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Me, My Spouse, and My Avatar

The Relationship between Marital Satisfaction and Playing Massively Multiplayer Online Role-Playing Games (MMORPGs)

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Abstract

A variety of online support groups exist for "gaming widows" who feel their spousal relationship has been displaced by time spent playing Massively Multiplayer Online Role-Playing Game(s) (MMORPGs). MMORPG research has been presented on youth and adults, however to date, there is no research on married gamers to support or refute the claims of discontented spouses. The purpose of this study was to gain a better understanding of the gaming behaviors of couples who play MMORPGs. The sample included 349 couples. Results indicated lower marital satisfaction related to couples' MMORPG gaming interactions such as quarrelling about gaming, not retiring to bed at the same time, and addictive gaming behavior. Positive effects of gaming together were also identified.

KEYWORDS: *Massively Multiplayer Online Role Playing Game (MMORPG), couple leisure, marital satisfaction, gaming addiction*

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Research suggests that video gaming has become the fastest growing form of leisure behavior (Ryan, Rigby, & Przybylski, 2006, p. 347) with video game revenues surpassing Hollywood (Yi, 2004, a1). This information implies that video gaming is quickly becoming the world's largest entertainment medium (Ryan et al., 2006). While video game playing has been generally associated with youth populations, recent research on Massively Multiplayer Online Role-Playing Games (MMORPGs) shows increased adult participation, the average age for male players being 26, and for females 32 (Yee, 2006, pp. 16-17). Thirty-six percent of MMORPG players report being married, and 22% have children (Yee, 2006, p. 18). MMORPG gamers play on average 22.71 hours per week and 82% of gaming occurs from 6 to 11 p.m. (Ng & Wiemer-Hastings, 2005, p. 112), a time of night frequently reserved for social interaction and communication, or participation in individual, couple, or family leisure activities. Considering these issues, it is feasible that a wide range of relationships both within and outside the family may be affected by excessive MMORPG involvement, particularly concerning would be the potential neglect of relationships between parents and children or between spouses. Focusing primarily on the couple relationship, Ogletree and Drake (2007) stated, "Couple time may be displaced if one person in a relationship is a frequent gamer and the other is not" (p. 540). As over one third of MMORPG players report being married, this study sought to better understand the association between MMORPG playing and marital satisfaction.

Marital Satisfaction

Current research suggests that married individuals have higher levels of psychological well-being (Kim & McKenry, 2002, p. 885), economic status (Seltzer, 2000, p. 1250), and physical health (Carrére, Buehlman, Gottman, Coan, & Ruckstuhl, 2000, p. 42), when compared to cohabitating, separated, or divorced individuals. The U.S. Census Bureau has reported that 90% of U.S. adults will marry at some point in their lives, but that 50% of these marriages will end in divorce (Kreider & Fields, 2001). Of those marriages that remain intact, many will remain in poor functioning relationships with spousal dissatisfaction (Waldinger, Schulz, Hauser, Allen, & Crowell, 2004, p. 58). It follows that, "identifying the factors that help marriages survive has important implications" (Carrére et al., 2000, p.42).

The construct of marital satisfaction has been widely studied, with over 2,000 articles with marital satisfaction in the title from the years 2001 to 2009. Marital satisfaction has been defined as "the degree to which spouses perceive that their partners meet their needs and desires" (Peleg, 2008, p. 388). Others have defined marital satisfaction as an emotional state of contentment with the interactions and experiences of married life (Ward, Lundberg, Zabriskie, & Berrett, 2009, p. 415). Following an extensive review of research, Bradbury, Fincham, and Beach (2000) claimed marital satisfaction to be the central point of individual and family well-being. They further identified important predictors of marital satisfaction including the quality and nature of interpersonal interactions, the presence of children, life-stresses, and economic factors (p. 964).

Leisure and Marital Satisfaction

In addition to these important predictors of marital satisfaction, a growing body of research has indicated the significance of shared time and couple leisure. While the causal pathways are not clear, there is an unmistakable relationship between couple's time spent together and marital satisfaction (for a review see Reissman, Aron, & Bergen, 1993, pp. 244-245). Some researchers have argued that over the past four decades couples increasingly spent more time, including leisure time, in each other's presence (Voorpostel, van der Lippe, & Gershuny, 2009, p. 167), contrasting a common notion that couples today spend less time together and that they desire a more independent, private, and autonomous relationship. (Kalmijn & Bernasco, 2001, p. 652).

In general, previous research suggests that couples who participate in leisure activities together have higher levels of martial satisfaction (Holman & Epperson, 1984, p. 285; Orthner & Mancini, 1991). More specifically, Herridge, Shaw, and Mannell (2003) observed, "Couple leisure was experienced as comforting and relaxing, and it was seen to enhance the relationship" (p. 281). These researchers also reported that it was the mutually enjoyable activities that strengthened the companionship, and that shared leisure experiences enhanced bonding, intimacy, and overall satisfaction (p. 286).

The importance of couples participating in mutually enjoyable leisure activities has been established through longitudinal research. When couples participated in activities that both considered enjoyable, martial satisfaction improved (Crawford, Houts, Huston, & George, 2002, p. 442). These findings clarify that it is not only mutual leisure participation that adds to marital satisfaction (Orthner & Mancini, 1991), but more important, it is the couple's mutual enjoyment that is critical. Research confirms that shared leisure time in and of itself does not adequately predict relationship quality (Berg, Trost, Schneider, & Allison, 2001, p. 43), instead, it appears to be the "satisfaction with couple leisure that contributed to marital satisfaction" (Johnson, Zabriskie, & Hill, 2006, p. 83). The type and quality of couple leisure participation appear to be the most influential factors in predicting martial satisfaction and relationship quality.

