, Johnson, & Amato, 2001; Veroff, Douvan, & Hatchett, 1995) or the build-up of negative perceptions about frequent video game playing as the relationship matures, which could mean less patience or positive partner attribution for a partner who plays video games for frequently. This may also be related to the increasing number of responsibilities, such as child care responsibilities, and time pressures as couples enter middle age that playing video games may interfere with. Relationship length was the only predictor variable that was significantly related to all the mediators and outcome variables indicating its importance.

Limitations

It may be that couples who play video games together, like exercise games, foster attachment behaviors rather than cause couple problems. Unfortunately, this study did not analyze different types of games specifically, and instead looked at together use as a whole and individual use as violent/nonviolent. Future research may want to explore specific types of media use in relation to attachment behaviors to see if there are differing results.
Due to the skewed scores on the variables in this sample, it may be difficult to predict whether the results reported here are generalizable to populations that play video games more frequently. Very few of the participants played video game at least once a day or multiple times a day, and extremely few of the women played video games frequently. This may have weakened the strength of the findings in this study. In the future, research can collect data for a larger sample of video game users to see if more frequent video game use has a stronger association with attachment behaviors when specifically looking at frequent video game users.

An additional limitation is that this study’s sample consisted of relatively highly educated and mostly white individuals. The results of a more heterogeneous sample of other races and cultures may differ. Researchers in the future can replicate this study using more diverse samples.

Another limitation of this study is that the mediating variable describing whether the participant thought video games were a problem in the relationship was actually generalized to other media as well (e.g. television). Thus these results may be picking up other media that deter couples from participating in attachment behaviors such as online social media, internet, and television. Future research could explore additional media independent variables such as online social media, internet use, and television to explore which type of media is most related to the BARE attachment behaviors.

The results in this study may also be skewed toward couples with high attachment behaviors as the majority of the sample reported that they were high in the attachment behaviors: accessibility, responsiveness, and engagement. This may lead to poor generalizability in less happily married or attached couples, especially clinical populations of couples who may score
lower on attachment behaviors; future research should examine whether clinical couples may report different results. Future research could also explore the couple’s perceptions of each other in attachment behaviors by including the partner questions on the BARE scale. By adding these additional partner perceptions the results may be enhanced and may yield new relationship findings.

**Clinical Implications and Conclusion**

The results of this study may be applied in therapy settings with couples in committed relationships. Although the female’s report of playing video games together as a couple was significantly correlated to attachment behaviors for both partners, the model did not find any significant direct or indirect relationships between playing video games together, video game use as reported as a problem in the relationship, or attachment behaviors. Thus, clinicians should expect that playing video games together as a couple may not necessarily lead to a decrease in conflict in the relationship surrounding video game use or make the partner’s report more attachment behaviors as the relationship between these behaviors is not very strong.

A useful tool to help clinicians assess whether couples or individuals are having problems related to video game playing is the Problematic Online Gaming Questionnaire (POGQ) (Demetrovics, et al., 2012). Although originally developed for online gaming, its questions easily generalize to all type of video games. The questionnaire may help clinicians to assess more thoroughly whether video gaming may be disrupting the couple relationship and their attachment behaviors.

After giving the POGQ, Hawkins & Hertlein (2013) have outlined treatment strategies to help couples who are having problems surrounding video game use. Some of these issues may
include roles, boundaries and rules, intimacy, and online relationships. Hawkins & Hertlein (2013) suggest that clinicians talk with a couple regarding their values surrounding video game use to see if they are in conflict. They suggest that differing personality factors may underlie the couple differences in areas such as aggression, social discomfort, or identity development as related to video game use. Hawkins & Hertlein (2013) suggest identifying whether video game use is a shared or separate leisure activity, as this may determine whether it is an issue at all. Their treatment suggests that therapists help partners have a conversation about perceptions of attachment neglect whether real or felt. The therapist should assess for the individual’s intimacy needs, the attributions partners make about each other around the issue, and couple communication surrounding video game use. They also suggest that clinicians help couples identify whether they have a pattern of pursuing and avoiding or blaming related to the issue of video game use. They suggest creating this dialogue may help heal any past hurts and may be used as a springboard to brainstorm and establish new couple patterns, rules, or boundaries surrounding the video gaming and the effects on the relationship.

A finding that has implications is the different results regarding violent video game use and gender. This study’s results indicated that the male’s violent video game use significantly predicted the couple’s report of video game use being a problem and through this the couple’s attachment behaviors; thus clinicians may suggest males play violent video games less frequently in order to decrease conflict over media use (Coyne et al., 2012) and to help increase attachment behaviors. However, if the female plays violent video games, her perception of it as a problem in the relationship decreases according to the present study. More research is needed to explain
this unexpected finding. However, it is noted that if she reports it as a problem, it nonetheless negatively impacts her attachment behaviors.

The female’s nonviolent video game use significantly predicted the couple’s perception that video games are a problem through their attachment behaviors. This indicates that the less she plays nonviolent video games, the less frequently video games are a problem in the relationship for both and the more the male reports doing attachment behaviors in the relationship. Thus clinicians should assess the frequency with which the female plays nonviolent video games and find out perhaps what may cause the problem regarding her use of them.

