MUNI FSS

JOURNAL OF PSYCHOSOCIAL RESEARCH ON CYBERSPACE
CYBERPSYCHOLOGY

Quiroz, S. I., & Mickelson, K. D. (2021). Are online behaviors damaging our in-person connections? Passive versus active social media use on romantic relationships. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 15*(1), article 1. https://doi.org/10.5817/CP2021-1-1

Are Online Behaviors Damaging Our In-Person Connections? Passive Versus Active Social Media Use on Romantic Relationships

Selena I. Quiroz & Kristin D. Mickelson

Arizona State University, Tempe, Arizona, USA

Abstract

Social media has been extensively researched, and its impact on well-being is becoming more clear. What is less clear, however, is the role of social media on romantic relationships, with the few existing studies finding mixed results. In an attempt to reconcile these discrepancies, the current study explored types of social media use (i.e., active use and passive use) as moderators between frequency of social media use and relationship health (i.e., relationship satisfaction and commitment). Participants were 432 adults in a romantic relationship for at least three months. Results showed that women who passively use social media at moderate to high levels exhibited negative associations between hours per day of social media use and relationship satisfaction, and hours per day of social media use and commitment. On the other hand, active use may ameliorate the negative association between hours per day of social media use and relationship health for both women and men. Specifically, men and women reporting low levels of active use exhibited a stronger negative association between hours per day of social media use and relationship health than those who reported moderate levels of active use. Additionally, there was no association between hours per day of social media use and relationship health for men and women reporting high levels of active use. Implications of these findings are discussed, as well as future directions based on these findings.

Keywords: Romantic relationships; social media use; passive use; active use; gender differences; relationship satisfaction; commitment

Introduction

According to Statista, in 2019, 79% of Americans 12 years and older report having social media profiles (Tankovska, 2021). There are 1.4 billion daily active users on Facebook, 500 million on Instagram, 187 million on Snapchat and 100 million on Twitter. It is undeniable that social media has become a part of most people's everyday lives. Because of the ubiquitous nature of social media, researchers have begun to examine its impact on various aspects of people's lives. Most research has focused on the largest social media platform, Facebook, and how it affects general psychological well-being (e.g., Arad et al., 2017; Frison & Eggermont, 2016; Nabi et al., 2013). What is lacking is research investigating how social media affects romantic relationships. Given that many posts on social media contain relationship-related material, it is important to understand how social media use (SMU) impacts relationship health. Moreover, understanding the factors that influence the association between SMU and relationship health is crucial to developing guidance for social media consumers. The current study investigated *types of social media use* (active and passive use) as potential moderators between frequency of SMU and relationship health.

Effects of Social Media Use on Well-Being

Social media is likely to have a large impact on everyday life due to its omnipresence. Research on SMU has grown exponentially in the past decade, with many findings indicating a negative association between social media and well-being (Arad et al., 2017; Frison & Eggermont, 2016). For example, Frison and Eggermont (2016) found a bidirectional association between negative comparisons on Facebook, such that negative comparisons predicted decreased life satisfaction over time and lower scores on life satisfaction also predicted increases in negative comparison on Facebook. Negative associations between SMU and well-being have been found across platforms as well (Lup et al., 2015). However, not all results regarding social media are negative. Nabi et al. (2013) found that number of Facebook friends was associated with stronger perceptions of social support, which then was associated with lower stress levels, less physical illness, and greater well-being. Thus, it appears that social media may be a double-edged sword with negative and positive connections to well-being.

What might explain these contradictory results? One potential way to understand the inconsistent findings is to consider the mode of social media engagement. The two most common forms of engagement are *active* and *passive social media use*. Active SMU involves posting content, sharing information and interacting with others, whereas passive use involves browsing content posted by others without participation (i.e., lurking) (A. Chen et al., 2014). Generally, passive SMU is viewed as harmful to well-being because users are not engaging with others and forging and maintaining social connections, while active use is viewed as beneficial to well-being because users are engaging in meaningful interactions with others. Clark et al.'s (2018) interpersonal-connection-behaviors framework supports this idea by arguing that social network sites harm users when engagement results in social isolation and social comparison, whereas social network sites benefit users when engagement results in meaningful social connections. They urge researchers to examine specific behaviors on social media in order to understand their associations with well-being.

Empirical research supports this argument. Previous studies have found passive SMU to be related to lower well-being, self-esteem, and subjective well-being (W. Chen et al., 2016; Wang et al., 2018). The literature on active SMU demonstrates that it is generally not associated with lower well-being (Shaw et al., 2015; Verduyn et al., 2015). For instance, Shaw et al. (2015) found that passive Facebook use was associated with greater social anxiety symptoms whereas active Facebook use was not. These studies, as well as many others, strongly suggest that passive SMU may be harmful to an individual's well-being whereas active SMU may have a positive relation or no relation.

One explanation as to why passive use may be harmful to individuals' well-being is explained through the concept of social comparisons. Festinger (1954) argued that human beings are born with the innate desire to compare themselves to others to assess their skills and abilities. Because of the sheer amount of information about other's lives that is now accessible through social media, it is quite effortless to compare your life to the lives of others. When one passively uses social media, they are presented with tailored and perfected posts, which can result in a tendency to engage in upward social comparisons. Upward social comparisons (i.e., comparing yourself to someone you perceive as "better off" than you), in turn, is related to decrements in well-being. Research has examined the links between passive SMU, social comparisons, and well-being and find that they are associated (Liu et al., 2017; Vogel et al., 2015; Wang et al., 2017), such that passive SMU is related to more social comparisons, and more social comparisons are related to lower well-being.

To conclude, previous research has found clear links between passive use and negative well-being, and that upward social comparisons may explain these associations. Moreover, prior research suggests that active use may either be beneficial or show no association with well-being. Previous studies have examined active and passive use almost entirely in relation to SCO. Many researchers argue, with empirical support, that passive use is negatively related to well-being because it evokes social comparisons, which are also negatively related to well-being. On the other hand, active use may be better because of the engagement with others and establishment of social connections. Yet, it is unclear if these results extend beyond individual well-being. Given the salience of the "social" in SMU, it follows that SMU is likely related to relationship health as well. The primary aim of the current study is to examine whether active and passive use are associated with relationship health. Although not a focus of the current study, we will control for SCO due to its established importance in previous research and passive SMU.

Social Media and Romantic Relationships

Although less commonly studied, it is clear that the pervasiveness of technology has an influence on romantic relationships. A recent study from the Pew Research Center (Lenhart & Duggan, 2014) found that 27% of individuals in serious, committed relationships report that the Internet has had an impact on their relationship, and this percentage increases to 45% for users between the ages of 18 and 29. Additionally, social media acts as a form of relationship maintenance for many couples, as individuals use it to communicate with one another and publicly display their affection for their partner (Billedo et al., 2015; Papp et al., 2012). But, is social media good or bad for relationships? At a macrolevel, a state by state analysis within the United States showed that Facebook penetration is associated with increasing divorce rates, and the use of social networking sites is negatively correlated with marriage quality (Valenzuela et al., 2014). In a more microlevel analysis, a 2-week diary study of SMU and relationship functioning assessed how much information participants shared about their relationship or their partner on Facebook; how insecure they felt about their partners' feelings for them; and, the number of minutes they spent on Facebook each day (Emery et al., 2014). Participants were more likely to post about their partner on days when they felt more insecure about their partner's feelings for them. However, it is unclear whether more posting about one's partner because of feelings of insecurity is helpful or harmful to a relationship. A recent study conducted by Abbasi (2019) examined social media addiction in relation to online infidelity behaviors. The online infidelity behaviors scale included items such as, "I sometimes like to chat or message old romantic partners online or on social networking sites." The researchers found a positive association between social media addiction (i.e., extreme SMU) and online infidelity behaviors. This association was moderated by age, such that younger individuals exhibited a significantly stronger association than older individuals.

