Domestic Bliss, or Technological Diss? Problematic Media Use, Attachment, and Relationship Outcomes

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Domestic Bliss, or Technological Diss? Problematic Media Use, Attachment Behaviors, and Relationship Outcomes

McCall A. Booth

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

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Abstract

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Master of Science

The purpose of this study was to examine how problematic media use (technoference, internet gaming disorder symptoms, and pornography use) predicted later partner relationship outcomes, operating through the mediator of attachment behaviors. Participants ($N = 1039$) were from Waves II–IV of the Couple Relationships and Transition Experiences (CREATE) study, a nationally representative quantitative study on marriage relationships across the United States. Both spouses completed surveys reporting problematic media use, attachment behaviors, and relationship outcomes at three separate time points each spaced a year apart. In order to test the hypotheses, three longitudinal actor-partner interdependence models with indirect paths were estimated, with each model corresponding to one type of problematic media use. Results indicated that at the cross-sectional level, all three types of problematic media use had significant indirect actor and partner effects, where problematic media use predicted relationship outcomes through the intervening variable of attachment behaviors. Longitudinally, wife technoference directly negatively predicted later partner attachment behaviors, but there were no full indirect paths of Wave II problematic media to Wave IV relationship outcomes through the intervening variable of Wave III attachment behaviors. Implications of these findings and future directions are discussed.

Keywords: technoference, internet gaming, pornography, attachment, relationship outcomes
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# Table of Contents

Title Page ......................................................................................................................................... i
Abstract ........................................................................................................................................... ii
Acknowledgements ........................................................................................................................ iii
List of Figures ................................................................................................................................. v
List of Tables .................................................................................................................................... vi

Domestic Bliss, or Technological Diss? Problematic Media Use, Attachment Behaviors, and Relationship Outcomes ................................................................. 1

Problematic Media Use ................................................................................................................ 2
  Displacement Hypothesis ........................................................................................................... 2
  Technoference ............................................................................................................................ 2
  Internet Gaming Disorder ....................................................................................................... 3
  Pornography Use ..................................................................................................................... 4

Attachment Behaviors ................................................................................................................. 5

Relationship Outcomes ............................................................................................................... 7
  Relationship Communication ................................................................................................. 7
  Relationship Satisfaction ........................................................................................................ 8
  Sexual Satisfaction .................................................................................................................. 9

The Current Study ..................................................................................................................... 11

Methods......................................................................................................................................... 12
  Procedure .............................................................................................................................. 12
  Participants ............................................................................................................................ 13
  Measures ............................................................................................................................... 14

Results ........................................................................................................................................... 16
  Preliminary Results ............................................................................................................... 16
  Actor-partner Interdependence Models ................................................................................ 17

Discussion ..................................................................................................................................... 21
  Hypothesis 1 .......................................................................................................................... 21
  Hypothesis 2 .......................................................................................................................... 23
  Hypothesis 3 .......................................................................................................................... 24
  Other Findings ...................................................................................................................... 24
  Limitations and Conclusions ................................................................................................. 25

References ..................................................................................................................................... 27

Appendix ....................................................................................................................................... 43
List of Figures

Figure 1. Longitudinal APIM Model .......................................................... 43
Figure 2. APIM Technoference ............................................................... 45
Figure 3. APIM Internet Gaming Disorder .............................................. 46
Figure 4. APIM Pornography Use .......................................................... 47
List of Tables

Table 1. *Pairwise Correlations Between Wave II Variables* ........................................................ 42

Table 2. *Paired T-tests Showing Mean Gender Differences* ........................................................ 43

Table 3. *Factor loadings for Relationship Outcomes* ................................................................. 44

Table 4. *Main Longitudinal Actor-Partner Effects* ................................................................. 48
Domestic Bliss, or Technological Diss? Problematic Media Use, Attachment Behaviors, and Relationship Outcomes

Media is now a central part of modern relational processes, from the use of media to communicate to the use of media for shared entertainment. Media can provide an opportunity for romantic partners to bond, participate in shared leisure, or interact with one another from a distance (Motley, 2008). Media can enhance romantic relationships when specifically used in connective ways (Schade et al., 2013), however, not all media use is beneficial. Problematic media use can occur in romantic relationships when it infringes upon the autonomy of an individual or negatively influences others, such as media addiction, technoference, and (within certain contexts) pornography use (Northrup & Shumway, 2014; McDaniel & Coyne, 2016b; Brown et al., 2017). Such behaviors might impact the way that couples connect or diminish their feelings of safety and attachment (McDaniel et al., 2018; King et al., 2013). With our current media-saturated environment, such instances of problematic media use are typical (Andreassen, 2015) and may have significant influences on relationship attachment behaviors, which may influence a variety of relationship outcomes. Thus, the purpose of this study is to examine the influence of problematic media use (i.e. technoference, internet gaming disorder, and pornography use) on relationship outcomes (relationship satisfaction, relationship communication, and sexual satisfaction) in married couples through the mediator of couple relationship attachment behaviors.

While prior research has offered valuable insights into this topic, this study utilizes a nationally representative sample of married couples in the United States. This offers greater generalizability, and the longitudinal aspect of the study also allows for predicting change over
time. These aspects, in connection with the emphasis on moldable attachment behaviors rather than stable attachment styles, allows for greater application for interventions.

The following sections will highlight the potential impact of problematic media use on relationship communication, relationship satisfaction, and sexual satisfaction. These outcomes are especially pertinent as they are commonly influenced by attachment (Jin & Peña, 2010; Butzer & Campbell, 2008; Stackert & Bursik, 2003) and improper use of media may displace important relational processes that enhance communication and satisfaction.

