

HOW ATTACHMENT SHAPES APPROACHES TO SEXUAL NEED FULFILLMENT

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Abstract

Sexuality often distinguishes romantic relationships from other relationships. Because most romantic relationships are sexually monogamous, partners have important roles in meeting each other's needs. Being responsive to a partner's sexual needs (i.e., *sexual communal norms*) is associated with greater relationship quality, whereas fulfilling needs with a focus on what will be returned (i.e., *sexual exchange norms*) is associated with lower satisfaction. Romantic attachment—working models of the self and partner—shapes how people approach sexuality and may underlie sexual need fulfillment norms. The current research combines sexual need fulfillment and attachment theories to better understand how sexuality influences relationships. In my first paper, I tested whether perceived partner sexual responsiveness buffers the lower sexual and relationship quality that highly *anxiously attached* people typically experience. In my second paper, I explored whether highly *avoidantly attached* people endorse more sexual exchange (vs. communal) norms, and how this influences sexual and relationship quality.

Keywords: attachment, commitment, responsiveness, satisfaction, sexual communion, sexual exchange, trust

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CHAPTER 1

General Introduction

Romantic relationships are vital for overall health and well-being (for a review, see Diamond & Huebner, 2012), but they can be difficult to maintain over time (e.g., McNulty, Wenner, & Fisher, 2016). Sexuality is a domain that often distinguishes romantic relationships from other types of close relationships, and because most romantic relationships are sexually monogamous (Blanchflower & Oswald, 2004), partners have a unique and important role in meeting each other's sexual needs (Day, Muise, Joel, & Impett, 2015). Although people often rely on their partners to meet their sexual needs in romantic relationships, there are different norms for sexual need fulfillment. A common framework from relationship science for understanding need fulfillment is a communal-exchange perspective (Clark, Mills, & Powell, 1986). In my work, I apply this communal-exchange approach to sexuality. Being highly motivated to be responsive to a partner's sexual needs (i.e., *sexual communal norms*) is associated with greater sexual and relationship quality (Muise & Impett, 2015; Muise, Impett, Kogan, & Desmarais, 2013). In contrast, when people fulfill their partner's sexual needs with a focus on what they will get in return (i.e., *sexual exchange norms*), however, they feel less satisfied (Hughes & Snell, 1990). Although a growing body of work has explored implications of sexual communal norms (Muise & Impett, 2015; Le, Impett, Lemay, Muise, & Tskhay, 2018), less is known about the individual differences and consequences of endorsing sexual exchange norms in a romantic relationship, as well as what underlies these norms in relationships.

The proposed research aims to examine sexual need fulfillment in relationships from an attachment perspective. People's working models of the self and their romantic partner—or their *attachment style*—influence how people provide care for close others and expect their needs to be responded to in relationships (e.g., Bartz & Lydon, 2008). *Attachment avoidance* represents the extent to which a person values independence and avoids closeness and intimacy, whereas

attachment anxiety represents the extent to which a person desires closeness and fears abandonment (e.g., Hazan & Shaver, 1987; Mikulincer & Shaver, 2003). Given that attachment influences how people approach sexual interactions, and romantic partners have unique roles in fulfilling each other's sexual needs, in the current research, we set out to explore two key questions. First, given their chronic need for reassurance that they are loved by their partner (e.g., Mikulincer & Shaver, 2003), does perceiving a partner as being responsive to their sexual needs buffer (or protect) anxiously attached people from the lower relationship and sexual quality they typically experience? Second, given their intense drive to avoid intimacy in relationships (Mikulincer & Shaver, 2003), does attachment avoidance underlie sexual communal and exchange norms, and how do these norms subsequently influence sexual and relationship quality? The current research will combine two theoretical perspectives—theories of sexual need fulfillment and attachment theory—to gain insight into how sexuality is associated with relationship quality.

Theories of Sexual Need Fulfillment

Being responsive to a partner's needs and perceiving that a partner is responsive to one's own needs are important components of a satisfying relationship (e.g., Lemay, Clark, & Feeney, 2007; Maisel & Gable, 2009). Two common approaches have been used to characterize need fulfillment in relationships—termed communal norms and exchange norms. If people endorse more *communal* norms, they are motivated to meet a partner's needs as they arise and without the expectation of direct reciprocation (Clark & Mills, 2012). In recent years, communal theory has also been applied to sexuality (i.e., *sexual communal norms*; Muise et al., 2013). In daily life and overtime, perceiving a partner as endorsing sexual communal norms is associated with

greater satisfaction and commitment for both partners (Muise & Impett, 2015; Muise et al., 2013).

In contrast to communal approaches, when people endorse *exchange* norms, they give benefits with the expectation of receiving equal or comparable benefits in return (Clark & Mills, 1979). Like communal norms, exchange norms have also been applied to fulfilling sexual needs (i.e., termed *sexual exchange norms*; for a review, see Sprecher, 1998), but it is far less clear how endorsing sexual exchange norms influences sexuality and relationships. The existing literature has begun to explore need fulfillment in sexual relationships, but it has yet to determine whether individual differences (i.e., attachment) shape people's endorsement of sexual communal and exchange norms, and how such norms subsequently impact sexual and relationship quality.

Attachment Theory

Attachment styles—people's working models of the self and others in relationships— influence how individuals form relationships and approach sexual interactions (e.g., Birnbaum et al., 2006; for a review, see Feeney & Noller, 2004). In fact, attachment styles may underlie how people pursue and respond to sexual need fulfillment in their relationships (for a review, see Birnbaum, 2016; Birnbaum & Reis, 2019). People higher in attachment avoidance, who avoid closeness and intimacy, lack trust and rely on deactivating coping strategies in stressful situations in relationships (e.g., Mikulincer, 1998; Mikulincer & Shaver, 2003). Given their fears of intimacy (Mikulincer & Shaver, 2003), avoidantly attached individuals are more likely to pursue casual, nonintimate and uncommitted sexual partners (Brennan & Shaver, 1995).

People high in attachment anxiety tend to be overly invested, needy and controlling, and their anxious tendencies contribute to more general conflict than less anxiously attached individuals (Dunkley, Dang, Chang, & Gorzalka, 2016; Hazan & Shaver, 1987; Li & Chan,

2012). Unlike avoidantly attached partners, the ongoing worries that anxiously attached people cope with contribute to their goals of pursuing sex to achieve approval and reassurance, and ultimately avoid abandonment from their partner (Davis, Shaver, & Vernon, 2004; Schachner & Shaver, 2004).

People who are low in both attachment avoidance and anxiety are *securely attached* (Mikulincer & Shaver, 2007). People who are securely attached are comfortable with closeness, but also have autonomy in their relationships (Bartz & Lydon, 2006; Mikulincer & Shaver, 2003). They seek intimacy in their relationships, and they tend to describe their loving relationships as trusting and supportive (Hazan & Shaver, 1987; Mikulincer & Shaver, 2003). Attachment security is linked to comfort in helping and seeking support from others in times of need (Bartz & Lydon, 2008). Finally, securely attached people prefer to engage in sex in committed rather than short-term or casual relationships (e.g., Brennan & Shaver, 1995; Paul, McManus, & Hayes, 2000).

Merging Attachment Theory and Theories of Sexual Need Fulfillment

Having an attachment figure who is responsive to one's needs contributes to the formation of secure bonds in relationships (Bowlby, 1973, 1982), and positive sexual interactions can buffer against the negative consequences of insecure attachment styles (Little, McNulty, & Russell, 2010). In the context of general need fulfillment in relationships, anxiously attached people typically perceive their partners as being less responsive than they actually are (e.g., Collins, 1996; Mizrahi, Kanat-Maymon, & Birnbaum, 2018). As a buffer, sex is a way to increase intimacy, reassurance, and proximity to a partner (needs that are paramount to anxiously attached partners; Davis et al., 2004; Schachner & Shaver, 2004). When their needs are not met, anxiously attached people may begin to feel frustrated and alienated from their partner

(Birnbaum, 2007). Although anxiously attached people are less likely to perceive their partner as being responsive, they generally have a strong urge to gain approval from their partner; thus, perceiving a partner as being responsive in the sexual domain may uniquely buffer the poor sexual and relationship quality they would typically otherwise experience.