Individual leisure. Research has indicated marital satisfaction is higher for husbands and wives who share leisure time in joint activities, and lower for those with high concentrations of individual leisure activities (Orthner & Mancini, 1991). Individual activities are characterized as activities which "require no communication with others and may actually discourage interaction" (Orthner, 1975, p. 93). Crawford et al. (2002, p. 442) found a significant negative correlation between individual activities enjoyed by only one spouse and marital satisfaction for both the husbands and wives. For husbands in particular, higher amounts of independent leisure activity are associated with lower levels of love for a partner and higher levels of conflict (Claxton & Perry-Jenkins, 2008, pp. 36-37). In general it appears that independent levels of leisure participation are negatively associated with marital satisfaction and relationship quality.

The role of support for individual leisure: The example of serious runners. While independent leisure participation is associated with lower levels of marital satisfaction, the amount of support a spouse provides for a significant

other's independent participation is also an important consideration (Baldwin, Ellis, & Baldwin, 1999). Research examining the marital satisfaction of serious runners found that the runners who were highly supported by their spouses had higher marital satisfaction, even though the activity was individual in nature (Baldwin et al., 1999, p. 127; Barrell, Chamberlain, Evans, Holt, & MacKean, 1989; Goff, Fick, & Oppliger, 1997, p. 58). Conversely, those runners who had lower support from their spouses reported higher leisure-family conflict or marital conflict (Baldwin et al., 1999, p. 127; Goff et al. 1997, p. 58). It appears that even individual leisure activities, when supported by a significant other, are correlated with higher marital/leisure-family satisfaction (Yair, 1990).

It should be noted that support of a significant other's leisure interests appears to have its limits. Using the example of running, Rudy and Estok (1990) reported that as the nonrunning spouse's perception of his or her partner's addiction to running increased, marital satisfaction decreased (p. 223). One husband indicated that his wife's running meant she values running more than saving energy for family activities (Goff et al., 1997, p. 51). This study provides an interesting preliminary understanding of how the perception of addiction to an individual activity such as running, or possibly playing a video game, may be associated with marital discord or dissatisfaction.

In summary, mutually enjoyed leisure participation is regularly associated with marital satisfaction and quality. Individual leisure participation on the other hand is consistently associated with lower levels of marital satisfaction, unless the individual activity is supported by the spouse. Individual activities which appear to be excessive and lack the support of a spouse have the potential to be the most damaging to marital satisfaction and relationship quality.

Online Gaming Research

Since the advent of widespread public use of the Internet in the early 1990s (Zakon, 2006), there have been unsurpassed technological advancements in areas such as communication, collaboration, and immediate information access. Advancements in technology and information systems have introduced a new world of Internet recreation, producing both social benefits and costs, including potentially harmful habits and addictions. Heightened awareness of these growing threats, referred to by many researchers and clinicians as *Internet Addiction* or *Internet Addiction Disorder*, has been articulated in the public press and formal research journals (Ng & Wiemer-Hastings, 2005, p. 110; Young, 2004, p. 402). Furthermore, the American Medical Association (2007) made a formal call for more research on video gaming and a request for inclusion of *video game addiction* in the upcoming American Psychological Association's Diagnostic Statistical Manual version V (DSM V), emphasizing the dangers of video game addiction (Grusser, Thalemann, & Griffiths, 2007). Online video gaming, specifically MMORPG play, is considered the most addictive form of video gaming and therefore deserves further attention (Bruner & Bruner, 2006).

Understanding MMORPGs

MMORPGs are never-ending online three-dimensional worlds, often violent warlike settings with thousands of people logging on to various servers to play with or against each other at the same time. The player is represented by an *avatar*, a lifelike (often idealistic) animated character representing the player in the game, that can walk, talk, fight, hunt, make friends, form communities, fall in love, and even take part in various economic activities (Whang & Chang, 2004, p. 593). MMORPGs are characterized by a continuous "system of goals and achievements" (Ng & Wiemer-Hastings, 2005, p. 111) while maintaining a highly social in-game environment and the requirement of extensive devotion to character development with lengthy time commitments to team members in a *guild* or *clan* with whom users must collaborate in real time in order to advance further in the games. These virtual social interactions "often become a substitute for real life social interaction" (Allison, von Wahlde, Shockley, & Gabbard, 2006, p. 383).

In a case study of an 18-year-old MMORPG player, Allison et al. (2006), found that, "he could put on a new identity like a new suit of clothes, becoming someone who walked on water, healed others, and cast lightening bolts, in stark contrast to his daily experience of himself as inadequate" (p. 381). In other words, when acting as the character or avatar, the player is able to be someone else. No one can see what he or she really looks like, what real-life accomplishments he or she has, or who he or she really is. This may further influence the individual's desire to spend increased time acting in their alternative persona. It is plausible that the MMORPG style of gaming may result in marital disruptions due to the exorbitant amount of time required and social needs being met in the context of the game.

Research on adult video gamers and MMORPG players. A comparative study by Ng and Wiemer-Hastings (2005) revealed much higher overuse patterns in MMORPG players than in home console gamers and stated that "MMORPG users would rather spend time in the game than with friends, have more fun with in-game friends than people they know, found it easier to converse with people while in-game, did not find social relationships as important, and felt happier when in the game than anywhere else" (p. 112). In other words, it appears that many MMORPG players would rather have social relationships with those in their online virtual world environment than with people or relatives in their real physical world environment.

Disrupting relationships. It is interesting to note that MMORPG gamers, many of whom are married with children, typically play for more than 20 hours per week and that the overwhelming majority of game play occurs in the evening and at night (Yee, 2006, p. 16-18; Ng & Wiemer-Hastings, 2005, 112). With the hectic pace of current life, many couples find the evening and night hours as one of the only opportunities in the day to interact, communicate, and participate in leisure together. It follows that "couple time may be displaced if one person in a relationship is a frequent gamer and the other is not" (Ogletree & Drake, 2007, p. 540).