**Problematic Media Use**

**Displacement Hypothesis**

The displacement hypothesis outlines the process by which media may negatively influence relationship functioning (Putnam, 1995). It posits that a primary issue related to media use is how it can take the place of other beneficial activities and interactions. Individuals have a finite amount of time each day for social interactions, and thus every minute spent engaging with media is one less that can be used for other social activities. As these other activities are reduced, there may be unexpected ramifications for the individual and for those they interact with. This theory is especially relevant for media that is addictive (Liang et al., 2016), and thus the current study utilizes this hypothesis for examining technoference, internet gaming disorder, and pornography use.

**Technoference**

Technoference describes instances where media and technology interrupt or interfere with the quality of interactions between individuals (McDaniel & Coyne, 2016b). A common example in our modern world would be an individual scrolling on their phone while their spouse attempts to communicate with them, resulting in a one-sided conversation. Technoference can be
present in peer friendships (Miller-Ott & Kelly, 2017), coworker interactions (Roberts et al., 2017), parent-child relationships (McDaniel & Coyne, 2016a), and within romantic relationships (McDaniel & Coyne, 2016b; Wang et al., 2019). Typically, greater amounts of technoference are related to greater conflict over technology use (Roberts & David, 2016; McDaniel et al., 2018), less positive face-to-face interactions (McDaniel & Drouin, 2019), lower relationship satisfaction (Wang et al., 2017; McDaniel et al., 2018; Hipp, 2019), poorer communication (Chotpitayasunondh & Douglas, 2018), and lower sexual satisfaction (Hipp, 2019).

Theoretically, the negative impact of technoference might be explained by the displacement hypothesis. While technoference does not occur in solitude, and it may not replace interactions altogether, this behavior does lower the amount of mutually beneficial conversations and experiences with romantic partners. Thus, any positive benefits that may have resulted from normal relationship communication are abandoned (Overall et al., 2009).

**Internet Gaming Disorder**

Internet gaming disorder is another type of problematic media that has emerged in recent years. Current scholars are in disagreement about whether this is a valid diagnosis (Bean et al., 2017), however internet gaming disorder is listed under the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5) as an area of concern (2013). According to the DSM-5, internet gaming disorder is present in individuals who play compulsively, neglect other interests, and suffer in personal or professional functioning due to their gaming activity. Similar patterns are found in other diagnoses of addiction, which lends face validity to this construct (American Psychiatric Association, 2013). As obsessive passion for playing video games is associated with frequent obstructions to satisfying basic psychological
needs (competence, autonomy, or relatedness) (Mills et al., 2018), it is worth exploring regardless of the debate surrounding official classification.

According to the displacement hypothesis, excessive time spent on gaming may impact various other processes or daily interactions as it displaces them. In support of this concept, researchers have found that simply the time spent gaming can be problematic (Triberti et al., 2018; Hamlen, 2010). In addition, pathological gamers experience poorer mental, social-emotional, and physical health when compared to non-addicts (Stockdale & Coyne, 2018). Internet gaming disorder has been studied extensively in adolescent and young adult populations (Stockdale & Coyne, 2018; Hamlen, 2010). However, there has been little research on how internet gaming disorder might impact romantic relationships. I examine these possibilities in the current study.

**Pornography Use**

Finally, relational outcomes have been studied in conjunction with pornography use. Many studies indicate that there is a negative relationship between these constructs, especially when there is a discrepancy between partner use (Brown et al., 2017; Stewart & Szymanski, 2012). While pornography use may not always be detrimental (Poulsen et al., 2013; Grov et al., 2011), research suggests excessive or discordant use can be a problematic form of media involvement within the context of romantic relationships (Willoughby et al., 2016). For example, partners that either both use pornography or engage in shared use have more positive relationship outcomes, at least in the short-term, than discordant couples where one partner has high use and the other does not (Maddox et al., 2011). According to the displacement hypothesis, it is plausible that as an individual uses pornography to fulfill sexual desires, it may displace other sexual activities within a relationship—and thus be detrimental to the sexual and relational
satisfaction of the partner, if not the individual. In addition, if a partner interprets the pornography user’s use as an act of infidelity (Zitzman & Butler, 2009), it may weaken trust in the relationship and further damage the overall relationship quality.

**Attachment Behaviors**

The theory of attachment (Bowlby, 1969; Ainsworth, 1973) has acted as a foundational theory for the study of relational processes and has expanded beyond parent-child attachment to adult attachment in romantic relationships (Busby et al., 2020; Mikulincer & Shaver, 2016; Feeney, 2008). Broadly, attachment refers to the deep emotional bonds that connect one person to another, and the expectations that one has for what can be drawn from that relationship (Bowlby, 1969; Ainsworth, 1973). This theory is often used to examine attachment styles (feelings or beliefs about the relationship), however recent work has also examined attachment behaviors, which are specific actions that can independently influence couple bonding (Sandberg et al., 2017; Sandberg et al., 2012; Johnson, 2008). Attachment is largely shaped in childhood but can change in adulthood (Sandberg et al., 2017; Schade et al., 2013; Dansby, 2018), and therapists often try to encourage accessibility, responsiveness, and engagement in clients in order to strengthen couple romantic attachment (Johnson, 2008; Furrow & Bradley, 2011). These behaviors are not simply a reflection of prior attachment styles, as they have been illustrated to determine an individual’s security in their romantic relationship and further facilitate these attachment bonds (Mikulincer & Goodman, 2006; Mikulincer & Shaver, 2016; Sandberg et al., 2012). Thus, it is important to determine how disruptions to relationship processes (via problematic media use) might predict maintenance of attachment behaviors.