Perhaps the most important finding from this study is that the couple’s perception of video gaming as a problem predicts attachment behaviors and mediates the relationship between some types of video game play and attachment behaviors. This implies that clinicians may not have to initially suggest changes in how frequently a spouse plays a certain type of video game, but rather can work to help the couple understand their beliefs about video gaming that feed into video game use being perceived as a problem or a source of conflict. A key treatment strategy described by Hertlein & Hawkins (2013) is to have couples rely less on frequency or hours spent video gaming, and more on other “addictive criteria” which addresses accountability, trust, or intimacy interference. Indeed, Hertlein & Hawkins (2013) suggest that therapists help couples explore realistic expectations, establish boundaries and rules, and improve couple communication surrounding video game play issues that are specific to the couple’s needs and help decrease negative effects of video gaming on attachment behaviors. Clinicians may also foster discussions between committed couples to help them determine and define the threshold where video game use becomes problematic to the relationship through decreasing accessibility,
responsiveness, and engagement. It may be that changing and clarifying cognitions and perceptions regarding video game play, and why or when it is perceived as a problem, are more useful than attempting to change partner behavior.
Table 1: BARE Mean Scores, Standard Deviations, and Factor Loadings.

<table>
<thead>
<tr>
<th>Variable</th>
<th>M*</th>
<th>SD</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male BARE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Accessibility</td>
<td>4.25</td>
<td>.652</td>
<td>.807</td>
</tr>
<tr>
<td>2. Responsiveness</td>
<td>4.39</td>
<td>.570</td>
<td>.824</td>
</tr>
<tr>
<td>3. Engagement</td>
<td>4.15</td>
<td>.792</td>
<td>.820</td>
</tr>
<tr>
<td>4. Total BARE</td>
<td>4.27</td>
<td>.550</td>
<td></td>
</tr>
<tr>
<td>Female BARE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Accessibility</td>
<td>4.45</td>
<td>.600</td>
<td>.805</td>
</tr>
<tr>
<td>6. Responsiveness</td>
<td>4.56</td>
<td>.527</td>
<td>.840</td>
</tr>
<tr>
<td>7. Engagement</td>
<td>4.23</td>
<td>.847</td>
<td>.816</td>
</tr>
<tr>
<td>8. Total BARE</td>
<td>4.41</td>
<td>.542</td>
<td></td>
</tr>
</tbody>
</table>

Note: Range of BARE scores = 1 (low) to 5 (high).
Table 2: Video Game Use as a Problem: Mean Scores, Standard Deviations, and Frequencies.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M^*$</th>
<th>$SD$</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Male VG as a Problem</td>
<td>1.96</td>
<td>1.01</td>
<td>41.9%</td>
</tr>
<tr>
<td></td>
<td>(880)</td>
<td></td>
<td>(608)</td>
</tr>
<tr>
<td>Female VG as a Problem</td>
<td>2.00</td>
<td>1.11</td>
<td>43.7%</td>
</tr>
<tr>
<td></td>
<td>(919)</td>
<td></td>
<td>(546)</td>
</tr>
</tbody>
</table>

Note: Problem scores may range from 1.0 to 5.0; higher scores mean VG use is more of a problem. VG= video game.
Table 3: Video Game Variables: Mean Scores, Standard Deviations, Factor Loadings, and Frequencies.