Bedtime rituals. It is also likely that couples in which one partner spends time at night gaming may not retire to bed at the same time. Doherty (1999) states, "Going to bed together is one of the defining activities of a married or a

cohabiting couple" (p. 46). As a professional therapist, Doherty counsels couples to retire to bed at the same time and suggests that many couples drift apart when their bedtime routines are not spent together as a chance for the couple to reconnect. Additionally, he states, "Sleeping together every night brings married couples together" (p. 48). It may be assumed that couples who do not retire to bed together due to a partner's involvement in an online video game, may have lower marital satisfaction than couples who deliberately use their bedtime routine as a time to be together and reconnect.

Gaming's negative effect on relationships. Research from a large international sample of MMORPG players indicated that 20% of players believed that their game play had a negative effect on relationships with nongamers (Cole & Griffiths, 2007, p. 579). Furthermore, Cole and Griffiths (2007) found a significant negative correlation between the effect gaming had on relationships with nongamers and the number of hours played per week. This data further confirms the need for more specific research using married gamers.

Research reported in 2009 by Padilla-Walker, Nelson, Carroll, and Jensen found that for their sample of young unmarried adults, relationship quality with parents and friends was negatively correlated with the frequency of time spent playing any type of video game as well as the frequency of violent video game play. Padilla-Walker et al. found that "video game use is related to poor relationships with friends and parents. During a developmental period in which the formation of romantic relationships is common, these findings raise the question as to how video game use may affect romantic relationships, including early marital relationships" (2009, p. 108).

The demographics provided by Yee (2002, 2006), as well as the research by Cole and Griffiths (2007) and Padilla-Walker et al. (2009), illustrate the need to further investigate the relationship between playing MMORPGs and a couple's marital satisfaction. Therefore, the purpose of this study was to examine the predictability of marital satisfaction based on sociodemographic variables and individuals' MMORPG gaming behavior such as hours spent playing, spousal support for gaming, and satisfaction with gaming. More specifically, two research questions were examined. First, was there a significant difference in marital satisfaction between couples who gamed together and couples where only one member gamed? Second, what was the relationship between different couple gaming patterns (i.e., gamer/nongamer couples and more-gamer/less-gamer couples) and their individual perceptions of marital satisfaction?

Methods

Sample

After Internal Review Board approval was obtained and a pilot study completed, subjects were recruited for participation through advertisements placed on Facebook.com and on MMORPG forum Web sites. Random prize drawings to Amazon.com were provided as an incentive to participate. The majority of the sample was collected from Facebook.com advertisements, 56% from the ads, with 43% hearing about it from their spouse, family, or friend for a total of 99%.

The sample of MMORPG players and their respective spouses was delimited to married, heterosexual, English speaking couples. Both marital partners were required to participate in separate online questionnaires to be included in the study. After a thorough cleaning of the data and matching the participants' surveys to their respective spouse's survey, 349 couples were found to be usable for the analysis. Two distinct types of gaming couples were identified in the data including: *independent-gamer couples* (*n*=132), in which one person in the couple plays MMORPGs and the other does not; and *more/less-gaming couples* (*n*=217), where both members of the couple game, but one games more than the other. As these two groups of couples were different in the way they interacted with the MMORPGs, specifically considering that the spouses of independent-gamers did not participate in playing MMORPGs, separate analyses were conducted for the two couple groups. The participants were English speaking, Caucasian (92%), married adults, living in urban areas (70%) of the United States (99%), representing every state except for North Dakota with an average income of $50,000-59,000 per year. The average age of the sample was 33.32 years old. Specifically, independent-gamers (*m* = 34.56 years) were on average about two years older than the more/less-gamers (*m*= 32.38 years). Independent-gamer couples averaged 7.39 years of marriage, 65% had one or more dependent children while the more/less-gamers couples reported an average of 6.15 years of marriage, 52% had one or more dependent children. Individual-gamers were predominantly male with 146 male gamers (84%) and 27 female gamers (16%). In the more/less-gamer group 161 of the more-gamers were male (73%) and 61 more-gamers were female (27%).

Instrumentation

The research questionnaire included the 14-item Revised Dyadic Adjustment Scale (RDAS) as a dependent variable (Busby, Christensen, Crane, & Larson, 1995) that measured each individual's level of marital satisfaction. The questionnaire also included the following independent variables: (a) a 20-item Internet Addiction Test (IAT) revised to reflect online gaming, which measured the independent variable of Internet gaming addiction (Chang & Man Law, 2008; Widyanto & McMurran, 2004; Young, 2007); (b) the original 20-item Internet Addiction Test (IAT) for the non-gaming spouses, which assessed their own self-reported addiction to the Internet including things such as Facebook or eBay (c) additional questions related to gaming such as retiring to bed together and frequency of quarreling about gaming; and (d) basic sociodemographic questions.

RDAS. The RDAS was intended to measure dyadic adjustment in terms of three separate factors of consensus, cohesion, and satisfaction (Busby et al., 1995). Although the RDAS was not initially intended to be a global measure of marital satisfaction alone, it has been widely used as such and was tested and found to be on parity with the Satisfaction With Married Life (SWML), a scale designed specifically to measure marital satisfaction (Ward, et al., 2009, p. 415). The RDAS was chosen for its ability to show satisfaction or distress on a variety of questions. According to Busby et al. (1995), "the reliability coefficients are within acceptable ranges and demonstrate that the RDAS has internal consistency and split-half reliability" (p. 300) with a Cronbach's alpha of 0.90. Ward et al. (2009) confirmed the

internal consistency of the RDAS finding a Cronbach's alpha of .943. The finding for the current study indicated a Cronbach's alpha of .864. The RDAS uses four sets of questions paired by a 6-point Likert Scale with response options similar to 0 (*Always Agree*) to 5 (*Always Disagree*). The response options change slightly, and some are reverse coded to reflect the types of answers being asked. Examples of these sets of questions are (a) agreements or disagreements on religious matters, demonstrations of affection, and decisions; (b) how often the couples quarrel, discuss separation, get on each others' nerves; (c) if they engage in outside interests together; (d) how often they work together, discuss something calmly, or have a stimulating exchange of ideas. Scores range from 0-69 with higher scores indicating higher marital satisfaction and a cutoff score of 48 between satisfied and dissatisfied (Crane, Middleton, & Bean, 2000, p. 58).