Conversely, Hand et al. (2013) found no significant association between time spent on online social networks and relationship satisfaction or intimacy. However, they did find a negative association between intimacy and partner's time spent online (Hand et al., 2013). Some recent research suggests that social media may not be as harmful as once thought. Specifically, Seidman et al. (2019) found relationship satisfaction to be positively associated with displaying one's relationship on Facebook. Additionally, they found those low in relationship satisfaction benefitted from excessive displays of affection on social media through increased feelings of closeness. Yet, balance seems to be key as individuals who reported displaying *more* affection on Facebook than they did offline (i.e., in real life with their partner) reported less relationship satisfaction.

Saslow et al. (2013) investigated associations between Facebook profile photos, sharing of information on Facebook, and relationship outcomes. Their results indicated that individuals who had profile photos with their partners reported higher satisfaction and closeness to their partners than those without their partners in their profile pictures. Additionally, results from a 14-day daily experience study revealed that individuals were more likely to share relationship-related information on Facebook on days where they felt more satisfied within their relationship. Toma and Choi (2015) examined how different aspects of a Facebook profile were related to relationship commitment and longevity. Cross-sectional analyses revealed that number of photographs with partner, participant-initiated posts on partner's wall, and having relationship status as "in a relationship" were all significantly positively associated with relationship commitment. Surprisingly, partner-initiated posts on participant's wall and mutual friends were significantly negatively associated with relationship commitment. Finally, relationship commitment was a significant mediator, such that number of photographs with partner, participant-initiated posts on partner's wall, and having relationship status as "in a relationship" were all jointly predictive of an increased likelihood of staying together with their partner 6 months later indirectly through increased relationship commitment.

Like findings on SMU and general psychological well-being, studies examining SMU and romantic relationships suggest both positive and negative associations. While studies have examined the association between SMU and romantic relationship outcomes, many of these studies do not explore these associations further and attempt to investigate why these associations occur. Previous research on passive and active SMU indicate that it not only matters how frequently one uses social media but also what behaviors they are engaging in while using social media. Passive SMU has been repeatedly associated with lower well-being, yet no studies have examined how it may play a role in explaining conflicting results regarding SMU and relationship outcomes. The main aim of this study is to examine whether *type of social media* use helps to explain the association between SMU and relationship health. More specifically, we investigate whether the association between SMU and relationship

health is negative only for those who passively use social media. Our rationale is that similar to individual well-being, those who use passively use social media may be engaging in more social comparisons about their relationship which may make them feel worse about their relationship. To our knowledge, there are no studies to date that examine how type of SMU may play a role in the association between SMU and relationship health.

Current Study

Social media is a double-edged sword; it keeps us in touch with our social network but also may be related to lower well-being. The current study explores this idea within the context of romantic relationships. Research has shown that social media can have both positive and negative impacts on romantic relationships, but there is limited research on potential explanations for these conflicting results. The aim of this study was to investigate whether type of SMU (active vs. passive) influences the association between frequency of SMU and relationship health. Based on prior literature, we predicted:

H1: Frequency of SMU and passive SMU will both be negatively related to relationship health (i.e., relationship satisfaction and commitment).

H2: Type of SMU (active vs. passive) will moderate the association between frequency of SMU (i.e., hours per day) and relationship health. Specifically, passive SMU will exacerbate the negative association between frequency of SMU and relationship health, while active use will have either no association or will buffer the negative association between frequency of SMU and relationship health.

Finally, we examined whether there were gender differences in the proposed models. Research has shown women use social media more than men (Pew Research Center, 2017); however, literature has shown mixed results regarding gender's role in SMU and romantic relationships (Fox & Warber, 2014; Tokunaga, 2011; Utz & Beukeboom, 2011). As a result, the gender analyses are exploratory in nature. In order to test these hypotheses, a survey study was conducted on a sample of adults who had been in a relationship for at least 3 months.

Method

Sample

The final sample consisted of 432 participants (see Table 1 for sample demographics). A power analysis using the following parameters: effect size (f^2) of 0.02, alpha of 0.05, power of .80 and two linear regression predictors, showed that this sample size is more than sufficient to detect a small effect. Participants consisted of those in romantic relationships for at least 3 months, and were either dating (53.2%), cohabitating (15.3%) or married (31.5%). Almost half of the sample had been with their significant other between 3 months and 2 years (46.8%). All participants were English-speaking, at least 18 years old, and in a monogamous relationship. Participants were recruited through psychology courses at a large Southwestern university in the United States (n = 218) and Amazon's Mechanical Turk (restricted to United States residents only) (n = 214). The average age of the sample was 28 years old (SD = 10.07), and a little over half of participants had a college degree (53.3%). Most of the participants were White (63.5%) and Hispanic (18.8%) and reported being currently employed (80.8%).

Procedure

Participants were asked to take part in a short online study investigating the links between SMU and romantic relationships. College student participants received course credit, while online crowdsourcing participants received $1.00 USD in monetary compensation. Participants who failed more than one of the three attention checks included in the survey were excluded from analyses (27%).

Measures

Sociodemographics

Demographic characteristics believed to be related to one or more of the major study variables were assessed, including *relationship status, relationship length, age, race/ethnicity, education, employment status,* and *sexual orientation*. Relationship status was categorized as either dating, cohabiting, or married. Relationship length was measured by asking participants how long, in total, they had been with their partner; participants were asked to choose between three categories: more than 3 months but less than 2 years, between 2 and 5 years, or over 5 years. Education consisted of five categories: some high school, high school, some college, college, or an advanced degree. Sexual orientation was a self-report of heterosexual, homosexual, bisexual, other, or prefer not to answer. Race/ethnicity was a self-report of non-Hispanic White, African American/Black, Hispanic, Asian, or other.

Table 1. *Sample Demographics for Total Sample (N = 432)*.