There has been limited research on attachment behaviors in connection with problematic media use (Schade et al., 2013), however broader measures of attachment styles have been
linked to these activities. While technoference is a new topic of study, scholars have used attachment theory to explain how perceptions of technoference in relationships relate to attachment anxiety (McDaniel et al., 2018). In addition, insecure attachment patterns are related to internet gaming disorder (Sung et al., 2020; Suárez et al., 2012), and many studies have examined attachment and pornography use in romantic relationships, with some modeling attachment as an interaction effect (Gouvernet et al., 2017). While much of the research models attachment as a predictor of such behaviors, according to the displacement hypothesis, as problematic media use disrupts relationship patterns these attachment behaviors of accessibility, responsiveness, and engagement will lessen. In turn, these attachment behaviors may be related to overall relationship quality.

This latter theory is supported, as prior research has linked attachment behaviors to relationship outcomes (Sandberg et al., 2012; Rholes et al., 2001). In addition, attachment styles have been linked to relationship satisfaction (Butzer & Campbell, 2008; Feeney, 1994), communication patterns (Jin & Peña, 2010; Domingue & Mollen, 2009), and sexual satisfaction (Brassard et al., 2015; Davis et al., 2006). In particular, higher levels of attachment anxiety and avoidance are associated with lower sexual satisfaction (Butzer & Campbell, 2008), lower quality communication (Domingue & Mollen, 2009), and lower relationship satisfaction (Stackert & Bursik, 2003) for both the individual and the spouse (Banse, 2004). Thus, if fewer secure attachment behaviors occur as a result of problematic media use, both members of the dyad may experience more negative relationship outcomes.
Relationship Outcomes

Relationship Communication

According to the displacement hypothesis, one potential issue that may result from problematic media use, like technoference, is that media may take the place of relationship communication. A couple may find that media use has become a primary coping mechanism when there are relationship struggles (Nabi et al., 2017), and rather than talking it out with their partner they instead decrease in their communication. Or, perhaps shared media simply becomes a prominent activity for the couple when they are together, and there are fewer opportunities for meaningful conversation (Kushlev & Heintzelman, 2018). Ultimately, technoference results in lower-quality interactions and communication between romantic partners is likely to suffer as well.

As with other addictive behaviors, internet gaming disorder may encourage the individual to withdraw from their companion and to try to hide the frequency or influence of video game use through deceit (King et al., 2013). As an individual attempts to hide information from a partner, communication is weakened. According to the displacement hypothesis, as video games are often cited as a coping mechanism for video game addicts (Plante et al., 2019), such individuals may opt for gaming rather than engaging in healthy discussion with their spouse. Thus, communication is further decreased.

Little research has been conducted on the topic of pornography use and relationship communication patterns. One study by Resch and Alderson (2014) illustrated how transparency about pornography use can moderate the relationship between pornography use and sexual satisfaction within couples. Another study by Kohut et al. (2018) reports that shared pornography use is associated with more open sexual communication, while Willoughby et al. (2016) report
that discordant use is associated with less positive communication. According to the displacement hypothesis, individual pornography use may displace other shared couple processes, such as communicating sexual needs or desires with one’s partner. Pornography use may not inherently displace couple interactions, but if the individual uses it as a means to enjoy sexual fantasies without the risk of communicating such desires to a partner, it may influence communication about intimate topics.

**Relationship Satisfaction**

Relationship satisfaction has been studied for decades, however with the rise of new media there are many facets yet unexplored (Hawkes et al., 1956; Kelly et al., 1985; McNulty et al., 2016). To begin, technoference has been found to influence relationship satisfaction via greater conflict within a relationship (McDaniel et al., 2018). As frequent media disruptions cause partners to feel less valued, disagreements may arise and relationship satisfaction decrease. Similarly, as an individual is making bids for attention while their partner is distracted due to media, relationship satisfaction may lessen (McDaniel & Coyne, 2016). Actor-partner models have illustrated how technoference may negatively predict both the media user’s own relationship satisfaction, and that of the partner (Hipp, 2019).

One way in which media use can influence relationship satisfaction is via gaming addiction and the secrecy that results from addiction-related behaviors. A study showed that participants rated secrets about online addictive behaviors to influence relationship satisfaction just as strongly as secrets about other addictive behaviors, like marijuana use (Pyle & Bridges, 2012). According to the displacement hypothesis, the vast amounts of time and devotion dedicated to video games likely replace meaningful relationship experiences. A relationship where one partner is constantly gaming and the other is not may result in lower relationship...
satisfaction, especially for the non-gamer (Dew & Tulane, 2015). In addition, if an individual is addicted and the spouse is not, this difference in priorities may result in increased conflict. One research team coined a term for the disaffected partner in relationships where the other partner engages in high video game use, called “gamer widows” (Northrup & Shumway, 2014). This encompasses the “death” of the relationship that results from one partner withdrawing from relational processes and in effect is no longer present in the relationship. In those cases, video game use has nearly fully displaced the relationship.

Pornography use has also been negatively linked to relationship satisfaction (Doran & Price, 2014; Pyle & Bridges, 2012; Deloy, 2006). In particular, discordant pornography use is related to less relationship satisfaction (Willoughby et al., 2016), as differences in patterns of use may “influence specific couple interaction processes which, in turn, may influence relationship satisfaction” (p. 1). One study by Borgogna et al. (2018) suggests that pornography use for the sake of escaping negative emotions is detrimental to relationship satisfaction for women. If one member of the couple is a frequent user of pornography and that use displaces other relational processes, such as joint emotional regulation, the partner’s relational satisfaction may suffer.