IAT. The IAT (Center for Internet Addiction Recovery, n.d.) was adapted by replacing the words Internet or online with gaming or online gaming to assess gaming addiction. An example of the original IAT question follows: "How often do you find that you stay online longer than you intended?" To reflect gaming addiction, the words were changed to "How often do you find that you *game online* longer than you intended?" The IAT is a 20-item assessment scored on a unipolar scale with options ranging from 0 (*Never*) to 5 (*Always*). The test is rated on a 0-100 point scale with scores of 31 to 49 indicating the existence of a mild level of Internet gaming addiction; 50 to 79 suggest the occurrence of a moderate level; and scores of 80 to 100 denote a severe level of Internet gaming addiction or dependence. Young (2007) states, "The IAT is a validated testing instrument that examines symptoms of Internet addiction such as a user's preoccupation with Internet use, ability to control online use, extent of hiding or lying about online use, and continued online use despite consequences of the behavior" (p. 674). In an in depth analysis of the IAT, Widyanto and McMurran (2004) found internal consistency within the items in each factor stating that the "Cronbach's alphas were calculated and all were highly to moderately reliable" (p. 446). Additionally, Chang, and Man Law (2008, p. 2610) did a confirmatory study on the factor structure on the IAT in 2008 and found that the IAT is a valid and reliable test. Specific Cronbach's alpha levels were not reported in the cited articles. The finding for the current study indicated a Cronbach's alpha of .90.

Gaming-related variables. Various questions were also included to further determine the relationship between gaming behavior and marital satisfaction. Questions included (a) retiring to bed at the same time as their spouse, (b) the specific type of game played, (c) hours spent playing, (d) how often they played for eight hours or more in a single session, (e) if the gamer was supported in their game play by his or her spouse, (f) if they played an MMORPG before they were married, (g) how they were introduced to the game, (h) if they quarreled specifically about game play, (i) how they felt gaming has affected their marital relationship, (j) if their partner plays and which partner games more (if they both game), (k) if they are in the same guild, clan or group as their partner, (l) if they interact in the game with their partner, (m) how much of their game playing time they game with their partner, (n) if they are satisfied with their gaming participation, and (o) if their partner participates in another individual leisure activity in the same room at the same time as they game.

Sociodemographics. Sociodemographic questions were included to provide potential controlling factors and identify primary characteristics of the sample. The items included the following: age, gender, marital length, number of dependent children in the home, annual income, population of residence, education level, and employment status.

Data Analysis

After the data were collected, individual responses were linked to their spouse's responses to ensure that the data set was comprised of married couples. Cases with outliers and missing data were eliminated from the dataset and descriptive statistics were run to determine the underlying characteristics of the sample. The data set was then organized into groups in order to address the first research question. The first group was based on married couples and included two subgroups: (1) independent-gamers and their nongaming spouses and (2) more-gaming and less-gaming spouses. In order to control for the dependence of scores occurring in the two married couple subgroups (which necessitated a mixed-models approach), a second analysis group was created based on individuals, not couples, and the amount of time they spent gaming. This group also included two subgroups: (1) independent-gamers and more-gamers (people who played more) and (2) less-gamers with nongamers (people who played less or not at all). In this way, differences in marital satisfaction scores could be observed from both a couple perspective and from an individual perspective.

Using Statistical Analysis Systems (SAS), a backward elimination (Guyon & Elisseeff, 2003) ANCOVA was used to determine the most influential sociodemographic variables. The first research question was then tested using the following null hypothesis: There is no significant difference between the marital satisfaction of couples in which only one member is a gamer as opposed to couples where both members game. This hypothesis tested the differences in marital satisfaction between the two couple groups using a Mixed-Model ANCOVA (Littell, Milliken, Stroup, Wolfinger, 1996, p. 6) after adjusting for sociodemographic variables.

The second research question focused on the individual's perception of marital satisfaction. The null hypothesis used to test this question stated that sociodemographic and gaming variables would not provide a better than chance prediction of marital satisfaction for four different categories of married individuals (gamer-types): those who (a) gamed independently, (b) are the nongaming spouse of someone who gamed independently, (c) gamed more than their spouse, or (d) gamed less than their spouse. The second hypothesis used four separate stepwise regressions to determine the most significant contributors to marital satisfaction for each gamer-type.

Results

The backward elimination ANCOVA (F (14, 786) = 2.54, p = .001, r^2 = .04) provided results for the first hypothesis test. Four sociodemographic variables were significantly associated with marital satisfaction including number of children (F

= 4.02, p = .05), age (F = 5.35, p = .02), employment status (F = 2.36, p = .03), and education level (F = 2.17, p = .04). After including the couple and individual groups into the model, the significance of the sociodemographic variables was reduced (Table 1), but the variables were retained in the model to adjust for their influence. The only significant variable in the new model was the couple group (F = 8.48, p = .0038). Within the couple group, the marital satisfaction scores for the independent-gamer subgroup (m = 49.65) were significantly lower than the marital satisfaction scores for the more/less-gamer subgroup (m = 51.54), supporting the first hypothesis. Also, as the first hypothesis sought to identify differences between the two couple groups, independent-gamers and their non-gaming spouses and the more/less gaming spouses, some additional differences were notable and are provided here.