In contrast, avoidantly attached people typically endorse exchange norms, as keeping track of favors enables them to avoid closeness and maintain independence from close others (Bartz & Lydon, 2008). Thus, they feel more annoyed and anxious, and they dislike potential close others more when they behave more communally (compared to exchange-oriented; Bartz & Lydon, 2006, 2008), perhaps because endorsing communal norms signifies increased closeness (Bartz & Lydon, 2006). In the sexual domain, their discomfort with intimacy and the value they place on independence suggests that avoidantly attached people may be more focused on fulfilling their own, rather than their partner's, sexual needs. That is, avoidantly attached people may be less motivated to be responsive to a partner's sexual needs (i.e., less likely to endorse sexual communal norms), and more focused on tracking and trading benefits in a sexual relationship as a way to reduce sexual intimacy (i.e., more likely to endorse sexual exchange norms).

Overview of the Present Thesis

My aim in the current thesis is to understand the role of attachment in how people approach sexual need fulfilment in relationships and the implications for relationship quality. To achieve this aim, I have conducted four studies from three separate samples of people in romantic relationships using multiple methods (i.e., cross-sectional, daily experience, longitudinal). In the first paper, I tested perceived partner sexual responsiveness (i.e., seeing a partner as communally motivated to meet one's sexual needs) as a buffer against the lower

relationship quality (satisfaction, commitment, trust) and sexual satisfaction that anxiously attached people typically experience. In the second paper, I tested whether attachment avoidance underlies sexual communal and exchange norms, and how endorsing sexual exchange norms subsequently influences sexual and relationship quality for avoidantly attached people. Taken together, this work demonstrates the key role of attachment theory in perceptions of and norms for sexual need fulfillment in relationships, as well as the downstream consequences for relationship quality and maintenance.

CHAPTER 2

Perceived Partner Sexual Responsiveness Buffers Anxiously Attached Individuals from Lower Relationship and Sexual Quality in Daily Life

Chapter 2 is adapted from a manuscript that is currently under review:

Raposo, S., & Muise, A. (Under review). Perceived Partner Sexual Responsiveness Buffers Anxiously Attached Individuals from Lower Relationship and Sexual Quality in Daily Life. *Journal of Family Psychology*.

Author	Contribution
<i>Raposo, S.</i>	<ul style="list-style-type: none"> - Conception and design of the project – 50% - Analysis and interpretation of the research data – 80% - Manuscript writing – 80%
<i>Muise, A.</i>	<ul style="list-style-type: none"> - Conception and design of the project – 50% - Analysis and interpretation of the research data – 20% - Manuscript writing – 20%

Abstract

Satisfying relationships are central to health and well-being, yet the insecurities of anxiously attached people can detract from the quality of their romantic relationships. One factor associated with relationship quality is perceiving a partner as responsive to one's needs, and responsiveness to a partner's *sexual* needs might be a particularly powerful way to signal responsiveness to anxiously attached partners. In a 21-day daily experience study of 121 couples, we tested perceived partner sexual responsiveness as a buffer against the lower relationship quality (satisfaction, commitment, trust) and sexual satisfaction that anxiously attached people typically experience. On days when anxiously attached people perceived their partner as responsive to their sexual needs, they reported similar levels of relationship and sexual satisfaction, trust, and commitment as people low in attachment anxiety. Perceived partner sexual responsiveness was also important for maintaining commitment over time. Our findings suggest that perceived partner sexual responsiveness is one promising protective factor for anxiously attached partners.

Keywords: attachment anxiety, commitment, perceived responsiveness, satisfaction, trust

Perceived Partner Sexual Responsiveness Buffers Anxiously Attached Individuals from Lower Relationship and Sexual Quality in Daily Life

Sex is one way that romantic partners demonstrate responsiveness in their relationships (Diamond & Huebner, 2012). Feeling sexually understood by a partner helps people feel more satisfied and committed to their relationships over time (Muise & Impett, 2015), and sex can buffer partners against the detrimental implications of negative traits, such as neuroticism (e.g., Russell & McNulty, 2011). In the current research we explore whether *perceived partner sexual responsiveness*—feeling that a partner is perceptive of and interested in meeting one’s sexual needs—facilitates sexual and relationship quality in daily life and over time, and whether this is particularly important for people high in *attachment anxiety* who fear rejection and desire constant reassurance.

Facilitating Relationship Quality: The Role of Sexual Responsiveness

Perceiving a partner as understanding and valuing your needs is associated with greater relationship quality (e.g., Lemay, Clark, & Feeney, 2007). When people perceive their partners to be responsive (e.g., understanding and caring), they tend to feel more satisfied, committed, and secure (Debrot, Cook, Perrez, & Horn, 2012; Segal & Fraley, 2016). Recent research has also demonstrated the specific benefits of responsiveness to a partner’s *sexual* needs. Above and beyond a partner’s general responsiveness, people who have partners who are motivated to be responsive to their sexual needs (i.e., high in *sexual communal strength*; Muise, Impett, Kogan, & Desmarais, 2013) report higher sexual and relationship satisfaction and are more committed to their relationships over time (Day, Muise, Joel, & Impett, 2015; Muise & Impett, 2015; for a review see Muise & Impett, 2016). However, research has not yet investigated whether perceived partner sexual responsiveness is most beneficial for people who struggle to see their partners as

responsive and tend to have more volatile sexual and relationship satisfaction—that is, people who are high in attachment anxiety.

The Buffering Effect of Perceived Partner Sexual Responsiveness on Sexual and Relationship Quality for People High in Attachment Anxiety

Attachment anxiety is the extent to which people desire intense closeness in their relationships and fear abandonment from their partners (e.g., Hazan & Shaver, 1987; Mikulincer & Shaver, 2003). People high in attachment anxiety tend to be extremely sensitive to potential relationship threats, have trouble trusting their partners and seek a great deal of reassurance that they are loved and desired by their partners (e.g., Li & Chan, 2012; Hazan & Shaver, 1987; Mikulincer & Shaver, 2003). Anxiously attached people also typically perceive their partners as being less responsive than they actually are (e.g., Collins, 1996; Mizrahi, Kanat-Maymon, & Birnbaum, 2018) and are more susceptible to experiencing lower relationship satisfaction and mixed feelings of commitment in their relationship (Birnbaum, 2007; Slotter & Finkel, 2009; Tran & Simpson, 2009). People high in attachment anxiety also tend to report low levels of sexual satisfaction and use sex as a barometer for their overall relationship quality (Butzer & Campbell, 2008). That is, given that anxiously attached people view sex as a way to meet needs for intimacy, emotional closeness, and reassurance (Davis, Shaver, & Vernon, 2004; Schachner & Shaver, 2004; Tracy, Shaver, Albino, & Cooper, 2003) and are hypervigilant to rejection and abandonment from their partner (Campbell, Simpson, Boldry, & Kashy, 2005), they tend to use their sexual experiences to decipher the quality of their overall relationship (Birnbaum et al., 2006; Butzer & Campbell, 2008). For example, when anxiously attached people report positive sexual interactions with their partner, they tend to report greater gains in relationship satisfaction compared to less anxiously attached people; however, they also tend to report larger declines in

relationship quality in response to negative sexual experiences (Birnbaum et al., 2006; Butzer & Campbell, 2008).