	Percent	Mean	Median	*SD*
Age				
(18-71)		28.05	26	10.07
Gender				
Male	37.3			
Female	61.6			
Prefer not to answer	1.2			
Race/Ethnicity				
Non-Hispanic White	63.5			
Black	8.6			
Hispanic	18.8			
Asian	5.1			
Other	4.0			
Employment				
Working	80.8			
Not Working	11.6			
Student (not working)	6.3			
Prefer not to answer	1.2			
Education				
Less than High School	0.2			
High School	15.7			
Some College	30.8			
College	42.6			
Advanced Degree	10.7			
Sexual Orientation				
Heterosexual (straight)	83.8			
Homosexual (gay)	3.2			
Bisexual	10.4			
Other	1.6			
Prefer not to answer	0.9			
Relationship Status				
Dating	53.2			
Cohabitating	15.3			
Married	31.5			
Relationship Length				
More than 3 months, less than 2 years	46.8			
More than 2 years, less than 5 years	25.2			
More than 5 years	28.0			

Relationship Health Measures

Relationship satisfaction was measured using the Relationship Assessment Scale (Hendrick et al., 1998), which has demonstrated considerable validity and reliability in prior research (Vaughn & Matyastik Baier, 1999). Participants were asked to rate their relationship on seven items on a scale ranging from 1 to 5 with different anchor points for each question. Example items include, "How well does your partner meet your needs?" and, "In general, how satisfied are you with your relationship?" Two items were reverse-coded: "How often do you wish you hadn't gotten into this relationship?" and, "How many problems are there in your relationship?" A mean score for the measure was created such that a higher score indicates greater relationship satisfaction. The measure displayed adequate internal consistency (α = .88).

Relationship commitment was measured using the Commitment Level portion of the Investment Model Scale (Rusbult et al., 1998). Rusbult et al. (1998) stated that it is acceptable to use the Commitment Level portion of the scale independently (α = .91 - .95). Participants were asked to rate their commitment to their relationship on seven items on a scale ranging from 1 = *do not agree at all* to 8 = *agree completely.* Example items include, "I want our relationship to last for a very long time" and, "I am committed to maintaining my relationship with my partner". Two items were reverse-coded: "I would not feel very upset if our relationship were to end in the near future" and, "It is likely that I will date someone other than my partner within the next year". A mean score for the measure was created such that a higher score indicates greater commitment to one's relationship. The scale demonstrated adequate internal consistency (α = .87).

Social Media Measures

SMU was measured by asking participants about the frequency with which they use social networking sites. Participants were asked an open-ended question, "In general, about how many hours a day do you spend on social networking sites?". Participants were instructed to answer using whole numbers or decimals. Participants were also asked about four social media platforms specifically. For Facebook, Instagram, Twitter and Snapchat, participants were asked, "How often do you use this social networking site?" and rank their use from 1 = *never* to 7 = *very often.* In addition, they were asked to rank their SNS use by platform, ranking what they use the most to the least. In addition to Facebook, Instagram, Twitter, and Snapchat, participants could choose the "other" option and specify a different platform/site. Some platforms mentioned in the "other" option were Reddit, WhatsApp, YouTube, WeChat, LinkedIn, and Pinterest. Participants ranked Facebook as their most used platform (*n* = 243, 44.4%), followed by Instagram (*n* = 100, 18.3%), Snapchat (*n* = 84, 15.4%), Twitter (*n* = 52, 9.5%), "other" (*n* = 20, 3.7%), and then Tumblr (*n* = 7, 1.3%).

Type of social media use consisted of active SMU and passive SMU as separate constructs. Active social media use was measured using an adapted scale created by Pagani et al. (2011) consisting of six items. Although the original article did not state the specific instructions given to participants, it did state that the measure was "based on time spent using the active functionalities made possible through the selected social networks" (Pagani et al., 2011). With this information we asked participants, "The following are some ways in which people use social networking sites. Please indicate how often you engage in each of the behaviors listed." Sample items include "meet new people" and "post/upload videos and pictures". The original article also did not specify the scale used for responses, but they did emphasize that the measure was based on time spent doing each activity. Using this information, we created a Likert-type response scale asking participants to rate how often they engage in each behavior with responses ranging 1 = *never* to 5 = *very often*. A mean score of the six items was calculated such that a higher score indicates higher active use. This scale demonstrated adequate internal reliability (α = .86).

Passive social media use was measured using a 5-item scale created by W. Chen et al. (2016) titled Passive SNS Use (PSNSU). Response options range from 1 = *completely not true* to 5 = *completely true.* Example items include, "I am very active in social networking sites" and, "I often comment on friends' posts or status". Reverse-worded items were recoded and a mean score for the measure was created such that a higher score indicates higher passive SNS use. In the current study, this scale demonstrated moderate internal consistency (α = .60), which may be due to the scale only having 5 items. The Spearman-Brown prophecy formula (Brown, 1910; Spearman, 1910) was analyzed for this scale, which demonstrated that increasing the number of items on this scale by a factor of 2 would increase the reliability to an acceptable level (α = .75).

Potential Covariates

Because of the strong association between SMU and social comparison, we also included a measure of social comparison orientation assessed with the Iowa-Netherlands Comparison Orientation Measure (INCOM) (Gibbons & Buunk, 1999). The INCOM consists of 11 items and has demonstrated acceptable reliability with alphas ranging from .78 to .85 across 10 American samples. Responses range from 1 = *disagree strongly* to 5 = *agree strongly*, and a mean score was created with higher scores indicating higher levels of SCO. Example items include, "I often compare myself with others with respect to what I have accomplished in life" and, "If I want to learn more about something, I try to find out what others think about it". A reliability analysis was conducted showing an acceptable level of internal consistency for this scale (α = .86).

Additionally, because self-esteem has also been shown to be linked with SMU and well-being, we included a measure of social self-esteem assessed with Repišti and Kerla's Social Self-Esteem Scale (2016), which has shown acceptable reliability (α = .84). The scale consists of nine items with responses ranging from 1 = *totally disagree* to 6 = *totally agree*. Example items include, "I make friends easily" and, "I am popular among my peers". A mean score of the items was created with higher scores indicating higher levels of social self-esteem. Internal consistency was at an acceptable level for this scale (α = .91).

Overview of Analyses

To test the hypotheses, moderation models with active and passive use as moderators were analyzed using Hayes' PROCESS macro (Hayes, 2012) in SPSS with Model 1. Using PROCESS allows one to test for moderators through simple slopes analysis while including multiple covariates. PROCESS tests for an interaction as well as possible conditional effects. Conditional effects were bootstrapped using 5,000 replications. A significant conditional effect is inferred if the bias-corrected confidence intervals do not include zero (Hayes & Preacher, 2014). The models were analyzed for the total sample, as well as separately by men and women to investigate whether gender differences exist in the models. Varying levels of the moderator (i.e. low, moderate, and high) were determined by using -1 standard deviation from the mean, the mean, and +1 standard deviation from the mean. The independent variable, *frequency of social media use*, was also categorized by PROCESS into varying levels determined using -1 standard deviation from the mean, the mean, and +1 standard deviation from the mean.

Preliminary examination of the data revealed that all the assumptions of multiple regression (i.e., linearity, normality, homogeneity of regressions) were met in the current dataset. Examination of the bivariate correlation matrix did not reveal any problems with multicollinearity (see Table 2)[1].

Table 2. *Bivariate Correlations of Main Study Variables*.