Independent-gamers were predominantly male (84%), with 75% playing World of Warcraft; other games included 4% Lord of the Rings, 3% Eve Online, 2% Final Fantasy XI, 1% Guild Wars, 1% City of Heroes, and various other MMORPGs. Independent-gamers averaged about 17.89 hours a week playing an MMORPG; 31% played the game for eight hours consecutively a few times a month or more; 72% worked full time; 49% had a bachelor's degree or higher; averaged 7.39 years of marriage; and 62% had one or more dependent children. Sixty-two percent of non-gaming spouses and 54% of independent-gamers reported that they quarreled about gaming always, often, or at least every once in a while. In contrast, 13% of both independent-gamers and their spouses reported that they often or always spoke positively about their gaming (Table 2). Seventy percent of independent-gamers and 75% of spouses of independent-gamers reported that gaming had either a very negative, negative, or slightly negative effect on their marital relationship (Table 3).

Table 1

Summary of Mixed-Model ANCOVA Adjusted for Sociodemographics

Variable	*df*	*df*	*F*	*p*
Employment Status	6	374	1.93	.0747
Education Level	6	374	0.83	.5448
Number of Children	1	374	1.53	.2164
Age	1	374	2.37	.1244
Married Couples	1	374	8.48	.0038*
Individual Gamers	1	374	0.09	.7619

* $p < .05$

n = 349 couples

Table 2

Question: What Effect Do You Feel Gaming Has on Your Marital Relationship?

Responses	Independent-spouse	Independent-gamer	More-gamer	Less-gamer
Always quarrel	4.60%	4.76%	0.88%	0.00%
Often quarrel	14.94%	12.93%	1.32%	3.54%
Every once in a while quarrel	42.53%	36.05%	32.16%	29.20%
Don't talk positively or negatively	24.14%	32.65%	13.66%	10.62%
Often talk positively	8.62%	12.24%	40.97%	38.94%
Always talk positively	5.17%	1.36%	11.01%	17.70%

n = 349 couples

Table 3

Question: How Do You Feel that Gaming Has Affected Your Marriage Relationship?

Responses	Independent-spouse	Independent-gamer	More-gamer	Less-gamer
Very negative	9.77%	1.36%	0.88%	0.88%
Negative	12.07%	7.48%	1.32%	5.31%
Slightly negative	52.30%	60.54%	19.38%	19.47%
Slightly positive	14.94%	23.13%	38.77%	30.97%
Positive	8.62%	7.48%	31.28%	35.40%
Very positive	2.30%	0.00%	8.37%	7.96%

n = 132 Independent-gamer couples

n = 217 More/less-gamer couples

The more/less-gamers consisted of couples in which one player (more-gamers) played more than the other. The gamers who played more in the couple were predominantly male (73%), and the majority of this group played World of Warcraft (87%). Other games included 2% Darkfall beta, 2% Everquest, 1% Guild Wars, 1% Warhammer Online, and various other MMORPGs. The more-gamers averaged 23.8 hours of game play per week while their spouses, the less-gamers, averaged 11.6 hours per week. Nearly 50% of the more-gamers played for eight hours or more in a single sitting monthly or more often (with 11% stating that they played for eight hours or more weekly); 60% worked full time; 42% had a bachelor's degree or higher; averaged 6.15 years of marriage; 11% were stay-at-home mothers or fathers; and 52% had one or more dependent children. Thirty-four percent of the more-gamers and 33% of less-gamers reported that they quarreled about gaming always, often, or at least every once in a while. In contrast, 52% of more-gamers and 57% of less-gamers reported that they often or always spoke positively about their gaming (Table 2). Seventy-eight percent of more-gamers and 74% of less-gamers reported that gaming had either a very positive, positive, or slightly positive effect on their marital relationship (Table 3).

Regression Analyses for Independent-gamers and Non-gaming Spouses

The second hypothesis was tested using stepwise regression for each gamer type. The analysis found that gaming-related variables significantly explained 9% of the variance in marital satisfaction for the independent-gamers ($F = 10.72$, $adjR^2 = .094$, $f^2 = .121$ [medium effect size according to Cohen, 1992, p. 157], $p < .0001$) and 23% of the variance for their non-gaming spouses ($F = 14.08$, $adjR^2 = .226$, $f^2 = .321$ [medium effect size according to Cohen], $p < .0001$, see Table 4). Lower levels of marital satisfaction were associated with less frequently retiring to bed at the same time for both the independent-gamer ($b = 1.584$, $t = 3.06$, $\beta = .252$, $p = .003$) and his or her spouse ($b = 2.81$, $t = 5.14$, $\beta = .391$, $p < .0001$). Likewise, lower levels of marital satisfaction were associated with more frequently quarreling about gaming for both the gamer ($b = 1.363$, $t = 2.71$, $\beta = .223$, $p = .008$) and the spouse ($b = -2.07$, $t = -3.82$, $\beta = -.291$, $p = .0002$). The number of hours that the gamer spent gaming, and the gamers' level of gaming addiction were not correlated with the gamers' or spouse's levels of marital satisfaction.

Regression Analyses for More/less-gamer Couples

In continuing to test the second hypothesis, stepwise regression analyses found the gaming related variables significantly explained 33% of the variance in marital satisfaction for the more-gamers ($F = 14.45$, $adjR^2 = .333$, $f^2 = .499$ [large effect size according to Cohen, 1992], $p < .0001$) and 35% of the variance for their spouses who gamed less ($F = 11.35$, $adjR^2 = .345$, $f^2 = .527$ [large effect size according to Cohen], $p < .0001$, see Table 5). As with the independent-gamers and their spouses, both the more-gamers ($b = 1.79$, $\beta = .260$, $t = 4.47$, $p < .0001$) and the less-gamers ($b = 1.51$, $\beta = .225$, $t = 3.87$, $p = .0001$) experienced lower levels of marital satisfaction in association with less frequently retiring to bed at the same time. In addition, higher levels of gaming addiction on the part of the more-gamer was

Table 4

Stepwise Regression Analysis Predicting Marital Satisfaction for Independent-Gamers and Spouses