The adverse effects of attachment anxiety on relationship and sexual outcomes has been established in the existing literature (e.g., Birnbaum, 2007; Butzer & Campbell, 2008; Davis et al., 2006), and related work has begun to consider the role of protective factors in buffering these effects (e.g., Little, McNulty, & Russell, 2010; Simpson & Overall, 2014; Tran & Simpson, 2009). For example, research has shown that sex is one way to express responsiveness, reassurance, and caring to anxiously attached partners. Among newlywed couples, on days when they reported high sexual satisfaction, anxiously attached people were buffered against the lower marital satisfaction that they typically reported (Little et al., 2010). One reason why satisfying sex buffered anxiously attached people from lower marital satisfaction is because positive sexual experiences signaled partner availability (Little et al., 2010). Building from the existing literature, seeing a partner as responsive in the sexual domain might be particularly important for facilitating greater security for anxiously attached people. People high in attachment anxiety often defer to sex as a way to determine the quality of their overall relationship (Butzer & Campbell, 2008) and perceiving a partner as attuned to and motivated to meet their sexual needs should signal the partner's availability (i.e., closeness, reassurance, intimacy; Davis et al., 2004; Schachner & Shaver, 2004; Tracy et al., 2003) and alleviate some of the chronic insecurities anxiously attached people commonly experience (i.e., being abandoned or rejected; Shaver & Mikulincer, 2002). Given that perceiving a partner as available indicates openness to an anxiously attached person's proximity-seeking attempts and bids for intimacy (Birnbaum et al., 2006), we suggest that perceiving a partner as being sexually responsive can uniquely buffer the negative relational consequences of anxious attachment, leading them to feel similar levels of

relationship and sexual quality as those who are low in attachment anxiety (i.e., securely attached partners).

The Current Study

In the current research, we conducted a dyadic multi-part study to test whether perceived partner sexual responsiveness buffers highly anxiously attached people from lower sexual and relationship quality in daily life. That is, on days when anxiously attached people perceive their partners as high (compared to low) in sexual responsiveness, are they buffered against the lower relationship satisfaction, sexual satisfaction, trust and commitment that they typically report? We also test whether the benefits of perceived partner sexual responsiveness persist over time and are incurred above and beyond general perceived partner responsiveness.

Method

Participants

Participants were recruited through online (e.g., Reddit, Kijiji, Facebook, Craigslist) and physical (e.g., university campuses, public transportation centers) advertisements in Canada and the United States as part of a larger study. Eligible couples were currently living together or seeing each other at least five out of seven days, sexually active, 18 years of age or older, residing in Canada or the United States, able to read and understand English, and had daily access to a computer with internet. Both partners had to agree to participate. We aimed to recruit at least 100 couples based on recommendations for achieving sufficient power with dyadic data by Kenny, Kashy and Cook (2006). Our final sample consisted of 121 couples ($N = 115$ men, 124 women, 2 “other”, 1 missing). One couple was excluded because they only completed the baseline survey of the study. Post-hoc power analyses using an online application for calculating power curves for multi-level studies (Kleiman, 2019) indicated that with 242 participants and

4488 days, we had 99% power to detect a small effect. Participants ranged in age from 20 to 78 years ($M = 32.63$, $SD = 10.19$). The sample was primarily White/Caucasian (65.3%), straight/heterosexual (81.4%), and married (46.7%), and the average relationship length was 8.50 years ($SD = 8.41$; see Table S1 in Supplemental Materials for additional information).

Procedure

Couples were pre-screened for eligibility via e-mail and telephone. Once eligibility and consent were confirmed, each partner completed a 60-minute online background survey, followed by 10- to 15-minute online surveys for 21 consecutive days, and a 20-minute online follow-up survey three months later. Participants were asked to complete the surveys before bed each night and to begin the study on the same day as their partner. Each partner was compensated up to \$60 CAD (\$48 USD). Participants completed an average of 18.39 (out of 21) daily entries, and 214 participants (88%) completed the follow-up survey.

Measures

In addition to the key variables, both partners reported their age, sexual frequency, and relationship duration (a couple-level variable calculated by taking the mean of each partner's report; see Table 1 for correlations). For the daily (within-person) measures, we used truncated versions with only a few items or a single item to increase efficiency and minimize participant attrition (Bolger, Davis, & Rafaeli, 2003).

Table 1

Correlations Among Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Age	–	.76***	.09	-.01	.04	.03	.12	.04	.06	-.05	-.002
2. Rel duration		–	.04	-.03	.04	.00	.06	.02	-.04	-.06	-.01
3. Avoidance			–	.42***	-.42***	-.40***	-.24***	-.43***	.05	-.22**	-.42***
4. Anxiety				–	-.31***	-.25***	-.20**	-.36***	.09	-.19**	-.30***
5. Rel sat					–	.77***	.61***	.90***	.14*	.64***	.87***
6. Commitment						–	.42***	.78***	.04	.35***	.66***
7. Sexual sat							–	.53***	.28***	.69***	.65***
8. Trust								–	.07	.56***	.83***
9. Sex freq									–	.43***	.24***
10. PPSR										–	.69***
11. PPR											–

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. Baseline reports of specific variables (age, relationship duration, avoidance, anxiety, sexual frequency) were included in correlations, rather than daily or overtime reports. All other variables were at the daily level. Daily variables were aggregates across the diary. Rel = relationship. Sat = satisfaction. Sex freq = sexual frequency. PPSR = perceived partner sexual responsiveness. PPR = perceived partner general responsiveness.

Person-Level Measures

Attachment. Attachment was measured at background with the Experiences in Close Relationships Short-Form scale (Wei, Russell, Mallinckrodt, & Vogel, 2007). Six items assessed *attachment anxiety* (e.g., “I need a lot of reassurance that I am loved by my partner”; $\alpha = .71$, $M = 3.40$, $SD = 1.12$) and six items assessed *attachment avoidance* (e.g., “I try to avoid getting too close to my partner”; $\alpha = .79$, $M = 2.03$, $SD = .90$). Items were rated on 7-point scales (1 = *strongly disagree* to 7 = *strongly agree*).

Relationship satisfaction. Relationship satisfaction was assessed with the Perceived Relationship Quality Components Inventory (PRQC; Fletcher, Simpson, & Thomas, 2000; $\alpha = .95$, $M = 6.14$, $SD = .92$). Participants rated three items (e.g., “How satisfied are you with your relationship?”) on 7-point scales (1 = *not at all* to 7 = *extremely*). The same items were administered at follow-up ($\alpha = .94$, $M = 5.97$, $SD = 1.16$).

Sexual satisfaction. Sexual satisfaction was measured with the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1998; $\alpha = .96$, $M = 6.01$, $SD = 1.41$). Participants rated five bipolar items on 7-point scales (e.g., “My sex life is bad/good”). The same items were administered at follow-up ($\alpha = .97$, $M = 5.83$, $SD = 1.50$).

Trust. Trust was assessed with the PRQC (Fletcher et al., 2000; $M = 6.15$, $SD = 1.21$). Participants rated one item (e.g., “How dependable is your partner?”) on a 7-point scale (1 = *not at all* to 7 = *extremely*). The same item was assessed at follow-up ($M = 6.18$, $SD = 1.18$).

Commitment. Commitment was assessed with the PRQC (Fletcher et al., 2000; $\alpha = .83$, $M = 6.69$, $SD = .59$). Participants rated two items (e.g., “How committed are you to your relationship?”) on 7-point scales (1 = *not at all* to 7 = *extremely*). One item was administered at follow-up (“How committed are you to your relationship?”; $M = 6.58$, $SD = .86$).

Sexual frequency. Sexual frequency during the past 30 days was assessed with seven items about different types of sexual activity (i.e., oral sex [giving to partner], oral sex [receiving from partner], giving manual stimulation [touching or massaging your partner’s genitals], receiving manual stimulation [your partner touching or massaging your genitals], manual stimulation [masturbation; alone], sexual intercourse with vaginal penetration, sexual intercourse with anal penetration). Response options included: 0 = *not at all*, 1 = *once or twice*, 2 = *once a week*, 3 = *2-3 times a week*, 4 = *4-5 times a week*, 5 = *once a day*, 6 = *more than once a day*. Partners’ reports of sexual frequency were highly correlated ($r = .65, p < .001$); therefore, we used the mean of partners’ scores to create a couple-level variable ($M = 1.97, SD = .88$).