**Sexual Satisfaction**

Technoference can influence sexual satisfaction, for while nearly 1 in 10 people report checking their phones while engaging in sex (Harris Interactive, 2013), other forms of technoference may limit connection in couples that could lead to fewer opportunities for sexual intimacy (Krasnova et al., 2016). This type of mental-disconnect from the sexual activity can greatly limit satisfaction and result in less passion (Granvold, 2001). As sexual satisfaction is not only based on frequency of sexual experiences, but the quality of those experiences (Neto, 2012;
Pinney et al., 1987), technoference may be a major obstruction to maintaining sexual satisfaction (Hipp, 2019).

Broader forms of internet addiction have been connected to poorer sexual outcomes (Scimeca et al., 2017), and thus internet gaming disorder may have similar effects. One study examined video game use and sexual health and found that gamers reported decreased sexual desire when compared to non-gamers (Sansone et al., 2017). As video games are highly stimulating, it may be that sexual desire is decreased due to the appeal of gameplay and the satisfaction that is derived from it. If a partner is experiencing lower sexual desire, a spouse who has higher desire may likely experience lower sexual satisfaction (Rosen et al., 2018). In addition, internet gaming may displace time spent on sexual activity, which has been shown to predict sexual satisfaction (Schoenfeld et al., 2017).

Studies have found a negative relationship between pornography use and sexual satisfaction (Wright et al., 2017; Blais-Lecours et al., 2016, Doran & Price, 2014; Maddox et al., 2011). Differences in findings may be attributed to a number of factors, including whether pornography use is individual or shared, the gender or religiosity of the participant, or whether sexual satisfaction is measured generally or within one domain (Perry & Whitehead, 2019; Willoughby & Leonhardt, 2018; Wright et al., 2017). Within the context of a committed relationship, as pornography use increases, the perceived quality of the sexual relationship with a spouse is less satisfying (Yucel & Gassanov, 2010; Zillmann & Bryant, 1988). Masturbation can act as a replacement or as a supplement for other sexual activities (Regnerus et al., 2017), and thus according to the displacement hypothesis pornography use may negatively predict partner sexual satisfaction if joint sexual experiences occur less frequently.
The Current Study

The purpose of the current study is to examine the role of problematic media use in romantic relationships. Previous research has indicated that the influence of one spouse upon the other can be best discerned by examining the dyad, even within a media context (Dew & Tulane, 2015). There are prevalent discrepancies between how men and women perceive problematic media use from their partners (McDaniel et al., 2018), thus information about these gendered relationships is best examined via dyadic analyses. In addition, as media is typically used to fulfill individual needs, and not partner desires, it is possible that the effect of problematic media use will be more salient for the partner rather than the individual engaging in poor media habits. In order to model this relationship, I will use an actor-partner interdependence model estimating indirect paths where women are compared to men.

Overall, marriages are highly influenced by contextual factors. For example, those with limited resources experience an additional strain on their relationship (Karney & Bradbury, 2005), outcomes of pornography use are often dependent upon religiosity (Perry & Whitehead, 2019), Black women report lower relationship satisfaction than White women (Dillaway & Broman, 2001), and age at marriage (Rotz, 2016) is related to marital instability. Together, these findings suggest the need to control for these variables.

Thus I hypothesize that (1) problematic media use (technoference, internet gaming disorder, and pornography use) will negatively predict later partner attachment behaviors, (2) actor and partner attachment behaviors will positively predict relationship outcomes, and (3) problematic media use will negatively predict later partner relationship outcomes, controlling for race, religion, age, education, income, and age at marriage.
Methods

Procedure

Participants for this study were respondents in the Couple Relationships and Transition Experiences (CREATE) study, which is a nationally representative survey of newly married young couples (Yorgason et al., 2020). The study was approved by all appropriate IRB bodies. Participants for the study were recruited using a two-stage cluster stratification sample design, with the first stage involving a sample of counties, and the second involving a sample of recent marriages within those selected counties. Counties were selected based on a probability proportion to size (PPS) design. Selection was based on county population size, marriage, divorce, and poverty rates, and the racial-ethnic distribution of the county. The number of marriages selected per county ranged from 40 to 280, depending on these five characteristics. This design yielded a sampling frame of 11,960 marriages across 239 counties. Ten counties did not have at least 40 marriages during the sampling period, leaving the final sampling frame at 11,889 marriages. Wave I resulted in a sample size of 2,187, and for this analysis using Waves II-IV there were 1,039 marriages with complete data for both partners.

Data collection for Wave II started in April 2017. Participants were invited to complete the survey online approximately 1 year after they completed the prior wave. The Dillman survey method was used in Waves II-IV, with multiple contacts (text-message, E-mail, U.S. mail, phone calls) made across time (Dillman et al., 2008). Upon completing the contacting protocol for each group, they were sent a text and emailed another invitation offering an extra $10 to couples who completed the survey in the following week. Participants were asked to read and then acknowledge consent to participate in the study and emailed a $50.00 Amazon gift card ($100 per couple) upon completion of the survey.
Participants completed the survey electronically. If internet access was limited, they were allowed to communicate their responses over the phone with a trained research assistant or complete a paper copy of the survey and mail in their response. As responses were collected from both partners, they were instructed to take the survey alone and without the aid of their spouse, so that their responses could be unbiased from their partner.