	1	2	3	4	5	6	7
1. SMU Hours/Day	-	.36*	-.12	-.26**	-.25**	.21**	.13
2. Active Use	.34**	-	-.40**	-.19**	-.31**	.43**	.40**
3. Passive Use	-.14*	-.48**	-	-.04	.02	-.10	-.25**
4. Rel. Satisfaction	-.14*	-.07	.01	-	.72**	-.19*	.24**
5. Commitment	-.16**	-.13*	-.03	.71**	-	-.21**	.05
6. Social Comparison Orientation	.09	.29**	-.12*	-.08	-.07	-	.09
7. Social Self-Esteem	.09	.35**	-.20**	.11	.07	-.10	-

Note. Values above the diagonal indicate correlations for men, and values below the diagonal indicate correlations for women. SMU Hours/Day (Social Media Use Hours per Day) – higher values indicate more hours per day of social media use; Active Use – higher scores indicate more active social media use; Passive Use – higher scores indicate more passive social media use; Relationship Satisfaction – higher scores indicate greater relationship satisfaction; Commitment – higher scores indicate greater commitment; SCO (Social Comparison Orientation) – higher scores indicate more frequent social comparisons; Social Self-Esteem – higher scores indicate higher social self-esteem.
*$p \leq .05$, **$p \leq .01$.

Preliminary analyses revealed several significant demographic covariates. As the demographic variable differences were almost entirely contingent on recruitment source (student population vs. online crowdsourcing), "recruitment source" (coded as 0 = student participant, 1 = Mechanical Turk participant) was entered in all models to account for the differences between these two pools of participants. Additionally, race/ethnicity, social comparison orientation, and social self-esteem were entered as covariates in all models as linear regression analyses indicated that they were related to at least one of the main study variables. Gender was also entered as a covariate for models that examined the entire sample as previous research has indicated that men and women use social media at different frequencies (see Pew Research Center, 2017). For models with passive use as the moderator, active use was entered as a covariate. Conversely, for models with active use as the moderator, passive use was entered as a covariate.

Results

Descriptive Statistics

Several trends were seen in the main study variables by gender (see Table 3). Men and women did not significantly differ on hours per day of SMU, active SMU, passive SMU, relationship satisfaction, commitment, or social self-esteem. Women reported significantly higher levels of SCO than men ($t(417) = -2.33$, $p = .048$).

Table 3. *Descriptive Statistics for Main Study Variables by Gender.*

	Men			Women		
	M	***SD***	***n***	***M***	***SD***	***n***
Hours per day of SMU	2.87	4.44	159	3.17	3.61	263
Active Use	2.95	0.92	158	2.95	0.93	265
Passive Use	3.36	0.67	160	3.19	0.78	266
Relationship Satisfaction	4.15	0.70	158	4.13	0.79	265
Commitment	7.47	1.46	160	7.84	1.47	264
Social Comparison Orientation	3.25_a	0.79	160	3.42_b	0.68	259
Social Self-Esteem	4.50	0.87	156	4.34	0.95	258

Note. Different subscripts indicate a significant difference between men and women on the respective variable at $p < .05$.

Social Media Use and Relationship Health

Hypothesis 1 predicted that frequency of SMU and passive SMU would be related to worse relationship health, measured through relationship satisfaction and commitment. Hours per day spent on social media was negatively related to relationship satisfaction ($b = -0.03$, $SE = 0.01$, $p = .01$) and commitment ($b = -0.05$, $SE = 0.02$, $p = .02$) when controlling for passive use, active use, recruitment source, gender, race, SCO, and social self-esteem. For the male only models, SMU was significantly negatively related to relationship satisfaction ($b = -0.03$, $SE = 0.02$, $p = .04$) but not commitment ($p = .17$). For the female only models, SMU was not significantly associated to relationship satisfaction ($p = .06$) or commitment ($p = .07$).

When examining the models utilizing the entire sample, results indicated that passive use was not significantly associated with relationship satisfaction ($p = .12$) but was significantly negatively associated with commitment ($b = -0.29$, $SE = 0.11$, $p = .007$) when controlling for SMU, active use, recruitment source, gender, race, SCO, and social self-esteem. When the genders were examined separately, both men and women exhibited a non-significant association between passive use and relationship satisfaction (men: $p = .25$; women: $p = .34$). Men's passive use was not significantly associated with their commitment, but women's passive use was ($p = .04$).

When examining the models utilizing the entire sample, results indicated that active use was not significantly associated with relationship satisfaction ($p = .08$) but was significantly negatively associated with commitment ($b = -0.38$, $SE = 0.10$, $p < .001$), when controlling for recruitment source, gender, race, SCO, social self-esteem, SMU,

and passive use. Differences emerged when men and women were examined separately. Men's active use was significantly negatively related to their relationship satisfaction (b = -0.16, SE = 0.08, p = .047) and their commitment (b = -0.52, SE = 0.17, p = .003). Women's active use was only significantly negatively related to their commitment (b = -0.29, SE = 0.13, p = .03), and had no significant relation to their relationship satisfaction (p = .46).

Passive and Active Social Media Use as Moderators

Hypothesis 2 predicted that type of SMU, active versus passive, would moderate the association between hours per day of SMU and relationship health. To test hypothesis 2, analyses were conducted to test both passive use and active use as moderators between hours per day of SMU and the two relationship health outcomes.

First, passive use was entered as a moderator between hours per day of SMU and relationship satisfaction using the entire sample, while controlling for recruitment source, race, SCO, social self-esteem, gender, and active use. The model accounted for a significant proportion of the variance in relationship satisfaction (R^2 = .11, p < .001). As predicted, results indicated there was a significant interaction between SMU hours per day and passive use on relationship satisfaction (p = .003). As shown in Figure 1, simple slopes analysis revealed that hours per day of SMU was negatively associated with relationships satisfaction for individuals reporting moderate (b = -0.03, SE = 0.01, p = .002) and high passive use (b = -0.07, SE = 0.02, p < .001), but not low passive use (p = .74). Those who reported high levels of passive use exhibited a stronger negative association than those who reported moderate levels of passive use. When this model was examined separately for men and women, results indicated that the interaction was primarily due to women as the interaction was not significant for men (p = .80) and was significant for women (p = .002). The overall model for women accounted for a significant proportion of the variance of relationship satisfaction (R^2 = .09, p = .002). As shown in Figure 2, similar to the total sample, women reporting high passive use (b = -0.08, SE = 0.02, p < .001) exhibited a stronger negative association than those reporting moderate passive use (b = -0.03, SE = 0.01, p = .02). Women reporting low passive use did not exhibit a significant association between hours per day of SMU and relationship satisfaction (p = .38).