Daily-Level Measures

Perceived partner sexual responsiveness. Perceived partner sexual responsiveness was measured with one item from a scale of positive relationship-enhancing behaviors (Maxwell, Joel, Peetz, MacDonald, & Baucom, 2019) assessed on a 7-point scale (1 = *not at all* to 7 = *very much*): “Today, my partner was perceptive of my sexual needs”; $M = 4.84, SD = 2.03$).

Perceived partner responsiveness. Perceived partner responsiveness was assessed with three items (i.e., “Today, I felt validated by my partner; cared for by my partner; understood by my partner”; $M = 3.44, SD = .72$; modified from Maisel & Gable, 2009). Items were assessed with 4-point scales (1 = *not at all* to 4 = *a lot*). Within-person reliability of the items (indicated by R_c ; Bolger & Laurenceau, 2013) was .92.

Relationship satisfaction. Relationship satisfaction was assessed with one item from the PRQC (Fletcher et al., 2000) adapted to be about that day. The item (“Today, how satisfied were you with your relationship?”) was assessed on a 7-point scale (1 = *not at all* to 7 = *extremely*; $M = 6.04, SD = 1.25$).

Sexual satisfaction. Sexual satisfaction was measured with the GMSEX adapted to be about that day (e.g., “Today, I felt my sex life was bad/good;” Lawrance & Byers, 1998).

Participants rated five bipolar items on 7-point scales ($M = 5.55$, $SD = 1.68$; $R_c = .97$).

Trust. Trust was assessed with one item from the PRQC (Fletcher et al., 2000) adapted to be about that day. The item (“Today, how much could you count on your partner?”) was assessed on a 7-point scale (1 = *not at all* to 7 = *extremely*; $M = 6.19$, $SD = 1.21$).

Commitment. Commitment was assessed with one item from the PRQC (Fletcher et al., 2000) adapted to be about that day. The item (“Today, how committed were you with your relationship?”) was assessed on a 7-point scale (1 = *not at all* to 7 = *extremely*; $M = 6.46$, $SD = 1.00$).

Data Analyses

Data were analyzed using multilevel modeling in SPSS 23.0 guided by the Actor-Partner Interdependence Model (Kenny et al., 2006). Data and syntax for the analyses are available on the Open Science Framework:

https://osf.io/5hy8v/?view_only=6f71688975d24406a3336e440af5f4b68. For our key predictions, we tested two-level cross models with random intercepts where persons were nested within days, and persons and days were crossed to account for the fact that both partners completed the daily surveys on the same days (Kenny et al., 2006). Daily predictors (i.e., perceived partner sexual responsiveness) were partitioned into their within- and between-variance components, which were person-mean centered and aggregated (and grand-mean centered) respectively (Raudenbush, Bryk, Cheong, & Congdon, 2004). We were focused on the associations between the within-person predictors and daily outcomes, where the unstandardized betas (b) can be interpreted as the change in the dependent variable for every one-unit deviation from the

person's own mean predictor value. Background predictors (i.e., attachment anxiety) were grand-mean centered such that they represent between-person differences. Moderations were cross-level interactions between attachment and daily perceived partner sexual responsiveness. All main effects were included in the models and although our key predictions were about attachment anxiety, we controlled for attachment avoidance and interactions between attachment avoidance and perceived partner sexual responsiveness in all analyses (see Supplemental Materials for effects for avoidant attachment). We probed significant interactions by calculating the simple slope effects using one standard deviation value below and above the mean of the moderator (Aiken, West, & Reno, 1991).

Finally, we tested whether the aggregated daily predictor (i.e., perceived partner sexual responsiveness) was associated with outcomes three months later, while accounting for the outcome variable as assessed at background. We also tested attachment anxiety as a moderator of the associations between perceived partner sexual responsiveness and our key outcomes over time.

Results

Daily Perceived Partner Sexual Responsiveness and Relationship and Sexual Quality

First, consistent with previous research, people high in attachment anxiety reported lower daily relationship satisfaction ($b = -.11$, $SE = .04$, $t[180.32] = -2.56$, $p = .01$, 95% CI $[-.19, -.02]$), sexual satisfaction ($b = -.18$, $SE = .07$, $t[167.11] = -2.54$, $p = .01$, 95% CI $[-.32, -.04]$), and trust ($b = -.13$, $SE = .04$, $t[192.12] = -3.06$, $p = .003$, 95% CI $[-.22, -.05]$) compared to less anxiously attached people. However, there was no significant association between attachment anxiety and daily commitment ($b = -.04$, $SE = .04$, $t[156.39] = -1.21$, $p = .23$, 95% CI $[-.11, .03]$). In addition, we found daily associations between perceived partner sexual responsiveness and our key

outcomes. On days when people perceived their partner as being more sexually responsive than they typically did, they reported higher relationship satisfaction ($b = .22$, $SE = .01$, $t[4064.71] = 24.87$, $p < .001$, 95% CI [.20, .24]), sexual satisfaction ($b = .31$, $SE = .01$, $t[3893.26] = 35.61$, $p < .001$, 95% CI [.30, .33]), trust ($b = .19$, $SE = .01$, $t[3910.08] = 21.81$, $p < .001$, 95% CI [.18, .21]), and commitment ($b = .09$, $SE = .01$, $t[3826.11] = 13.09$, $p < .001$, 95% CI [.08, .10]).

Next, we tested our key effects of interest that daily perceived partner sexual responsiveness would buffer highly anxiously attached people from lower relationship and sexual quality in daily life (see Table 2 for interaction effects between perceived partner sexual responsiveness and attachment anxiety). Although people higher in attachment anxiety tended to perceive their partner as less responsive to their sexual needs in daily life ($r = -.19$, $p = .003$), when they perceived their partner as high in sexual responsiveness, they were buffered against lower daily relationship and sexual quality. On days when people perceived their partner as low in sexual responsiveness, anxiously attached people reported lower relationship satisfaction ($b = -.13$, $SE = .04$, $t[234.79] = -3.44$, $p < .01$, 95% CI [-.20, -.05]), sexual satisfaction ($b = -.20$, $SE = .05$, $t[175.85] = -3.65$, $p < .001$, 95% CI [-.31, -.09]), trust ($b = -.17$, $SE = .04$, $t[250.38] = -4.10$, $p < .001$, 95% CI [-.25, -.09]), and marginally lower commitment ($b = -.06$, $SE = .04$, $t[187.58] = -1.73$, $p = .09$, 95% CI [-.14, .01]) compared to people who were low in attachment anxiety.

However, on days when people perceived their partner as high in sexual responsiveness, people higher in attachment anxiety were buffered against these negative associations and reported the same levels of relationship satisfaction ($b = .01$, $SE = .04$, $t[233.40] = .35$, $p = .73$, 95% CI [-.06, .09]), sexual satisfaction ($b = .02$, $SE = .05$, $t[175.69] = .34$, $p = .74$, 95% CI [-.09, .13]), trust ($b = -.02$, $SE = .04$, $t[249.85] = -.57$, $p = .57$, 95% CI [-.10, .06]), and commitment ($b = .01$, $SE =$

.04, $t[187.29] = .15, p = .88, 95\% \text{ CI} [-.07, .08]$) as people low in attachment anxiety (see Figure 1). Results did not differ by couple's relationship length or sexual frequency.