Waves II-IV were used for the present study because the variables of interest were not collected at Wave I.

Participants

The average age for wives at Wave II was 28.97 years old (SD= 5.07) and the average age for husbands was 30.81 years old (SD= 5.65). Most individuals in the sample were in their first marriage (87%), while some (13%) were in a second or higher marriage. The majority of the couples reported being of European American descent (63% wife, 58% husband), with the remaining couples being of African American (8% wife, 10% husband) Hispanic (13% wife, 11% husband), Asian American (5% wife, 3% husband), and Interracial (6% wife, 5% husband) descent. Regarding education, 40% of wives and 31% of husbands had a bachelor’s degree or higher. At Wave II, approximately 15% of couples reported an annual income less than $29,999, 26% reported an annual income between $30,000–$59,999, 29% reported an annual income between $60,000–$99,999, and 25% reported an annual income greater than $100,000. The sample was mostly heterosexual, (96%), and as the analysis plan relied on gendered partner effects, couples in a same-sex marriage were omitted from the analysis.
Measures

Technoference

Technoference was measured using the Technology Interference in Life Examples Scale (TILES; McDaniel & Coyne, 2016a). This scale measures the amount of interference present during relationship interactions. It has five items (e.g. “During a typical mealtime that my partner and I spend together, my partner pulls out and checks his phone or mobile device” and “During leisure time that my partner and I are able to spend together, my partner gets on his phone, mobile device, or tablet.”). Participants rated these items on an 8-point scale: 0 (never), 1 (less than once a week), 2 (once a week), 3 (once every few days), 4 (once a day), 5 (2 to 5 times a day), 6 (6 to 9 times a day), and 7 (10 or more times a day), with the items averaged together and higher scores indicating greater technoference. The scale had acceptable reliability (α = 0.85).

Internet Gaming Disorder

Internet gaming disorder symptoms were measured using a modified version of the Internet Gaming Disorder Scale (Lemmens et al., 2015). The original scale has 27 items, however for the current study there were 9 items (e.g. “Have you been feeling miserable when you were unable to play a game?” and “Have you experienced serious conflicts with family, friends, or partner because of gaming?”). Participants rated these items on a dichotomous scale: 0 (no) and 1 (yes), thus making this a count variable with higher values reflecting greater symptoms of internet gaming disorder. The scale had acceptable reliability (α = 0.74).

Pornography Use

Pornography use was assessed using one item developed by Carroll et al. (2008) asking respondents to report the average amount of hours each week spent viewing pornography.
Responses were given on a six point scale with 0 = none, 1 = less than an hour a week, 2 = 2-3 hours a week, 3 = 3-7 hours a week, 4 = 1-3 hours a day, and 5 = 3 or more hours a day.

**Attachment Behaviors**

Couple attachment behaviors were measured using the Sandberg et al. (2012) Brief Accessibility, Responsiveness and Engagement (BARE) scale. Respondents were shown a series of six statements to indicate their partner’s accessibility, responsiveness, and engagement in their current relationship. Example statements include “My partner is rarely available to me”, “I am confident my partner reaches out to me” and “It is hard for my partner to confide in me”. Answers were given on a scale from 1 (never true) to 5 (always true) with the items averaged together. Generally higher values indicate higher attachment, with several items reverse coded. The accessibility, responsiveness, and engagement scales were combined for the purpose of the current study. The overall scale had acceptable reliability ($\alpha = 0.83$).

**Relationship Communication**

Relationship communication was measured using four items that asked what the respondent thought of themselves when it came to relationship behaviors such as listening and communication (Busby et al., 2001). An example of the questions being, “How are YOU (or your partner) in your relationship?” They then went on to identify, “I am able to listen to my partner in an understanding way,” and, “In most matters, I understand what my partner is trying to say.” The respondents then had to answer the previous questions about their partners. For example, “My partner is able to listen to me in an understanding way.” The responses were recorded on a five point Likert scale ranging from 1 (never) to 5 (very often) with the items averaged together. Partner-oriented and self-oriented responses are scaled together for the current study. The scale had acceptable reliability ($\alpha = 0.93$).
Relationship Satisfaction

The relationship satisfaction construct was measured using four items from the Funk and Rogge (2007) Couple Satisfaction Index. Respondents were asked to rate “how satisfied” they were in their relationship, “how rewarding” there relationships and whether or not they had a “warm and comfortable” relationship with their partner; these items were measured on a six point scale with 0 (not at all) to 5 (completely). They were also asked to select their “degree of happiness” on a scale from 1 (extremely unhappy) to 7 (perfect). The responses were transformed into z-scores and averaged together in a scale, which had acceptable reliability (\( \alpha = 0.94 \)).

Sexual Satisfaction

Sexual satisfaction was measured using items from a broader scale of sexuality using items found in the RELATE study (Busby et al., 2001) and further developed for CREATE. Specifically, it was measured using five items on a 1 (very dissatisfied) to 5 (very satisfied) point Likert scale. Sample items included: “How satisfied are you with how often you currently have sex with your partner?” and “How satisfied are you with the amount of creativity and variety in your sexual relationship with your partner?” The items were averaged together and the scale had acceptable reliability (\( \alpha = 0.84 \)).

Results

Preliminary Results

Both husbands and wives showed relatively low levels of problematic media use and moderate scores for relationship outcomes (See Table 2). Correlations between the study variables at Wave II were estimated using StataSE 16 (StataCorp, 2019) and are presented in Table 1. Most variables were significantly correlated with one another, except that wife
pornography use was not significantly correlated to wife \((r = -.03, p = .19)\) or husband communication \((r = -.01, p = .60)\).