Figure 1. *Total Sample's Hours per Day of Social Media Use and Relationship Satisfaction With Passive Use as Moderator.*

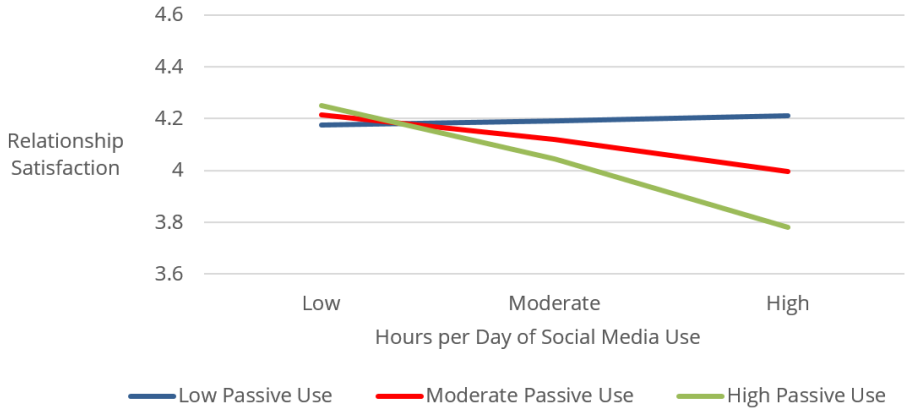
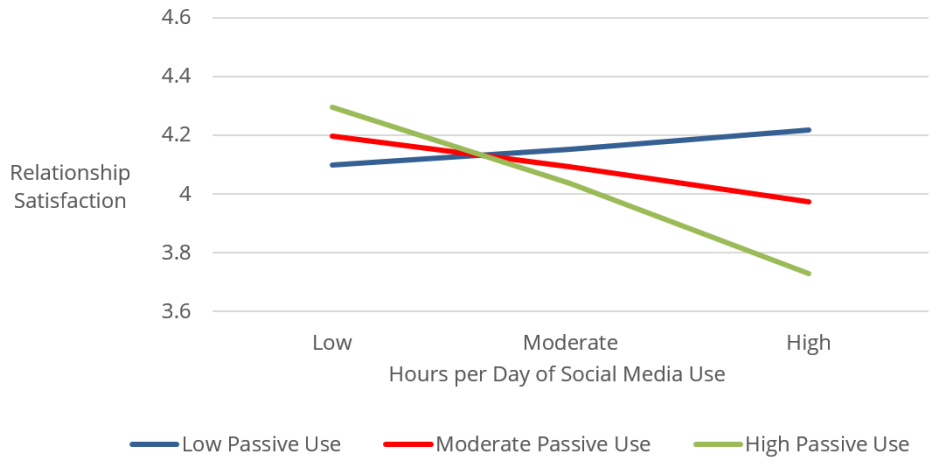


Figure 2. *Women's Hours per Day of Social Media Use and Relationship Satisfaction With Passive Use as Moderator*.



Next, passive use was entered as a moderator between hours per day of SMU and commitment using the entire sample. The model accounted for a significant proportion of the variance in commitment (R^2 = .12, p < .001). As predicted, results indicated there was a significant interaction between SMU hours per day and passive use on commitment (p = .01). As shown in Figure 3, simple slopes analysis revealed that hours per day of SMU was negatively associated with commitment for individuals reporting moderate (b = -0.05, SE = 0.02, p = .01) and high passive use (b = -0.12, SE = 0.03, p < .001), but not low passive use (p = .78). Those who reported high levels of passive use exhibited a stronger negative association than those who reported moderate levels of passive use. When this model was examined separately for men and women, results indicated that the interaction was primarily due to women as the interaction was not significant for men (p = .86) and was significant for women (p = .01). The overall model for women accounted for a significant proportion of the variance of commitment (R^2 = .10, p = .002). As shown in Figure 4, similar to the total sample, women reporting high passive use (b = -0.14, SE = 0.04, p = .001) exhibited a stronger negative association than those reporting moderate passive use (b = -0.06, SE = 0.03, p = .03). Women reporting low passive use did not exhibit a significant association between hours per day of SMU and commitment (p = .57).

Figure 3. *Total Sample's Hours per Day of Social Media Use and Commitment With Passive Use as Moderator.*

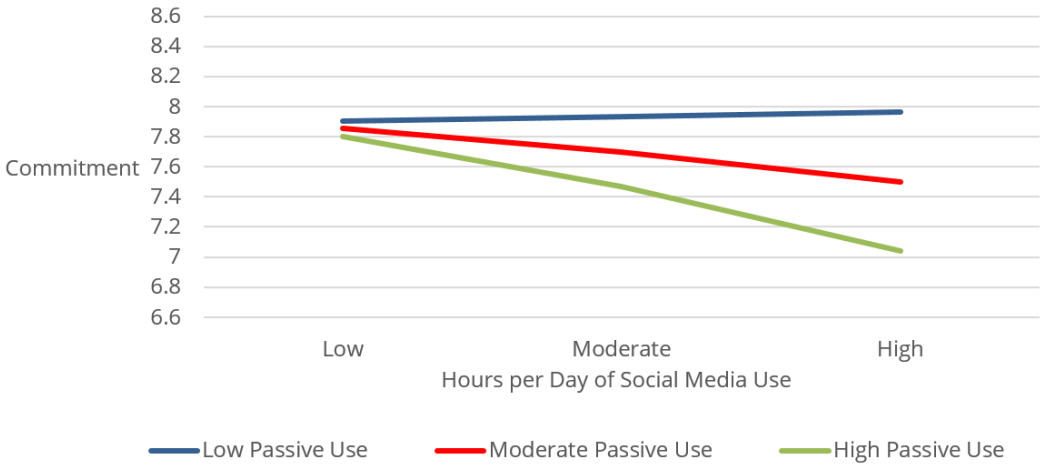
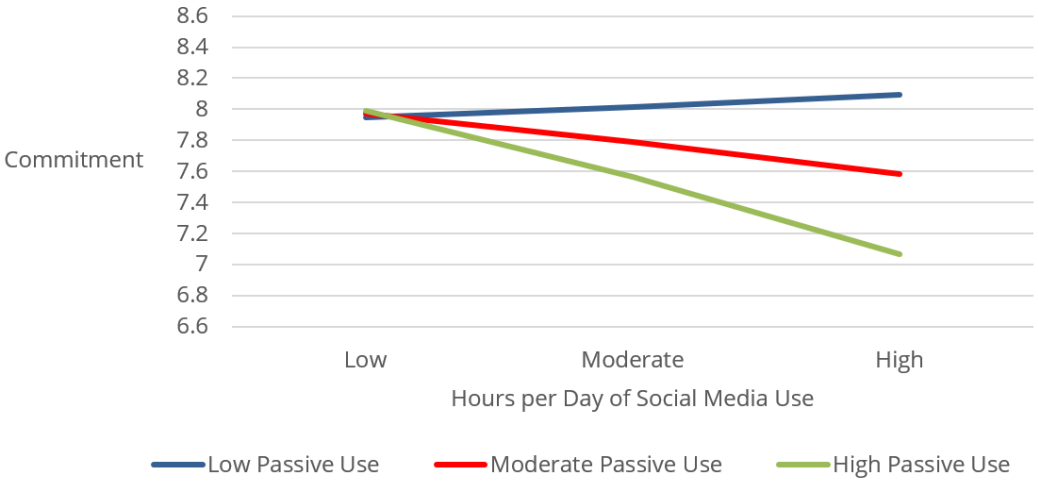


Figure 4. *Women's Hours per Day of Social Media Use and Commitment With Passive Use as Moderator*.