Table 2

Associations Between Attachment Anxiety and Outcomes Moderated by Perceived Partner Sexual Responsiveness

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	
						<i>Low</i>	<i>High</i>
<i>Daily PPSR moderated by attachment anxiety</i>							
Relationship Satisfaction	.05	.01	5.60	3916.20	< .001	.03	.06
Sexual Satisfaction	.07	.01	8.72	3989.67	< .001	.06	.09
Trust	.05	.01	5.68	4068.05	< .001	.03	.07
Commitment	.02	.01	3.50	4135.33	< .001	.01	.04
<i>PPSR over time moderated by attachment anxiety</i>							
Relationship Satisfaction	.03	.04	.89	132.16	.38	-.04	.10
Sexual Satisfaction	.06	.05	1.18	199.84	.24	-.04	.16
Trust	.05	.04	1.10	176.77	.28	-.04	.13
Commitment	.07	.03	2.27	167.95	.03	.01	.12

Note. Beta values are unstandardized coefficients. PPSR = perceived partner sexual responsiveness. Effects represent moderations between daily PPSR and attachment anxiety, controlling for attachment avoidance and all main effects and interactions.

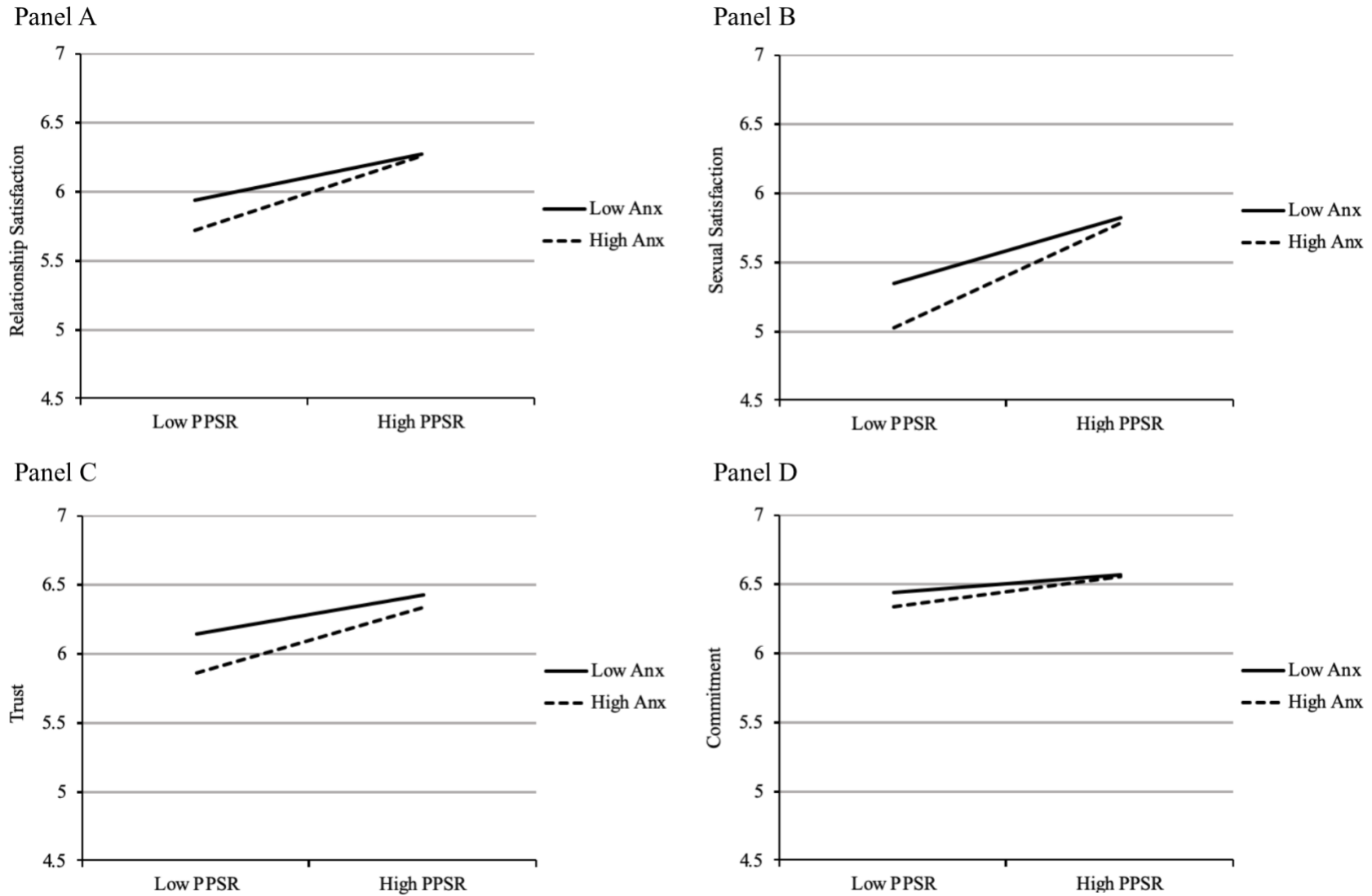


Figure 1. Attachment and Perceived Partner Sexual Responsiveness (PPSR) Interacting to Predict Key Outcomes. *Note.* Effects are within-person (i.e., deviations from the person's own mean). Scales are truncated to clearly depict the pattern of results.

Importantly, although general perceived partner responsiveness also buffered highly anxiously attached people from lower relationship satisfaction ($b = .07$, $SE = .02$, $t[4151.35] = 2.95$, $p = .003$, 95% CI [.02, .11]) and trust ($b = .07$, $SE = .02$, $t[4187.30] = 3.03$, $p = .002$, 95% CI [.03, .12]), the effects of perceived partner sexual responsiveness remained significant above and beyond perceived partner general responsiveness, with one exception (see Table S2 in Supplemental Materials). When general perceived partner responsiveness was controlled, the interaction between perceived partner sexual responsiveness and attachment anxiety predicting commitment was reduced to marginally significant, $b = .01$, $SE = .01$, $t(4151.51) = 1.67$, $p = .10$, 95% CI (-.002, .03). Overall, these findings suggest that, even after accounting for general perceptions of responsiveness, on days when anxiously attached people perceive their partner as highly responsive to their sexual needs, they report similar levels of sexual satisfaction, relationship satisfaction and trust as people low in attachment anxiety.

Perceived Partner Sexual Responsiveness and Relationship and Sexual Quality Over Time

People who perceived their partners as more responsive to their sexual needs over the course of the 21-day daily experience study reported higher relationship satisfaction ($b = .20$, $SE = .06$, $t[207.36] = 3.58$, $p < .001$, 95% CI [.09, .31]), sexual satisfaction ($b = .52$, $SE = .06$, $t[160.56] = 8.04$, $p < .001$, 95% CI [.39, .65]), trust ($b = .15$, $SE = .06$, $t[182.91] = 2.72$, $p = .01$, 95% CI [.04, .26]), and commitment ($b = .11$, $SE = .04$, $t[177.81] = 3.02$, $p < .01$, 95% CI [.04, .19]) three months later. One of these associations was moderated by anxious attachment (See Table 2). When people higher in attachment anxiety perceived their partner as lower in sexual responsiveness over the course of the diary study, they felt marginally less committed to their relationship three months later ($b = -.12$, $SE = .06$, $t[162.44] = -1.84$, $p = .07$, 95% CI [-.24, .01]) compared to people low in attachment anxiety. However, when a partner was perceived as high

in sexual responsiveness over the course of the diary study, people were buffered against this decline ($b = .07$, $SE = .06$, $t[174.37] = 1.15$, $p = .25$, 95% CI [-.05, .20]) and reported similar levels of commitment as less anxiously attached people. Results did not differ by couple's relationship length or sexual frequency.

Although general perceived partner responsiveness did not significantly buffer associations between attachment anxiety and outcomes over time, after controlling for general perceptions of responsiveness, the moderation between perceived partner sexual responsiveness and attachment anxiety predicting commitment was reduced to non-significant, $b = .05$, $SE = .05$, $t(159.29) = 1.01$, $p = .31$, 95% CI (-.05, .15). Therefore, having a sexually responsive partner marginally buffers people high in attachment anxiety from declines in their feelings of commitment over time, but this effect does not persist above and beyond general partner responsiveness.