Variable	*b*	*SE b*	*β*	*t*	*p*
Independent-gamers*					
Retire to bed at the same time	1.548	.506	.252	3.06	0.003
Quarrel about gaming	-1.363	.503	-.223	-2.71	.008
Non-gaming Spouses**					
Retire to bed at the same time	2.81	.547	.391	1.609	.0001
Quarrel about gaming	-2.07	.543	.291	3.82	.0002

* Model for Independent-gamer: R^2 =.108, $adjR^2$ =.094, f^2 =.121 (effect size), n = 132

**Model for Non-gaming spouse: R^2 =.243, $adjR^2$ =.226, f^2 =.321 (effect size), n = 132

Table 5

Stepwise Regression Analysis Predicting Marital Satisfaction for Independent-Gamers and Spouses

Variable	*b*	*SE b*	*β*	*t*	*p*
More-gamers*					
Retire to Bed at the Same Time	1.793	.401	.260	4.47	.0001
Gaming Addiction of More-gamer	-1.107	0.031	-.197	-3.38	.0009
Quarrel About Gaming	-1.19	.388	-.185	-3.07	.0025
In-game Interaction Between Spouses	0.942	0.339	.169	2.77	.0060
Gaming Satisfaction of Less-gamer	1.084	0.469	.145	2.31	.0218
Same Guild or Clan	-3.906	1.645	-.142	-2.37	.018
Gaming Frequency Before Marriage	0.418	0.199	.119	2.09	.034
Gaming Satisfaction of More-gamer	0.839	0.463	.112	1.81	.071
Less-gamers**					
In-game Interaction between Spouses	1.659	0.369	.298	4.50	.0001
Gaming Satisfaction of Less-gamer	1.532	0.480	.206	3.19	.0017
Retire to Bed at the Same Time	1.511	0.390	.225	3.87	.0001
Quarrel About Gaming	-1.077	0.371	-.184	-2.90	.0041
Same Guild or Clan	-3.585	1.380	-.162	-2.60	.010
Gaming Addiction of More-gamer	-0.084	0.034	-.155	-2.46	.014
Simultaneous Gaming Time	.916	.399	-.148	-2.29	.023
Frequency Gamed Before Marriage	.545	0.232	.132	2.34	.020
Gaming Addiction of Less-gamer	-0.068	0.038	-.110	-1.79	.075

* Model for More-gamer: R^2 =.357, $adjR^2$ =.333, f^2 =.499 (effect size), n = 217

**Model for Less-gaming spouse: R^2 =.378, $adjR^2$ =.345, f^2 =.527 (effect size), n = 217

associated with lower levels of marital satisfaction for both the more-gamer (b = -.107, t = -3.38, β = -.197, p = .0009) and the less-gamer (b = -0.084, β = -.155, t = -2.46, p = .0147). The higher the frequency that the couple quarreled about gaming also correlated significantly with lower marital satisfaction levels for both the more-gamers (b =-1.19, t = -3.07, β = -.185, p =.0025) and their spouse who gamed less (b = -1.07, β = -.184, t = -2.90, p = .0041).

Because both spouses played MMORPGs in the more/less-gamer group, the regression analyses for these two gamer types also included the amount and type of interaction occurring between spouses in the MMORPG. Higher amounts of time spent interacting with each others' avatar (in-game character) was associated with higher marital satisfaction for both the less-gamer (b = 1.65, β = .298, t = 4.50, p < .0001) and the more-gamer (b= 0.942, β = .169, t = 2.77, p =.0060). Higher satisfaction levels of playing the game together was also a strong predictor of higher marital satisfaction for both the less-gamer (b = 1.53, β = .206, t = 3.19, p = .007) and the more-gamer (b= 1.08, β = .145, t = 2.31, p = .021). Being in the same guild or group was associated with lower marital satisfaction scores for both more-gamers (b = -3.90, β = -.142, t = -2.37, p =.0185) and less-gamers (b = -3.58, β = -.162, t = -2.60, p = 0.010). Higher levels of marital satisfaction were also observed for both more-gamers (b = .041, β = .119, t = 2.09, p =.0374) and less-gamers (b = .54, β = .132, t = 2.34, p = .0201) who were introduced to MMORPGs prior to being married (Table 5).

Discussion

Evidence of the negative effects of gaming on marital satisfaction can be seen anecdotally in the popular press and on blogs and other sites dedicated to MMORPG widows or addicted gamers. However, until now, no research has been conducted to refute or support claims associated with MMORPG playing for married couples. While the results of the current research identify that the amount of time spent gaming was not a significant predictor of marital satisfaction, the way in which couples participated and perceived the gaming activity was clearly influential. Additionally, previous research regarding the association between marital satisfaction and a couple's independent leisure activities or mutually enjoyable leisure activities was confirmed using MMORPG participation as an example. Furthermore, marital satisfaction was also associated with the amount of interaction and satisfaction with game playing, addiction to gaming, quarreling about gaming, or how gaming may have influenced a couple retiring to bed at the same time.

Negative Effects on the Marital Relationship

It is clearly evident that MMORPG playing has a negative association with the marital satisfaction of independent-gamers and their spouses. Twenty percent of a sample of international MMORPG players of various ages, married and unmarried, reported that their gaming negatively affected relationships with nongamers (Cole & Griffiths, 2007, p. 579). In contrast, 70 to 75% of the independent-gamer couples in this study reported that their marriages had been negatively affected by gaming. When observing individuals who play MMORPGs and their relationships

with others who do not game, it seems apparent that gaming has a much more negative effect on marital relationships than it does on other types of relationships. This conclusion may provide some insight into a previously asked question: "how video game use may affect romantic relationships, including early marital relationships" (Padilla-Walker et al., 2009, p. 109).

A contributing factor in understanding the effect of MMORPG playing on marital relationships may be the extent to which individuals played prior to marriage. Results identified couples who played MMORPGs prior to marriage as more satisfied than couples where one or both individuals began gaming after they were married. This may suggest that if online gaming was understood to be a part of a spouse's leisure repertoire prior to marriage, it may be more tolerated and less detrimental to marital satisfaction as the relationship is further established.