In order to examine how active use was associated with SMU and relationship health, models were tested with active use entered as the moderator between hours per day of SMU and the two relationship health outcomes, relationship satisfaction and commitment. First, we tested a model with active use entered as the moderator between hours per day of SMU and relationship satisfaction using the entire sample, while controlling for recruitment source, race, SCO, social self-esteem, gender, and passive use. The model accounted for a significant proportion of the variance in relationship satisfaction (R^2 = .10, p < .001). There was a significant interaction

between SMU hours per day and active use on relationship satisfaction (p = .02). In line with previous research, simple slopes analysis indicated that as levels of active use increased the strength of the negative association between SMU and relationship satisfaction results decreased (see Figure 5). There was a significant association between hours per day of SMU and relationship satisfaction at all levels of the moderator. However, individuals reporting high active use had the weakest association (b = -0.03, SE = 0.01, p = .01), followed by those reporting moderate active use (b = -0.05, SE = 0.02, p < .001), with those reporting low active use demonstrating the strongest association (b = -0.08, SE = 0.02, p < .001). When this model was examined separately for men and women, results indicated that the interaction was primarily due to women as the interaction was not significant for men (p = .58) and was significant for women (p = .02). The overall model for women accounted for a significant proportion of the variance of relationship satisfaction (R^2 = .08, p = .01). As shown in Figure 6, women reporting low active use (b = -0.10, SE = 0.03, p = .003) exhibited a stronger negative association than those reporting moderate active use (b = -0.06, SE = 0.02, p = .003). Women reporting high active use did not exhibit a significant association between hours per day of SMU and relationship satisfaction (p = .11).

Figure 5. *Total Sample's Hours per Day of Social Media Use and Relationship Satisfaction With Active Use as Moderator*.

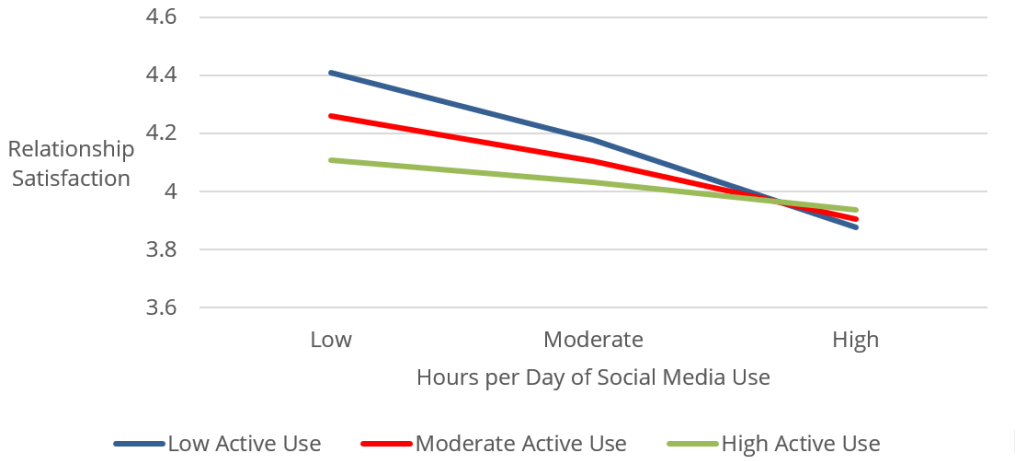
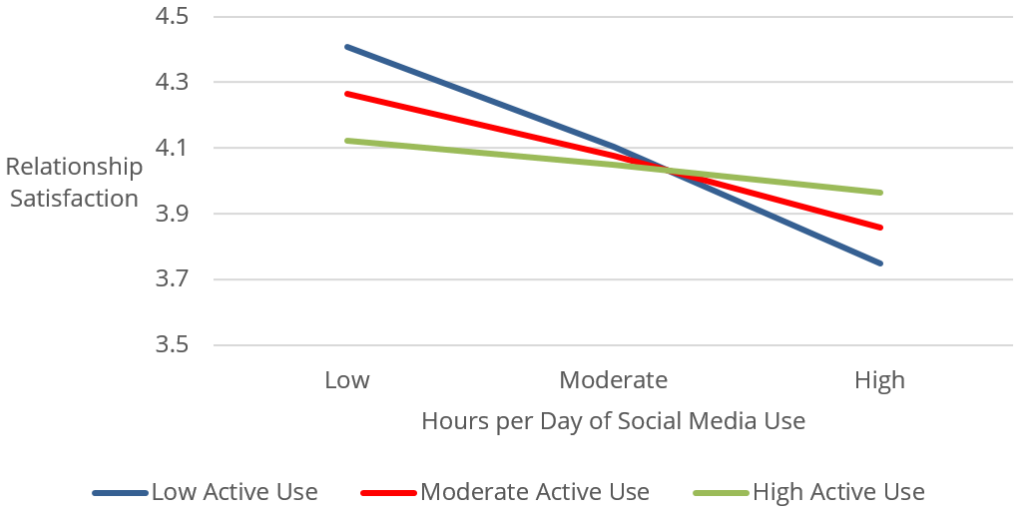


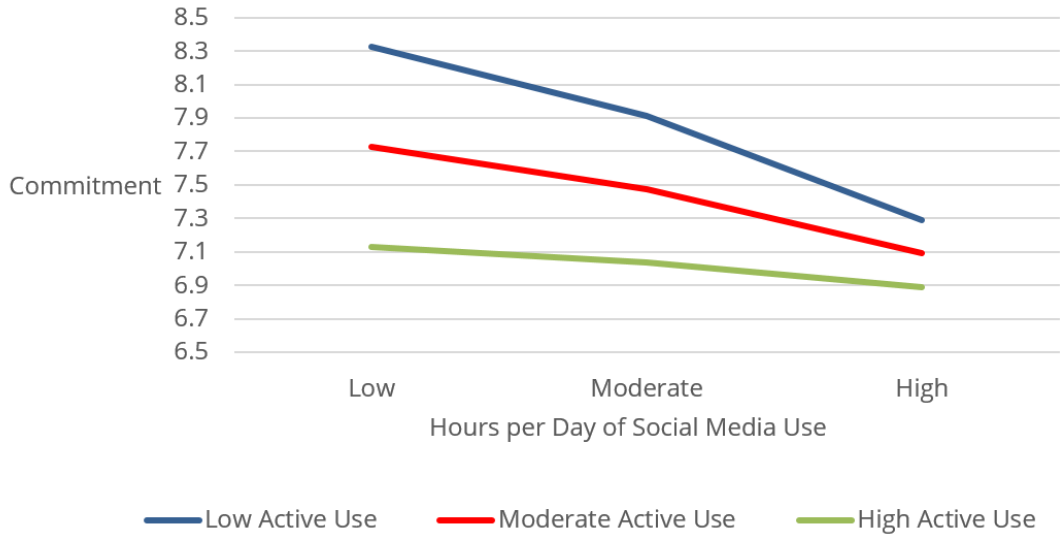
Figure 6. *Women's Hours per Day of Social Media Use and Relationship Satisfaction With Active Use as Moderator.*



Lastly, we tested models with active use as the moderator between hours per day of SMU and commitment, while controlling for recruitment source, race, SCO, social self-esteem, gender, and passive use. The model with active use as the moderator utilizing the entire sample accounted for a significant proportion of the variance in commitment (R^2 = .11, p < .001), however, the interaction between hours per day of SMU and active use was not significant (p = .10). When separate models were examined for men and women, results indicated that the model for men had a marginally significant interaction (p = .10) while the model for women did not have a significant interaction (p = .52). The overall model for men accounted for a significant proportion of the variance of men's

commitment levels (R^2 = .18, p < .001). When the men's model was further examined, results indicated that there was a significant negative association between SMU and commitment for men reporting low active use (b = -0.17, SE = 0.08, p = .04) and moderate active use (b = -0.10, SE = 0.05, p = .03), but not high active use (p = .24). Interestingly, however, men reporting high active use exhibited the lowest levels of commitment, regardless of how frequently they were on social media (refer to Figure 7).