A series of paired t-tests were estimated using StataSE 16 (StatCorp, 2019) to determine whether there was a statistically significant mean difference between wives and husbands, with positive values reflecting higher mean scores for wives \((N = 1537)\). There were gender differences for technoference \((t (1545) = 7.04, p < .001)\), internet gaming disorder \((t (1518) = -13.80, p < .001)\), pornography use \((t (1602) = -22.13, p < .001)\), attachment behaviors \((t (1524) = -3.41, p = .007)\), communication \((t (1557) = 2.15, p = .03)\), and sexual satisfaction \((t (1519) = -2.02, p = .04)\). See Table 2 for more information.

**Actor-partner Interdependence Models**

Through a series of three Actor-Partner Interdependence Models (APIM; Kenny et al., 2006) and bootstrap analyses (Hayes, 2009) I tested the study hypotheses using Mplus (Muthén & Muthén 2017). The models estimated the impact of one partner’s problematic media use \((X)\) on subsequent attachment behaviors \((M, M)\) and the impact of those behaviors on subsequent relationship outcomes \((Y, Y)\), controlling for \(M\) and \(Y\) at previous time points (see Figure 1). Control variables included race, religion, age, education, income, and age at marriage, and the three relationship outcomes (communication, relationship satisfaction, and sexual satisfaction) were modeled as a single latent variable, and sampling weights were used to reflect national averages. The measurement model assessing model fit for the latent variables provided adequate model fit: \(\chi^2 (93) = 579.84, p < .001, CFI = .97, RMSEA = .05, SRMR = .04\). See factor loadings at Table 3.

The bootstrapping technique (Hayes, 2009) using 5000 bootstrap draws was used to test indirect paths. Full information maximum likelihood (FIML) estimations in Mplus (Muthén &
Muthén 2017) was used to handle missing data, and as FIML allows missing data on model outcomes but omits cases with missing data on model predictors, there was only between .01% and 9% missing for all variables. Time invariance was assessed using Widaman et al. (2010) and the models met partial invariance. This indicated that all factor loadings could be constrained across time without model fit worsening.

To account for non-normally distributed data, problematic variables were transformed using a logarithm transformation. Mplus does not allow for maximum likelihood parameter estimates that are robust to non-normality (MLR) when performing boostrapping analyses. Thus, in order to obtain standard errors and chi-square values that are robust to non-normality, two analyses were performed. Main effects were estimated using MLR without boostrapping, and indirect effects were estimated using standard maximum likelihood parameter estimates (ML) with 5000 bootstrap draws. The following sections outline the individual findings from each model. For all three-wave longitudinal actor-partner effects, see Table 4.

*Technoference*

For the APIM predicted by technoference, model fit statistics suggested that the model fit was acceptable (Kline, 2015): $\chi^2 (437) = 1006.88, p < .001$, CFI = .95, RMSEA = .04, SRMR = .06. Cross-sectional analyses at Wave II revealed that the indirect paths were significant from husband technoference to husband ($b = -.10, p < .001$) and wife ($b = -.04, p < .001$) relationship outcomes through the intervening variable of wife attachment behaviors. The indirect paths were also significant from wife technoference to wife relationship outcomes through the intervening variables of both husband ($b = -.13, p < .001$) and wife attachment behaviors ($b = -.02, p = .002$). In addition, the indirect paths were significant from wife technoference to husband
relationship outcomes through the intervening variables of both husband \((b = -.05, p < .001)\) and wife attachment behaviors \((b = -.04, p < .001)\).

Next, analyses revealed that across two waves, the indirect path of Wave II wife technoference to Wave III wife relationship outcomes through the intervening variable of Wave II husband attachment behaviors was significant \((b = .035, p = .015)\). In addition, the indirect path was also significant from Wave II husband technoference to Wave III husband relationship outcomes through the intervening variable of Wave II wife attachment behaviors \((b = .022, p = .033)\).

Finally, the three-wave longitudinal analyses revealed that Wave II wife technoference directly negatively predicted Wave IV husband relationship outcomes \((b = -.03, p = .034)\). There were no significant indirect effects, as attachment behaviors at Wave III were not predictive of relationship outcomes at Wave IV, controlling for those outcomes at prior waves. For more results see Figure 2.

In summary, while there are no three-wave longitudinal indirect effects, Wave II wife technoference does directly predict Wave IV husband relationship outcomes. In the short-term there are significant indirect effects with both husband and wife technoference negatively predicting actor and partner attachment behaviors, which then positively predicts partner relationship outcomes.

**Internet Gaming Disorder**

For the APIM predicted by internet gaming disorder symptoms, model fit statistics suggested that the model fit was acceptable (Kline, 2015): \(\chi^2 (437) = 1015.49, p < .001\), CFI = .94, RMSEA = .04, SRMR = .06. First, cross-sectional analyses at Wave II show that the indirect paths were significant from husband internet gaming disorder symptoms (IGDS) to husband
relationship outcomes through the intervening variables of husband \( (b = -.08, p = .001) \) and wife \( (b = -.15, p = .001) \) attachment behaviors. Similarly, the indirect paths were significant from husband IGDS to wife relationship outcomes through the intervening variables of husband \( (b = -.21, p < .001) \) and wife \( (b = -.05, p = .003) \) attachment behaviors.

Across two waves, there was a single significant indirect path from Wave II husband IGDS to Wave III wife relationship outcomes through the intervening variable of husband attachment behaviors \( (b = .05, p = .033) \).