General Discussion

People high in attachment anxiety tend to perceive their partners as unresponsive to their needs (e.g., Collins, 1996) and have volatile feelings of satisfaction, trust, and commitment (e.g., Birnbaum, 2007; Hazan & Shaver, 1987). Our findings emphasize the sexual domain as one key way for partners to express responsiveness (Diamond & Huebner, 2012), particularly to partners who are high in attachment anxiety. In the current study, we extend past research and demonstrate that perceiving a partner as being highly sexually responsive in daily life can buffer highly anxiously attached people from lower relationship and sexual quality and evoke similar levels of relationship satisfaction, sexual satisfaction, trust and commitment as people low in attachment anxiety. Importantly, these effects were above and beyond general perceptions of

partner responsiveness, suggesting that there are unique effects of perceiving a partner as responsive to one's sexual needs specifically.

The Benefits of Perceived Partner Sexual Responsiveness for Anxiously Attached Partners

Anxiously attached people have a chronic need for closeness, acceptance, reassurance, and love (Birnbaum et al., 2006). They often seek affection (Hazan, Zeifman, & Middleton, 1994) and tend to be clingy, needy and controlling—all of which contributes to an overinvestment in their relationships and more conflict than less anxiously attached partners (Davis, Shaver, & Vernon, 2004; Dunkley, Dang, Chang, & Gorzalka, 2016; Hazan & Shaver, 1987; Li & Chan, 2012). Although anxiously attached people are focused on being closely connected with their partner, they are highly sensitive to cues that threaten this connection and their fears of abandonment may ultimately harm their overall relationship stability (Li & Chan, 2012; Shaver & Mikulincer, 2002).

Perceiving a partner as being sexually responsive serves many relationship benefits including higher satisfaction and commitment (e.g., Muise & Impett, 2015). While anxiously attached people long for intense closeness and intimacy, partner support is often unappreciated and not enough to satisfy their intense needs (e.g., Collins & Feeney, 2004; Girme, Overall, Simpson, & Fletcher, 2015; Moreira et al., 2003). In the current study, we find that perceiving a partner as sexually responsive was associated with higher relationship quality for anxiously attached people. In fact, we demonstrate that perceptions of partner's sexual responsiveness were linked to highly anxiously attached people reporting similar levels of satisfaction, trust, and commitment as less anxiously attached (i.e., more securely attached) people.

What is it about sexual responsiveness specifically that is so important for facilitating relationship and sexual quality among anxiously attached partners? In general, feeling sexually

understood by a partner is associated with increases in satisfaction and commitment over time (Muisse & Impett, 2015), and highly anxiously attached people tend to rely heavily on sexuality to fulfill their attachment needs (Davis et al., 2004; Schachner & Shaver, 2004). Sexual connection can provide what anxiously attached people are most in need of to feel secure in their relationship—perceived partner availability and intimacy (see Little et al., 2010). Thus, compared to perceptions of general responsiveness, perceiving a partner as being sexually responsive may more reliably reassure anxiously attached people that the intimacy, closeness and commitment they long for is reciprocated by their partner and may signal their partner’s availability to meet their needs. Our research extends past work on protective factors of sexuality for anxiously attached people by showing that, in addition to having satisfying sex (Little et al., 2010), perceiving a partner as sexually responsive is an important buffer against the lower sexual and relationship quality anxiously attached people typically experience.

Limitations and Future Directions

The current study is a novel investigation of how perceived partner sexual responsiveness buffers people high in anxious attachment from low sexual and relationship quality in daily life. Despite the strengths of this work—an ecologically valid study of romantic couples over time—there are limitations. First, although we provide evidence that daily changes in perceptions of a partner’s sexual responsiveness were associated with daily sexual and relationship quality, and perceptions of a partner’s sexual responsiveness predicted increases in sexual and relationship quality over time, we cannot confirm causality. In previous experimental work, manipulating general perceived responsiveness helped people to capitalize on positive experiences and, in turn, experience increased trust and intimacy (Reis et al., 2010). Future experimental work in which

perceptions of a partner's sexual responsiveness are manipulated could help provide stronger evidence of the causal direction of our findings.

In addition, the current work does not indicate why perceived partner sexual responsiveness has specific benefits for anxiously attached people. For example, sexual responsiveness might signal that a partner is receptive and available to respond to an anxiously attached person's bids for intimacy and indicate that a partner similarly desires closeness and connection. People who are anxiously attached tend to have negative working models of the self (see Wei, Mallinckrodt, Larson, & Zakalik, 2005), which may lead them to underestimate their own mate value. It is possible that having a partner who demonstrates responsiveness to their sexual needs—even if temporarily—could increase anxiously attached people's feelings of being valued, and this may account for higher relationship quality. Future research could test possible mechanisms, such as perceived partner availability or felt desire, for the benefits of perceived partner sexual responsiveness for people high in attachment anxiety.

Finally, as demonstrated in the existing literature, people higher in attachment anxiety have a higher threshold for perceiving and benefitting from partner's responsiveness (e.g., Collins & Feeney, 2004), so their partners might have a higher bar to reach in terms of being perceived as responsive. The current findings suggest that higher levels of perceived partner sexual responsiveness are associated with sexual and relationship quality for anxiously attached people; however, we have not identified specific behaviors that would signal this responsiveness and if this differs based on attachment anxiety. Future work might test whether anxiously attached people tend to underperceive their partner's sexual responsiveness—that is, do the partners of anxiously attached people have a higher bar to clear in terms of being perceived as a responsive partner? Related to this, are there specific indicators, such as expressions of sexual

interest, that are perceived as most responsive by anxious partners? These lines of inquiry could provide novel insights into how perceptions of sexual responsiveness are formed and in turn, linked with sexual and relationship quality.

Conclusion

The current study extends previous work on responsiveness and attachment by demonstrating that, for highly anxiously attached people, perceiving a partner as more sexually responsive in daily life helps them to experience similar levels of relationship satisfaction, sexual satisfaction, trust, and commitment as less anxiously attached people. Our findings contribute to a growing body of research that demonstrates the specific role of sexual responsiveness in the maintenance of relationship quality (for a review, see Muise & Impett, 2016), and to research on buffering anxiously attached people from lower sexual and relationship quality (Little et al., 2010; Simpson & Overall, 2014). We also provide initial evidence that perceived partner sexual responsiveness in relationships has implications and may be a novel protective factor for anxiously attached partners to experience greater satisfaction, trust and commitment, despite the relationship challenges they typically experience.

Footnotes

1On days when partners were perceived as low in general responsiveness, highly anxiously attached people felt marginally less satisfied with their relationship ($b = -.06$, $SE = .03$, $t[306.67] = -1.89$, $p = .06$, 95% CI [-.11, .002]) and reported significantly lower trust in their partner ($b = -.10$, $SE = .03$, $t[303.43] = -3.03$, $p = .003$, 95% CI [-.16, -.03]) compared to people low in attachment anxiety. In contrast, when a partner was perceived as high in general responsiveness, highly anxiously attached people were buffered against this decline and reported similar levels of relationship satisfaction ($b = .01$, $SE = .03$, $t[305.18] = .46$, $p = .65$, 95% CI [-.04, .07]) and trust ($b = -.02$, $SE = .03$, $t[302.07] = -.71$, $p = .48$, 95% CI [-.09, .04]) as less anxiously attached people.