Figure 7. *Men's Hours per Day of Social Media Use and Commitment With Active Use as Moderator.*



Discussion

Previous research has found passive SMU to be related to poorer psychological well-being (e.g., W. Chen et al., 2016; Shaw et al., 2015; Verduyn et al., 2015; Wang et al., 2017). However, no studies to date have examined the potential role of passive use regarding romantic relationship outcomes. The current study examined the association between frequency of SMU and relationship health, with a specific focus on *types of social media use* as moderators between the two. We predicted that greater frequency of SMU and passive SMU would both be related to worse relationship health (*Hypothesis 1*). Additionally, we predicted that type of SMU would moderate the association between hours per day of SMU and relationship health, such that passive SMU would exacerbate the negative association between frequency of SMU and relationship health, while active use would have either no association or would buffer the negative association between frequency of SMU and relationship health (*Hypothesis 2*). In addition, gender differences were explored within the models.

Partial support was found for Hypothesis 1, such that frequency of SMU and passive SMU were both negatively associated with relationships health when examining the entire group, but different results emerged when testing men and women separately. Support was found for Hypothesis 2, such that moderate to high passive use exacerbated the negative association between SMU and relationship health. Additionally, increasing levels of active use attenuated the negative association between SMU and relationship health. Lastly, there were several interesting gender differences within these analyses. All significant effects regarding passive use were due to women, and not men. In addition, active use was a significant moderator for the association between SMU and relationship satisfaction only for women. The only significant moderation for men was active use for the association between SMU and commitment. Surprisingly, men who reported high levels of active use displayed the lowest levels of commitment regardless of frequency of SMU. The implications of these results, as well as limitations and future directions, are discussed below.

Factors Related to Poor Relationship Health

In support of our first hypothesis, hours per day of SMU was significantly negatively related to both relationship satisfaction and commitment, when controlling for relevant covariates. These results were as expected, and support results found in previous research suggesting SMU can be harmful to well-being (Arad et al., 2017; Frison & Eggermont, 2016; Lup et al., 2015). When examining this association separately for men and women, conflicting results emerged. For men, frequency of SMU was negatively related to relationship satisfaction but not

commitment. For women, frequency of SMU was not significantly related to relationship satisfaction or commitment. These results tentatively suggest that men's relationship satisfaction may be more sensitive to their SMU than women's relationship satisfaction. Lack of causality does not allow us to determine the direction of this association. Future research is needed to replicate this gender difference and explore potential reasons.

Next, the associations between passive use, active use, and relationship health were analyzed. Results revealed that passive use was significantly negatively associated with commitment but not relationship satisfaction. These results were expected as previous studies have indicated that passive SMU is harmful to well-being (W. Chen et al., 2016; Liu et al., 2017; Shaw et al., 2015; Verduyn et al., 2015; Wang et al., 2017). When models were examined separately for men and women, results indicated that the association was due primarily to women. While not part of Hypothesis 1, the associations between active use and relationships were analyzed as they are very central to the study. The model analyzing men revealed that men's active use was negatively associated with their relationship satisfaction and commitment, whereas women's active use was only negatively related to their commitment. The results regarding active use were surprising considering previous research has indicated that active use either has no effect on well-being or a positive effect (Clark et al., 2018; Shaw et al., 2015; Verduyn et al., 2015; Wang et al., 2018). Perhaps active use encourages communication with alternative partners, which in turn could be related to worse relationship health. Alternatively, low relationship satisfaction and commitment may lead individuals to actively use social media as a way to connect with alternative partners because they are unhappy in their current relationship. It is important to note that these results came from a simple linear regression which may not capture the complexity of the associations between SMU and relationship health.

Type of Social Media Use as a Moderator

Our second hypothesis predicted that type of SMU (passive use and active use) would act as a moderator between frequency of SMU and relationship health. When passive use was entered as a moderator between frequency of SMU and relationship satisfaction, the results indicated there was a significant interaction. Participants reporting moderate and high passive use exhibited a negative association between frequency of SMU and relationship satisfaction, while those reporting low levels of passive use did not have a significant association between the two. Next, passive use was entered as a moderator between frequency of SMU and commitment. Again, there was a significant interaction, and the results indicated that participants reporting moderate and high passive use displayed a negative association between frequency of SMU and commitment. Those reporting low levels of passive use did not display a significant association between frequency of SMU and commitment. In both models, high passive use was associated with a larger negative beta coefficient than moderate passive use. When both of the models with passive use were examined by gender, results indicated that the significant interactions were primarily due to women. The models for women reflected the results from the model utilizing the entire sample, whereas the models for men did not exhibit any significant effects. Past research has found that women tend to report more issues in their romantic relationships than do men (Levinger, 1979; Macklin, 1978; Rubin et al., 1981). Further research has shown this may be due to women having higher standards in their relationships, as well as feeling more often that those standards are not being met (Vangelisti & Daly, 1997). Additionally, previous studies have shown passive SMU to be related to more social comparisons (Liu et al., 2017; Wang et al., 2017). It then would follow that women who passively use social media are more likely to compare their relationship to those that they see on social media. These comparisons may then be leading to lower levels of relationship satisfaction and commitment. Alternatively, women with low relationship satisfaction may be using social media more passively as a way to affirm their negative beliefs about their relationship. Future research is needed to determine whether one of these explanations hold true, or a completely separate reason exists.

When active use was entered as a moderator between frequency of SMU and relationship satisfaction, the results indicated there was a significant interaction. The strength of the negative association between SMU and relationship satisfaction decreased as levels of active use increased. Those reporting high levels of active use displayed the weakest association, with those reporting moderate levels displaying a stronger association, and those reporting low levels displaying the strongest negative association. Next, active use was entered as a moderator between frequency of SMU and commitment. While the model accounted for a significant proportion of the variance in commitment, there was not a significant interaction between active use and frequency of SMU. The results of the active use models were fairly different between men and women. Results from the women-only model indicated that the interaction between active use and frequency of SMU in predicting relationship

satisfaction when examining the entire sample was primarily due to women. Women reporting low levels of active use displayed a stronger negative association between frequency of SMU and relationship satisfaction than women reporting moderate levels of active use. Women reporting high levels of active use did not exhibit a significant association between frequency of SMU and relationship satisfaction.