Finally, the three-wave longitudinal analyses revealed that wife IGDS at Wave II directly negatively predicted wife relationship outcomes at Wave IV \( (b = -.23, p = .044) \). There were no significant indirect effects. For more results see Figure 3.

Altogether, the complete indirect paths of husband internet gaming to husband/wife relationship outcomes through husband/wife attachment behaviors held well at the cross-sectional level. Of note, while in the previous model Wave II wife technoference directly predicted Wave IV husband relationship outcomes, for this model Wave II wife IGDS directly predicted Wave IV wife relationship outcomes.

**Pornography Use**

For the APIM predicted by pornography use, model fit statistics suggested that the model fit was acceptable (Kline, 2015): \( \chi^2 (437) = 1044.00, p < .001, \text{CFI} = .94, \text{RMSEA} = .04, \text{SRMR} = .06 \). Cross-sectional analyses at Wave II revealed that the indirect paths were significant from husband pornography use to husband \( (b = -.08, p = .010) \) and wife \( (b = -.03, p = .020) \) relationship outcomes through the intervening variable of wife attachment behaviors. There were no significant indirect paths across two or three waves. For more results see Figure 4.
In summary, this model did not have any direct or indirect longitudinal paths from pornography use to relationship outcomes. However, there was an indirect path of husband problematic media use to husband and wife relationship outcomes cross-sectionally. As shown in Figure 4, husband pornography use negatively predicts wife attachment, which then positively predicts both husband and wife relationship outcomes.

Discussion

We live in a media saturated environment, and thus media use is interwoven in romantic relationships. Prior research has examined the role of technoference, internet gaming disorder, and pornography use on relationship outcomes, but few have examined how these relationships might operate through particular attachment behaviors, with almost no research examining these associations longitudinally. Thus, this study sought to explore the relation between problematic media use and relationship outcomes, through the intervening path of attachment behaviors.

Hypothesis 1

My first hypothesis that problematic media use would predict later partner attachment behaviors was partially supported. Husband technoference did negatively predict later partner attachment behaviors, but this relationship was not present for internet gaming disorder symptoms or pornography use. This may be due to a variety of factors.

Technoference

In the first model, a partner effect was found in that husband technoference at Wave II predicted wife attachment behaviors at Wave III. Because attachment behaviors were reported by the spouse, this suggests that as husbands increase in technoference, over time the husbands believe that their wives are less engaged, accessible, and responsive. Prior research supports this finding, as by definition technoference involves technology interfering with daily interactions
(McDaniel & Coyne, 2016b). When this displacement occurs wives may then feel as if any effort they place into the relationship will not be reciprocated; thus, they may engage in fewer attachment behaviors. An additional actor path of interest included how husband technoference negatively predicted later husband attachment behaviors. This indicates that as both husbands increase in their technoference, over time their spouse reports that they are less engaged, accessible, and responsive. This strongly supports the displacement hypothesis, as typical relationship processes are replaced by technological interruptions. Combined with the earlier finding, not only does technoference interfere with your partner’s attachment behaviors, it can predict your own as well. As technoference is a subtle behavior, many couples who are experiencing distress may not realize that it stems from technoference. Therefore, in marriages where at least one partner is frequently on a mobile device, couples should create boundaries around mobile media use in order to protect the relationship processes that benefit attachment.

**Internet Gaming Disorder**

In the next model, wife internet gaming disorder symptoms at Wave II negatively predicted wife attachment behaviors at Wave III. This was expected, as addictive behaviors that interfere with one’s quality of life will likely disrupt the romantic relationship (Dew & Tulane, 2015). Previously, insecure attachment patterns have been shown to predict internet gaming disorder (Sung et al., 2020, Suárez et al., 2012), but the current study illustrates how this form of problematic media use can also predict attachment behaviors. Interestingly, husband internet gaming disorder symptoms did not predict husband or wife attachment over time. It is possible that the gender differences seen in internet gaming disorder symptoms can be attributed to societal expectations surrounding gaming. Video games are typically used by men and are male-oriented in design (Ivory, 2006), and thus a woman who has disordered play is more likely to be
viewed as problematic than a man with the same behaviors. Thus, husbands may feel especially jilted by their wives’ obsessive play, and as a result they report that their wife participates less in maintaining typical relationship processes. Overall, these findings suggest that over time wife disordered internet gaming may negatively influence spouse engagement, accessibility, and responsiveness. In order to avoid the relationship death that occurs when a spouse becomes a “gaming widow(er)” (Northrup & Shumway, 2014), individuals ought to be aware of the ways in which their gaming might displace other relationship processes.

**Pornography Use**

In the final model there were no longitudinal partner effects. According to the displacement hypothesis, the greater amount of time spent on any particular problematic media use, the greater the disruption to the relationship—and by extension, one’s security in the relationship. However, pornography use did not predict later partner attachment behaviors. While pornography use can be a shared experience and may often be disclosed (Resch & Alderson, 2014), it also can be an intimate practice where one’s partner is not aware of the extent of usage. Thus, the partner’s attachment behaviors would remain unchanged despite the frequency of use. Future studies ought to address disclosure of pornography use, perceptions around pornography use, and joint pornography use in order to gain a better understanding of this process.

**Hypothesis 2**

My second hypothesis that actor and partner attachment behaviors would then predict later relationship outcomes was partially supported. Husband attachment behaviors predicted later husband relationship outcomes in all three models (actor-only), however neither wife nor husband attachment behaviors predicted partner relationship outcomes. This speaks to a strong gendered effect. As men often withdraw if they experience conflict (Gottman & Levenson,
greater attachment behaviors may be representative of overall marital stability. Thus, if a husband is accessible, responsive, and engaged, he may already be experiencing a positive relationship with his spouse. In addition, it is possible that husbands and wives derive satisfaction from different sources. Studies have shown that men and women have differing needs for separation and closeness (Peleg, 2008), and consequently husband relationship quality may be more sensitive to individual attachment behaviors.