In this sample, independent-gamers and their spouses seemed to be especially prone to lower levels of marital satisfaction. Theoretically, this finding supports the previous leisure research indicating marital satisfaction was lower for those with high concentrations of individual leisure activities (Orthner & Mancini, 1991). Independent-gamers clearly fit into this category. Expanding on this finding, Crawford et al. (2002, p. 442) found lower levels of marital satisfaction for both husbands and wives in which one member of the couple enjoyed a particular leisure activity but the other did not. In general, individual leisure pursuits which are not supported or enjoyed by a significant other are typically associated with lower levels of marital satisfaction for both members of the couple (Baldwin et al., 1999, p. 127; Crawford et al., 2002; Holman, & Epperson, 1984, pp. 284-285; Orthner, & Mancini, 1991). In the case of MMORPG independent gamers, it appears that both they and their spouses experienced lower levels of marital satisfaction as a result of participation in an activity characterized by being extremely time consuming and excluding their significant other.

Previous research has identified that for husbands in particular, independent leisure activities are related to lower levels of marital satisfaction (Claxton & Perry-Jenkins, 2008, pp. 36-37). Considering that the large majority of independent MMORPG gamers were male (84%), it is possible that both factors, gender and the independent nature of their leisure participation, could have been factors in the lower marital satisfaction scores for this segment of the sample. Claxton and Perry-Jenkins also identified husbands who participated in leisure independently as more prone to conflict in marital relationships. This may partially explain the higher levels of quarrelling among spouses where one individual (typically husbands) participated in independent MMORPG gaming.

In addition to the negative effects of MMORPG playing for independent-gamers, several variables were associated with lower marital satisfaction for the more/less-gamer couples as well. The amount of quarreling and less frequently retiring to bed at the same time were the two most consistent predictors of lower marital satisfaction for both couple groups. The amount of gaming addiction for the more-gamer in the more/less-gamer couple was also associated with lower marital satisfaction. It could be assumed that even in activities where both members of the couple enjoyed participating, such as playing MMORPGs, addiction suggests the neglect of other important activities, possibly including such things as caring for

children or participating in the maintenance of a household. The neglect associated with addiction clearly has a negative influence on marital satisfaction (Goff et al., 1997, p. 51; Rudy & Estok, 1990, p. 223).

While the negative associations between independent leisure participation and marital satisfaction are clear in this sample, the causal pathways from leisure to marital satisfaction remain an assumption (Reissman et al., 1993, p. 245). It is possible, particularly for independent-gamers, that low marital satisfaction encourages higher amounts of individual leisure as an escape or source of affirmation. While the associations identified through the regression analysis do not allow for causal explanations, respondents did provide information suggesting a causal path. In responding to the effects of gaming on their marriage, independent gamers and their spouses discussed a negative effect. In contrast, more/less gamers talked about gaming as a positive influence on their marriages. For a more thorough theoretical understanding, additional research continues to be needed to further clarify the causal pathways in the relationship between independent or mutually enjoyed couple leisure and marital satisfaction.

Quarrelling. Research has suggested that quarrelling may be related to expectations regarding shared time as a couple. Ogletree and Drake (2007, p. 540) have observed the potential time disparity between individuals where one is excessively involved in playing an MMORPG. As independent-gamers in this sample spent nearly 18 hours per week gaming and more-gamers spent nearly 24 hours per week gaming, it is possible, even likely, that members of the couple who were not gaming, or gaming significantly less, may have felt displaced, neglected, or overworked. It is also possible that non-gamers or less gamers felt unappreciated or unvalued as research has suggested that MMORPG players preferred gaming over spending time with spouse and family members, appeared to have more fun and converse better with people in the game, and were generally happier while playing the game (Ng & Wiemer-Hastings, 2005, p. 112). Displacing time spent with a significant other may indeed be a source of quarrelling and marital conflict, but additional research is needed to understand specific causes of quarrelling over gaming.

Retiring to bed. Both independent-gamer couples and more/less-gamer couples reported lower marital satisfaction in association with less frequently retiring to bed together. While this finding can not be directly attributed to gaming, it does confirm previous findings on the detrimental effects of not retiring to bed at the same time including items such as poorer marital adjustment, less time spent in shared activities, more marital conflict, less frequent sexual intercourse, and less serious conversation (Lange, Waterman, & Kerkhof, 1998). Interestingly, the findings related to not retiring to bed at the same time were not unique to the independent gamer couples. Even though the more/less-gamer couples shared a common leisure activity, one partner clearly gamed more on average and may have continued to game after a spouse retired for the evening, potentially creating some of the challenges to marital satisfaction cited in previous research (Lange et al., 1998).

Positive Effects on the Marital Relationship

While the negative effects of MMORPG playing are clearly apparent, especially for independent-gamers and their spouses, some positive effects were also iden-

tified. On average, 76% of the individuals in the more/less gaming group reported that MMORPG playing had a positive effect on their marriages. Interestingly, the less-gamer's level of satisfaction and interaction during game play appeared to be the critical characteristic in predicting marital satisfaction among the more/less couple group.

In-game interaction and satisfaction. Gaming satisfaction of the less-gamer was a significant predictor of the marital satisfaction of both the more- and less-gamer. Otherwise stated, when the less-gamer was not satisfied with gaming, the marital satisfaction levels of the both gamers were lower. These findings support previous research on the relationship between couple leisure and marital satisfaction. Johnson et al. (2006) found that of all the leisure-related predictors of marital satisfaction, the "best predictor…was leisure satisfaction" (p. 83). In essence, it is not sufficient that both members of the couple play, they must both be satisfied with their mutual participation, especially the individual who plays less. This is consistent with the findings of Crawford et al. (2002, p. 446) who found that participating in joint activities that only one spouse enjoyed was not sufficient for marital satisfaction. Instead, when couples participated in activities both considered enjoyable, martial satisfaction was improved.