Men did not exhibit a significant interaction between active use and frequency of SMU in predicting relationship satisfaction; however, they did display a significant interaction between active use and frequency of SMU in predicting commitment. While the interaction for men was marginally significant, two of the conditional effects were significant. Results indicated that men reporting low levels of active use displayed the strongest negative association between SMU and commitment, followed by a weaker negative association between the two for men reporting moderate levels of active use. However, as seen in Figure 7, men who reported high active use displayed the lowest levels of commitment out of all men regardless of how frequently they use social media. One possible explanation for this is when men actively use social media they may be communicating with alternate partners which in turn lowers their commitment to their current partner. Another potential explanation is reverse causality, such that men who are less committed to their partners may be more likely to actively use social media, as they are actively seeking out alternate partners. There are many potential explanations for the complex association between active us and commitment for men, and it is clear that this association needs a more thorough investigation.

Limitations and Future Directions

One limitation of the current study was the relatively low internal consistency for the passive SMU scale ($\alpha = .60$). The original study using this scale (W. Chen et al., 2016) reported $\alpha = .79$ for their study, so it is unclear why the scale did not perform as well as in the original study. Conclusions drawn from the models utilizing passive use as the moderator must be interpreted with caution. Escobar-Viera et al. (2018) recently developed new scales to measure active and passive SMU. Perhaps in future studies these scales could be used in place of the ones used in the current study. It is important to note that issues of validity and reliability with social media measures is common. Trifiro and Gerson (2019) recently discussed the difficulties in measuring passive and active SMU and called for a universal, validated measure.

While collecting participants through both a university and an online crowdsourcing platform allowed us to get a relatively diverse sample in terms of age, both samples ended up having majority White participants and most were college educated. While researchers have not found frequency of SMU to differ by race or education, they have found platform preference to differ by race and education level (Smith & Anderson, 2018), so a more diverse sample in terms of race and education may have led to different results. Additionally, this study examined all ages combined in the models while it may have been better to compare age groups to one another as younger individuals are much more likely to use social media than older adults. In a recent poll by Pew Research Center, 88% of 18- to 29-year-olds reported they used any form of social media while that number was 78% for those between 30 and 49, 64% for those between 50 and 64, and 37% for those 65-years-old or older (Smith & Anderson, 2018). The current sample also used social media at a higher than average rate at 3.02 hours per day. This average is higher than the global daily SMU average of 2.27 hours per day (Clement, 2019). The average for this sample may be higher than the general population as it consisted of college students and Mechanical Turk users who are two groups that may use social media at higher rates than the general public.

While not necessarily a limitation, this study did decide not to examine group differences on multiple variables such as relationship status, relationship length, age, race, education, employment status, and sexual orientation. Potential differences based on these demographic variables were accounted for by including “recruitment source” and race as covariates in all analyses. Moderation models were examined separately for dating/cohabitating couples and married couples, and these models followed the same trends as the models utilizing the entire sample. However, future studies may choose to further focus on group differences as they could have important implications for different individuals.

Another limitation of this study is the use of self-report measures and quantitative-only data. The measure used for SMU is a self-reported estimation of average number of hours spent per day on social media. Research has shown that there is bias in self-reports of SMU (de Reuver & Bouwman, 2015). Future studies could replicate the

findings from this study using objective measures of SMU. New technologies have emerged that allow researchers to objectively and passively collect smartphone data from participants (see Ram et al., 2020). This novel form of data collection may become the new norm within social media research. Questions regarding active and passive SMU are self-reported and quantitative; thus, future studies may want to consider collecting qualitative data (e.g., open-ended questions) to better understand individuals' motives for using these two types of SMU.

The sample in the current study was largely female (61.6%), which could impact the gender differences found within the moderation models. Future studies may want to employ cross-validation techniques to further test these gender differences. Additionally, a replication of the current study with a more balanced sample in terms of gender would provide a better understanding of gender difference.

Lastly, additional variables that were left out of the current study may help to better understand the association between SMU and relationship health. Other variables that were not measured in this study, such as depression, social connection, perceived quality of alternative partners, and attachment, have also been shown to be associated to both SMU and romantic relationship outcomes. For example, depression has been related to both SMU (Lin et al., 2016) and relationship quality (Beach & O'Leary, 1993; Whisman & Uebelacker, 2009; Whitton & Whisman, 2010), so future studies may want to explore how it impacts the models posed in this study. Additionally, future studies may also want to explore the role of attachment in the association between SMU and relationship health. Research has shown that insecurely attached individuals engage in more online surveillance of romantic partners (Fox & Warber, 2014), which is a form of passive SMU. Insecurely attached individuals also report lower relationship satisfaction when compared to securely attached individuals (Li & Chan, 2012). It is possible that the findings regarding high passive use and high SMU being related to lower relationship satisfaction is explained by insecurely attached individuals. Although this is a potential third variable accounting for these findings, the current study did not measure attachment style as the main focus was to begin to understand trends. Additionally, researchers may find it useful to investigate how the current study connects to relationship communication literature, as future studies may benefit from the inclusion of communication-related constructs. Future research should build upon the current study's findings and explore potential third variables, such as depression, social connection, perceived quality of alternative partners, and attachment style, that might help explain the associations seen.

Conclusion

Social media has become an integral part of many people's lives, and thereby, is bound to affect various areas of life. While the influence of social media on well-being has been heavily researched, its influence on romantic relationships is less systematically examined. This is surprising as many individuals integrate their relationships into their online identities, and many others find social media to have an impact on their relationship whether it be good or bad. The current study has begun to uncover some of the complex associations between SMU and romantic relationship outcomes. Women who passively use social media at moderate to high levels display a negative association between frequency of SMU and relationship satisfaction as well as SMU. Women who actively use social media at high levels display the weakest negative association between SMU and relationship satisfaction. Men who actively use social media at high levels display the weakest negative association between SMU and commitment. Additionally, men who actively use social media show the lowest levels of commitment regardless of how many hours per day they spend on social media. What has become apparent through this study is that the associations between SMU and romantic relationship health are complicated. Future research is needed to investigate the different ways that active and passive SMU impact relationship health, as well as the role of gender in these associations. In conclusion, these findings begin to shed light on how SMU can influence romantic relationship health. As the popularity of social media grows with each day, it is necessary to further investigate the impact it can have on one of our most important close relationships.

Footnote

1. Additional bivariate correlation and one-way ANOVA analyses were conducted based on participants' reported top platform. These analyses are available upon request.

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Correspondence to:
Selena I. Quiroz
Department of Psychology
900 S. McAllister Ave.
Tempe, AZ 85281
United States of America
Email: selena.quiroz(at)asu.edu

Editorial record: First submission received on September 11, 2019. Revisions received on June 18, 2020 and November 9, 2020. Accepted for publication on November 24, 2020.
Editor in charge: Alexander Schouten

About Authors

Selena I. Quiroz, M.S., is a doctoral student in the Developmental Psychology program at Arizona State University. Her work focuses on adolescent and young adult romantic relationship development, maintenance, and dissolution. More specifically, she examines the overall influence of technology and social media on relationships as well as digital dating abuse.

Kristin D. Mickelson, Ph.D., is a Full Professor of Psychology at Arizona State University in the School of Social and Behavioral Sciences. Her research is interdisciplinary, with special emphases on social relationships and health psychology. Her research has been widely cited and she has published in a variety of journals, including the Journal of Marriage and Family, Journal of Health and Social Behavior, the Journal of Personality and Social Psychology, Sex Roles, and Social Science and Medicine.