**Hypothesis 3**

Finally, my hypothesis that technoference, internet gaming disorder, and pornography use would directly predict later partner relationship outcomes was not fully supported, as only wife technoference predicted later husband relationship outcomes. This may be due to the timing of when data were collected. At Wave II, participants were in the early stages of their marriage and were setting initial standards for their relationship. Internet gaming disorder and pornography use may be perceived as more polarizing practices (Thege et al., 2015; Kohut, 2017), and thus those behaviors are corrected or discussed within the relationship. Alternatively, technoference might be considered a nuisance but not as overt of an issue (Miller-Ott & Kelly, 2017). Thus, if early on in the relationship a wife is engaging in technoference, it may set a negative precedent for partner communication and intimacy over time. This type of behavior is less likely to be corrected, and thus these damaging cycles are allowed to continue.

**Other Findings**

Interestingly, the cross-sectional mediation paths were supported, as Wave II attachment functioned as an indirect pathway. Specifically, problematic media use predicted partner attachment behaviors for both husbands and wives, and attachment behaviors predicted partner relationship outcomes for all three models. These relationships were not the central focus of the
present study; however, they do suggest the importance of current media habits on relationship outcomes. It appears as if problematic media use is a pressing issue in romantic relationships and can cause immediate distress. Perhaps over time these behaviors are corrected, and that is why some of the longitudinal effects were non-significant.

Overall, there was limited evidence that problematic media use impacts relationship outcomes over time, as mediated by attachment behaviors. While there were no complete indirect paths, both the technoference and internet gaming disorder models included some partner effects over time. This suggests that while attachment behaviors may not be the vehicle for understanding the relationship between problematic media use and later relationship outcomes, problematic media use can predict later attachment behaviors. Thus, in order to strengthen marriage interactions, couples ought to be aware of their own media use. In addition, these actor-partner indirect paths were significant in all three models when looking at cross-sectional effects. Therefore, reducing problematic media use in the short-term may have immediate benefits to relationship attachment behaviors and relationship outcomes.

**Limitations and Conclusions**

The current study had some notable strengths including a longitudinal design spanning three years, a representative large sample, and both husband and wife reports of behavior. However, there were several limitations. The study was limited by the use of self-report measures, particularly for problematic media use. Partner perceptions of problematic behaviors may be more meaningful when looking at actor-partner effects, and thus future studies ought to compare self and partner report of key variables. In addition, while most of the measures were comprised of scales with multiple indicators, pornography use was only a single-item measure. This limited the power of this measure and may not have captured the nuance necessary. Future
studies ought to specifically study pornography use that is perceived as problematic by the partner in order to better represent problematic pornography use. Many of the expected longitudinal paths were non-significant, which may be attributed to the length of time between each measurement. Effects of problematic media use may be better detected with shorter intervals, such as through daily diary use, or smaller month increments. Finally, while the sample was fairly representative, same-sex couples were omitted for the purpose of the gendered APIM.

In conclusion, cultivating healthy media habits is essential for relationship functioning. As media use is often perceived as an individual endeavor rather than a component of social relationships, it can be difficult to identify how one’s media use might affect a romantic partner. The results of this study suggest that problematic media use may have select effects in the long-term, but in the short-term personal problematic media use can be detrimental to partner relationship outcomes. Identifying the processes through which media use can be harmful to a marriage relationship will ultimately help individuals, researchers, and clinicians in the quest of determining how to strengthen marriages.
References


Figure 1.

*Longitudinal Actor-Partner Interdependence Model illustrating relation between problematic media use and relationship outcomes, mediated by attachment.*

*Correlations between same constructs for Husband/Wife excluded for ease of viewing*
Table 1.

Pairwise Correlations Between Wave II Variables

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*p < .05, *p < .01, *p < .001
Table 2.

*Paired T-tests Showing Mean Gender Differences*

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*p < .05, *p < .01, ***p < .001
Table 3.

*Factor loadings for Relationship Outcomes*

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Figure 2.

*Longitudinal Actor-Partner Interdependence Model illustrating relation between technoference and relationship outcomes, mediated by attachment.*

Note: Control variables, non-significant paths, error terms, and correlations excluded for ease of viewing. See Figure 1 for all tested paths.

\[ *p < .05, **p < .01, ***p < .05 \]
Figure 3.

Longitudinal Actor-Partner Interdependence Model illustrating relation between internet gaming disorder symptoms and relationship outcomes, mediated by attachment.

* $p < .05$, ** $p < .01$, *** $p < .05$
Figure 4.

Longitudinal Actor-Partner Interdependence Model illustrating relation between pornography use and relationship outcomes, mediated by attachment.

Note: Control variables, non-significant paths, error terms, and correlations excluded for ease of viewing. See Figure 1 for all tested paths.

*p < .05, ** p < .01, ***p < .05
### Table 4.

**Main Longitudinal Actor-Partner Effects**

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*p < .05, **p < .01, ***p < .001

**Note.**  
* b is unstandardized coefficient; β is standardized coefficient  
X = problematic media use at Wave II  
M = attachment behaviors at Wave III  
Y = relationship outcomes at Wave IV  
There were no significant indirect effects, so they were omitted from this table.