Supplemental Materials 1

Table S1

Sample Characteristics (N = 242)

Characteristic	<i>M</i> (range) or <i>n</i>	<i>SD</i> or %
Age (years)	32.63 (20 – 78)	10.19
Ethnicity		
White (e.g., North American, European, etc.)	158	65.3%
East Asian (e.g., Chinese, Korean, etc.)	20	8.3%
South Asian (e.g., Indian, Pakistani, etc.)	18	7.4%
Bi- or multi-ethnic/ racial (e.g., White/Black, East Asian/South Asian, etc.)	14	5.8%
Other Ethnicity	31	12.7%
Relationship status		
Dating	3	1.2%
Cohabiting	71	29.3%
Common-law	33	13.6%
Engaged	19	7.9%
Married	113	46.7%
Other	1	.4%
Sexual Orientation		
Asexual	7	2.9%
Bisexual	22	9.1%
Lesbian	6	2.5%
Straight/ Heterosexual	197	81.4%
Pansexual	4	1.7%
Other Sexual Orientation	6	2.4%
Relationship duration (years)	8.5 (1.5 – 58.25)	8.4
Sexual frequency	1.97	.88

Note. ‘Other Ethnicity’ includes participants who did not identify with one of the presented categories, as well as all ethnicities representing 5% or less of the sample (i.e., Black [e.g., African, Caribbean, etc.], Latin American [e.g., Mexican, Columbian, etc.]). ‘Other Sexual Orientation’ includes participants who did not identify with one of the presented categories, as well as orientations representing less than 1% of the sample (i.e., Gay, Queer). Percentages may not add up to 100% due to a small amount of missing data.

Table S2

Associations Between Attachment Anxiety and Outcomes Moderated by Perceived Partner Sexual Responsiveness and Controlling for General Perceived Partner Responsiveness

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	
						<i>Low</i>	<i>High</i>
Relationship Sat.	.02	.01	1.97	4103.10	.05	.00	.03
Sexual Sat.	.06	.01	6.82	3972.61	<.001	.04	.08
Trust	.02	.01	2.08	4156.73	.04	.00	.03
Commitment	.01	.01	1.67	4151.51	.10	-.002	.03

Note. Beta values are unstandardized coefficients. Sat. = satisfaction. Effects represent moderations between PPSR and attachment anxiety on the stated outcomes, controlling for attachment avoidance and all main effects and interactions, as well as general perceived partner responsiveness.

Supplemental Analyses: Results for Avoidant Attachment

Although our key interest in this study was the buffering effects of perceived partner sexual responsiveness for people high in attachment anxiety, we also included attachment avoidance as well as moderations between attachment avoidance and perceived partner sexual responsiveness in the models. People high in attachment avoidance reported lower daily relationship satisfaction ($b = -.24$, $SE = .06$, $t[200.28] = -4.37$, $p < .001$, 95% CI [-.35, -.13]), sexual satisfaction ($b = -.19$, $SE = .09$, $t[185.45] = -2.10$, $p = .04$, 95% CI [-.37, -.01]), trust ($b = -.27$, $SE = .06$, $t[212.72] = -4.84$, $p < .001$, 95% CI [-.38, -.16]), and commitment ($b = -.23$, $SE = .05$, $t[175.21] = -4.85$, $p < .001$, 95% CI [-.32, -.13]) compared to less avoidantly attached people. People high in attachment avoidance also tended to perceive their partner as less responsive to their sexual needs in daily life ($r = -.22$, $p = .001$). Attachment avoidance moderated one of the associations between daily perceived partner sexual responsiveness and sexual and relationship well-being—the association between perceived partner sexual responsiveness and sexual satisfaction (see Table S3). On days when partners were perceived as being lower in sexual responsiveness, highly avoidant people reported similar levels of sexual satisfaction as less avoidant people ($b = -.04$, $SE = .07$, $t[189.86] = -.51$, $p = .61$, 95% CI [-.18, .10]). However, on days when a partner was perceived as highly sexually responsive, people high in attachment avoidance reported marginally lower sexual satisfaction compared to people low in attachment avoidance ($b = -.12$, $SE = .07$, $t[189.66] = -1.62$, $p = .11$, 95% CI [-.26, .02]). Results did not differ by couple's relationship length or sexual frequency. Therefore, in daily life when avoidantly attached people perceive their partners as highly responsive to their sexual needs, this is linked to marginally lower sexual satisfaction.

Table S3

*Associations Between Attachment Avoidance and Outcomes Moderated by Perceived Partner**Sexual Responsiveness*

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	
						<i>Low</i>	<i>High</i>
<i>Interactions of daily PPSR and attachment avoidance</i>							
Relationship Sat.	.01	.01	1.01	3848.83	.31	-.01	.03
Sexual Sat.	-.03	.01	-2.62	3939.78	.01	-.05	-.01
Trust	.004	.01	.38	4019.71	.70	-.02	.02
Commitment	.01	.01	1.58	4097.75	.12	-.003	.03
<i>Interactions of PPSR overtime and attachment avoidance</i>							
Relationship Sat.	.06	.04	1.38	145.96	.17	-.03	.15
Sexual Sat.	.14	.06	2.30	197.49	.02	.02	.26
Trust	.02	.06	.31	198.16	.76	-.09	.13
Commitment	-.02	.04	-.56	182.35	.58	-.09	.05

Note. Beta values are unstandardized coefficients. PPSR = perceived partner sexual responsiveness. Sat. = satisfaction. Effects represent moderations between PPSR and attachment avoidance, controlling for attachment anxiety and all main effects and interactions.

General perceived partner responsiveness uniquely buffered highly avoidantly attached individuals from lower commitment ($b = .08$, $SE = .03$, $t[4145.66] = 3.29$, $p = .001$, 95% CI [.03,

.13]). On days when partners were perceived as being lower in general responsiveness, people high in attachment avoidance felt less committed ($b = -.15$, $SE = .05$, $t[228.04] = -3.12$, $p = .002$, 95% CI [-.24, -.05]) compared to people low in attachment avoidance. In contrast, when a partner was perceived as high in general responsiveness, avoidant people were buffered against this decline ($b = -.06$, $SE = .05$, $t[227.89] = -1.26$, $p = .21$, 95% CI [-.15, .03]) and reported similar levels of commitment as less avoidantly attached people. Including general perceived partner responsiveness in the model did not change any of the moderations by perceived partner sexual responsiveness reported above.

Avoidant attachment also moderated the association between perceived partner sexual responsiveness (over the course of the daily experience study) and sexual satisfaction three months later (See Table S3). When people perceived their partner as lower in sexual responsiveness over the course of the diary study, people higher in attachment avoidance felt less sexually satisfied three months later ($b = -.26$, $SE = .13$, $t[195.43] = -2.03$, $p = .04$, 95% CI [-.52, -.01]) compared to people low in attachment avoidance. However, when a partner was perceived as high in sexual responsiveness over the course of the diary study, avoidantly attached people were buffered against this decline ($b = .14$, $SE = .14$, $t[200.94] = 1.02$, $p = .31$, 95% CI [-.13, .41]) and reported similar levels of sexual satisfaction as less avoidantly attached people. Results did not differ by couple's relationship length or sexual frequency. Although general perceived partner responsiveness did not significantly buffer associations between attachment avoidance and outcomes over time, after controlling for general perceptions of responsiveness, the moderation between perceived partner sexual responsiveness and sexual satisfaction was reduced to marginal: $b = .18$, $SE = .10$, $t(197.83) = 1.76$, $p = .08$, 95% CI (-.02, .37). Overall, for people higher in attachment avoidance, perceiving a partner as high in sexual responsiveness seems to

help them maintain their sexual satisfaction over time, but this effect does not persist above and beyond general partner responsiveness.

In sum, people who were highly avoidantly attached reported lower daily relationship and sexual quality compared to less avoidantly attached people. Although the association between perceived partner sexual responsiveness and sexual satisfaction at the daily level was significantly moderated by attachment avoidance (above and beyond perceived partner general responsiveness), the simple effects of high and low perceived partner sexual responsiveness were non-significant and, if anything, suggested that when people high in attachment avoidance perceive a partner as sexually responsive, they feel less satisfied. Lastly, for people higher in attachment avoidance (compared to people less avoidantly attached), perceiving a partner as high in sexual responsiveness helped them to maintain their sexual satisfaction over time. This effect did not persist above and beyond general partner responsiveness.