While in-game interaction was important, being in the same guild or clan was actually negatively related to marital satisfaction. When playing an MMORPG as a member of a clan or guild, the expectation is that each member of the group will perform at a high ability level in order to be successful and accomplish tasks. Being in the same group with individuals of significantly different ability levels may lead to potential conflicts and poor performance as a group. Considering this, it is likely that both the more- and less-gamers may not be satisfied with being in the same clan or guild even though they enjoy in-game interaction. It is important to note that a gamer can spend time interacting and helping their spouse learn, progress, gain abilities, and "level up" in the game without being in the same guild or clan. This type of interaction may provide a more relaxed and positive setting than if the couple were participating in a raid (a warlike situation) with other more experienced and avid members of a guild or clan. This may explain why the variable of in-game interaction was an important positive predictor of marital satisfaction while being in the same guild or clan decreased marital satisfaction.

The positive association between more/less gamers and marital satisfaction theoretically supports previous research on the differences between independent leisure activity and mutually enjoyed couple leisure (Orthner & Mancini, 1991). These results also provide another clear example that above and beyond the time spent together in couple leisure, the nature of interaction and satisfaction in couple leisure experience is critical for association with higher levels of marital satisfaction (Crawford et al., 2002; Johnson et al., 2006).

Conservative Sample

In order to clearly understand the significance of this study, it is important to recognize that the collected sample appears to be more conservative, or moderate, in hours spent gaming per week than what has been reported in previous research. This is because the average hours per week reported by the independent-gamers

in this sample (*m*=17.89) is much lower than the average for the more-gamers (*m*=23.8), and according to Yee's longitudinal research (2006), much less than the average of a broad sample of all types of MMORPG players (*m*=22.71). The finding indicates that there may be difficulties in collecting accurate information on time spent gaming from independent-gamers, of whom 70% readily admit their gaming has negatively affected their marriage.

Various other pieces of evidence support the notion of a conservative sample. First, multiple comments at the end of the surveys indicated that some participants felt that although they would like their spouse to participate, it would be "impossible" to convince them to take the survey, in part because it would interrupt their game playing time to complete the survey, and because the intent of the survey clearly focused on marital satisfaction. Second, while invitations to participate in the survey were distributed through various online sources, the invitations were quickly removed from gamer sites which encouraged excessive amounts of game play. It seems clear that independent-gamers were more difficult to recruit because of an already existing perception about the negative effects on marital satisfaction.

In general this suggests that couples who were willing to participate were not overly threatened by the apparent intent of the study and were potentially more satisfied with their marital relationship and gaming participation than those who were unwilling to participate. It follows that this sample could be classified as a more conservative or moderate in their hours spent gaming, and that this sample of gamers may not capture the full continuum of more dedicated gamers or distressed marriages. Possibly the most important aspect of this study is that regardless of this constraint, results confirm solid correlations between gaming and lower marital satisfaction for independent-gamers and their spouses.

Generalizations regarding the conservative or moderate nature of this sample should be made cautiously. An alternative explanation might be that independent-gamers play less because their spouses do not play, and if a spouse did actually play, the gamer would likewise play more, as evidenced in the increased time spent gaming in the more/less-gamer group. Future research is needed to understand the differences between independent-gamers and more/less-gaming couples and specifically why one group of married gamers plays more than the other.

Limitations and Future Research

The conservative nature of the sample can also be considered a limitation of this study, particularly with respect to the independent-gamer couples. This factor will continue to challenge future researchers as independent-gamers seem hesitant to participate in research related to marital satisfaction. It should also be noted that stepwise regression can be controversial due to the potential for overfitting and because the "order of entry variables is based solely on statistical criteria" (Tabachnick & Fidell, 2007, p. 138). Where possible, future use of this technique should attempt to cross-validate with either another sample or a split sample (p. 140-141).

Future research should continue to consider the key variables in this study such as quarreling about gaming, retiring to bed together, level of gaming addiction, and the positive effects of mutual game play. For example, additional efforts

need to focus more specifically on why couples quarrel about game play and what specifically is it about MMORPGs that leads to quarrelling. Is it something related to the nature or content of the game, the large time requirement to play the game, the potential displacement of family activities, the addictive nature of the game, or the potential of developing outside relationships through the game? These specific questions need to be addressed to better understand why couples, especially independent-gamer couples, quarrel over gaming and have lower levels of marital satisfaction in association with gaming. This type of investigation will likely require qualitative methods such as in-person interviews with couples or a questionnaire with open-ended response options in order to provide more rich data on the relationship between these variables and marital satisfaction.

Conclusion

This study provides valuable information on both the potential negative and positive effects of MMORPG playing on marital satisfaction. Not only does this study help us better understand the possible influence of one of the fastest growing leisure activities; it further extends our understanding of the importance of couple leisure behavior and its relationship to marital satisfaction. For independent-gamer couples, the effects were clearly negative, resulting in frequent quarrelling over gaming. In some cases, the general findings of this study confirm the anecdotal claims of independent-gamer spouses, that MMORPG playing has a negative relationship to marital satisfaction. For independent-gamer couples in particular, this study provides further awareness regarding the potentially harmful correlation between MMORPG playing and marital satisfaction.

In contrast, the more/less gamer couples viewed their MMORPG participation as generally positive, particularly when the less-gamer was satisfied with his or her participation. From a positive perspective, this study highlights the importance of leisure satisfaction among couples, particularly for the individual within the couple who may participate in an activity less frequently and or less proficiently than the other individual in the couple. In the end, if the activity is to be positively related to marital satisfaction, the involvement and subsequent satisfaction of the lesser participant is critical. Couples should consider this issue as they attempt to find activities that are mutually satisfying, enjoyable, and that lead to marital satisfaction.

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