<table>
<thead>
<tr>
<th>Variable</th>
<th>M*</th>
<th>SD</th>
<th>Factor Loading</th>
<th>Frequency and Percentage of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Male VG Use</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Together play</td>
<td>1.86</td>
<td>1.35</td>
<td></td>
<td>53%</td>
</tr>
<tr>
<td>(1113)</td>
<td>(362)</td>
<td>(114)</td>
<td>(111)</td>
<td></td>
</tr>
<tr>
<td>Violent VG Use</td>
<td>2.36</td>
<td>1.83</td>
<td></td>
<td>53.6%</td>
</tr>
<tr>
<td>(1127)</td>
<td>(300)</td>
<td>(100)</td>
<td>(145)</td>
<td></td>
</tr>
<tr>
<td>Role Playing Games</td>
<td>1.75</td>
<td>1.45</td>
<td>.835</td>
<td>71.3%</td>
</tr>
<tr>
<td>(1497)</td>
<td>(216)</td>
<td>(88)</td>
<td>(77)</td>
<td></td>
</tr>
<tr>
<td>Fighting Games</td>
<td>2.04</td>
<td>1.62</td>
<td>.778</td>
<td>57.5%</td>
</tr>
<tr>
<td>(1209)</td>
<td>(285)</td>
<td>(86)</td>
<td>(123)</td>
<td></td>
</tr>
<tr>
<td>MMORPGS</td>
<td>1.24</td>
<td>.999</td>
<td>.666</td>
<td>85.1%</td>
</tr>
<tr>
<td>(1787)</td>
<td>(98)</td>
<td>(19)</td>
<td>(13)</td>
<td></td>
</tr>
<tr>
<td>Nonviolent VG Use</td>
<td>1.69</td>
<td>1.13</td>
<td></td>
<td>59.3%</td>
</tr>
<tr>
<td>(1245)</td>
<td>(402)</td>
<td>(139)</td>
<td>(112)</td>
<td></td>
</tr>
<tr>
<td>Fitness Games</td>
<td>1.38</td>
<td>.898</td>
<td>.857</td>
<td>73.6%</td>
</tr>
<tr>
<td>(1547)</td>
<td>(268)</td>
<td>(60)</td>
<td>(57)</td>
<td></td>
</tr>
<tr>
<td>Music/Party Games</td>
<td>1.56</td>
<td>.999</td>
<td>.857</td>
<td>63.7%</td>
</tr>
<tr>
<td>(1339)</td>
<td>(378)</td>
<td>(121)</td>
<td>(92)</td>
<td></td>
</tr>
<tr>
<td><strong>Female VG Use</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Together play</td>
<td>1.81</td>
<td>1.29</td>
<td></td>
<td>54.1%</td>
</tr>
<tr>
<td>(1137)</td>
<td>(349)</td>
<td>(109)</td>
<td>(129)</td>
<td></td>
</tr>
<tr>
<td>Violent VG Use</td>
<td>1.29†</td>
<td>.907</td>
<td></td>
<td>86.3%</td>
</tr>
<tr>
<td>(1814)</td>
<td>(136)</td>
<td>(40)</td>
<td>(48)</td>
<td></td>
</tr>
<tr>
<td>Role Playing Games</td>
<td>1.21†</td>
<td>.777</td>
<td>.770</td>
<td>90.6%</td>
</tr>
<tr>
<td>(1903)</td>
<td>(86)</td>
<td>(29)</td>
<td>(37)</td>
<td></td>
</tr>
<tr>
<td>Fighting Games</td>
<td>1.13†</td>
<td>.554</td>
<td>.757</td>
<td>90.2%</td>
</tr>
<tr>
<td>(1896)</td>
<td>(86)</td>
<td>(25)</td>
<td>(15)</td>
<td></td>
</tr>
<tr>
<td>MMORPGS</td>
<td>1.04†</td>
<td>.341</td>
<td>.622</td>
<td>95.4%</td>
</tr>
<tr>
<td>(2005)</td>
<td>(20)</td>
<td>(3)</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Nonviolent VG Use</td>
<td>1.50†</td>
<td>1.01</td>
<td></td>
<td>11.1%</td>
</tr>
<tr>
<td>(1493)</td>
<td>(288)</td>
<td>(113)</td>
<td>(83)</td>
<td></td>
</tr>
<tr>
<td>Fitness Games</td>
<td>1.37</td>
<td>.896</td>
<td>.895</td>
<td>77.9%</td>
</tr>
<tr>
<td>(1637)</td>
<td>(223)</td>
<td>(70)</td>
<td>(60)</td>
<td></td>
</tr>
<tr>
<td>Music/Party Games</td>
<td>1.38†</td>
<td>.813</td>
<td>.895</td>
<td>74.2%</td>
</tr>
<tr>
<td>(1559)</td>
<td>(298)</td>
<td>(98)</td>
<td>(56)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Scores may range from 1 to 7. Higher scores reflect more video game use. VG=video game.  
† This mean score is significantly different from the male’s mean score.
Table 4: Correlation Matrix for all Variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
<th>11.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Total Male BARE</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Total Female BARE</td>
<td>.40**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male VG Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. VG use is a Problem</td>
<td>-.32**</td>
<td>-.19**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Together play</td>
<td>.02</td>
<td>.04</td>
<td>.11**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Violent VG use</td>
<td>-.01</td>
<td>.05*</td>
<td>.19**</td>
<td>-.37**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Nonviolent VG use</td>
<td>-.01</td>
<td>.01</td>
<td>.11**</td>
<td>-.42**</td>
<td>-.37**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female VG Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. VG use is a Problem</td>
<td>-.28**</td>
<td>-.32**</td>
<td>.56**</td>
<td>-.09**</td>
<td>-.19**</td>
<td>-.13**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Together play</td>
<td>.05*</td>
<td>.05*</td>
<td>.08**</td>
<td>-.65**</td>
<td>-.31**</td>
<td>-.32**</td>
<td>.07**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Violent VG play</td>
<td>-.00</td>
<td>.07</td>
<td>.04</td>
<td>-.42**</td>
<td>-.30**</td>
<td>-.16**</td>
<td>.02</td>
<td>-.41**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Nonviolent VG play</td>
<td>.06*</td>
<td>.00</td>
<td>.09**</td>
<td>-.43**</td>
<td>-.20**</td>
<td>-.37**</td>
<td>.10**</td>
<td>-.53**</td>
<td>-.25**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11. Relationship Length</td>
<td>-.35**</td>
<td>-.34**</td>
<td>.29**</td>
<td>.03</td>
<td>.07**</td>
<td>.05*</td>
<td>.28**</td>
<td>.06**</td>
<td>.02</td>
<td>.04</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). VG= Video Game.
Figure 1: Video Game Use and Attachment Behaviors Model.
Figure 2: Video Game Use and Attachment Behaviors Model with Standardized Beta Weights.
References