CHAPTER 3

Keeping Things Even: Avoidantly Attached Individuals are More Exchange-Oriented and Less
Communal in the Bedroom

Chapter 3 is adapted from a manuscript that is currently under review:

Raposo, S., Impett, E. A., & Muise, A. (Under review). Keeping Things Even: Avoidantly

Attached Individuals are More Exchange-Oriented and Less Communal in the Bedroom.

Archives of Sexual Behavior.

Author	Contribution
<i>Raposo, S.</i>	<ul style="list-style-type: none"> - Conception and design of the project – 50% - Analysis and interpretation of the research data – 75% - Manuscript writing – 70%
<i>Impett, E. A.</i>	<ul style="list-style-type: none"> - Conception and design of the project – 10% - Analysis and interpretation of the research data – 5% - Manuscript writing – 10%
<i>Muise, A.</i>	<ul style="list-style-type: none"> - Conception and design of the project – 40% - Analysis and interpretation of the research data – 20% - Manuscript writing – 20%

Abstract

Sexual need fulfillment in a relationship is associated with both partner's sexual and relationship quality (e.g., Muise et al., 2013). In the current research we explore what underlies two approaches to sexual need fulfillment—sexual communal norms (i.e., being motivated to meet a partner's sexual needs) and sexual exchange norms (i.e., tracking and trading sexual benefits). People high in attachment avoidance are less responsive to their partner's needs and distance themselves from intimacy. Sexuality is a domain in which partners aim to meet each other's needs, but it may also heighten avoidantly attached partners' concerns about intimacy. Across three studies—using cross-sectional, dyadic, daily experience, and longitudinal methods—endorsing sexual communal norms was associated with greater sexual and relationship quality, whereas endorsing sexual exchange norms was not associated with, or was linked to lower, sexual and relationship quality. Avoidantly attached people were less sexually communal and more exchange-oriented, and their heightened endorsement of sexual exchange norms predicted lower relationship satisfaction over time. Findings from this research suggest that attachment avoidance underlies approaches to sexual need fulfillment in relationships.

Keywords: attachment avoidance, relationships, sexual communion, sexual exchange

Keeping Things Even: Avoidantly Attached Individuals are More Exchange-Oriented and Less Communal in the Bedroom

Sexuality is one domain of relationships in which partners aim to meet each other's needs (e.g., Muise, Impett, Kogan, & Desmarais, 2013). Sexual need fulfillment, as opposed to the fulfillment of other types of needs, may be particularly impactful for relationship satisfaction given that most romantic relationships are sexually monogamous (Blanchflower & Oswald, 2004), and people expect to have their sexual needs met by their romantic partner (Day, Muise, Joel, & Impett, 2015). Research has shown that when people are motivated to be responsive to their partner's sexual needs (i.e., high sexual communion), both partners report higher sexual desire, satisfaction, and commitment, compared to when people are less sexually communal (Muise & Impett, 2015; Muise et al., 2013). One approach often contrasted with endorsing sexual communal norms is endorsing sexual exchange norms, where partners in a relationship are focused on keeping the provision of sexual benefits fair and equal (for a review, see Byers, Wang, Harvey, Wenzel, & Sprecher, 2004 and Sprecher, 1998). Less is known about individual differences associated with endorsing sexual exchange norms, or how taking an exchange approach to sexuality is associated with sexual and relationship quality.

The current research examines how endorsing communal and exchange norms in a sexual relationship are associated with sexual and relationship quality, and what underlies these different approaches to sexual need fulfillment in relationships. *Attachment avoidance*—the extent to which a person values independence and avoids closeness and intimacy (Mikulincer & Shaver, 2003)—tends to influence how people both provide care for a close other and expect their needs to be responded to in relationships (e.g., Bartz & Lydon, 2004, 2006, 2008). However, fulfilling *sexual* needs in a relationship might heighten avoidantly attached people's

distancing tendencies due to their discomfort with closeness and intimacy. Given that sexuality is a relationship domain in which partners have unique roles in fulfilling each other's needs, in the current research, we test whether attachment avoidance is associated with approaches to sexual need fulfillment. Specifically, this research sets out to test two key questions. First, how is endorsing sexual exchange norms (accounting for sexual communal norms) associated with sexual and relationship quality in committed relationships? Second, does attachment avoidance underlie approaches to sexual need fulfillment?

Communal and Exchange Approaches to Sexual Need Fulfillment

Responsively meeting the needs of close others is central to satisfying relationships (e.g., Lemay, Clark, & Feeney, 2007; Maisel & Gable, 2009). Two common approaches have been used to characterize different ways of giving and receiving benefits in a relationship—termed communal norms and exchange norms. When people endorse *communal* norms, they are concerned about meeting the needs of the other person (Clark & Mills, 1979). People who are highly communal are motivated to meet their partner's needs as they arise without the expectation of direct reciprocation (Clark & Mills, 2012), and they trust that their partner will also behave responsively to their own needs (Mills, Clark, Ford, & Johnson, 2004). In recent years, communal norms have been applied to sexuality (for a review, see Muise & Impett, 2016). Results from longitudinal and daily experience studies have shown that being motivated to meet a partner's sexual needs (i.e., high sexual communion) is associated with higher sexual desire, as well as higher relationship satisfaction and commitment for both partners (Muise & Impett, 2015; Muise et al., 2013).

In contrast to endorsing communal norms, when people endorse *exchange* norms, they give benefits with the expectation of receiving equal or comparable benefits in return and are

concerned with keeping track of benefits to keep things even between partners (Clark & Mills, 1979). Although social exchange theories have also been applied to sexuality (i.e., termed *sexual exchange*; e.g., Sprecher, 1998), associations between exchange norms and outcomes have been mixed. One line of research focusing on maintaining equity in a sexual relationship finds that when the balance of rewards and costs is equitable (i.e., exchanges are fair and equal), people feel more satisfied with their relationships and sex lives (termed the Interpersonal Exchange Model of Sexual Satisfaction; Byers & Wang, 2004; Hatfield, Greenberger, Traupmann, & Lambert, 1982; Lawrance & Byers, 1995). However, when exchanges are inequitable (i.e., partners are under- or over-benefitted), partners experience poorer outcomes such as sexual dissatisfaction, distress, and frustration (e.g., Hatfield et al., 1982; Sprecher, 1998, 2001). In addition, research has shown that tracking and trading benefits in relationships more generally is associated with lower satisfaction (Clark, Lemay, Graham, Pataki, & Finkel, 2010), and men who endorse exchange norms about sex tend to be less satisfied with their relationship (Hughes & Snell, 1990). Therefore, it is possible that keeping things even sexually can make partners feel that the relationship is equitable which might be associated with more favorable outcomes, but it is also possible that tracking and trading sexual benefits has the potential to make sexual experiences feel less intimate and partners feel less connected.

There is currently limited work on differences in people's tendencies to endorse communal and exchange norms in relationships, but some work has shown that attachment underlies norms for general need fulfillment in romantic relationships. Whereas anxiously attached people are more likely to endorse communal norms, avoidantly attached people tend to endorse more exchange norms (e.g., Bartz & Lydon, 2006, 2008; Clark, Lemay, Graham, Pataki, & Finkel, 2010; Clark & Mills, 2012). However, we know less about individual differences in

the endorsement of *sexual* norms and how sexual communal and exchange norms are associated with sexual and relationship outcomes. Understanding how a person's and their partner's endorsement of sexual communal and exchange norms is associated with sexual and relationship quality, as well as what underlies the endorsement of these norms in a sexual relationship, could provide more nuanced insight into sexual need fulfillment and sexual and relationship quality for both partners.

Attachment Avoidance and Approaches to Sexual Need Fulfillment

Attachment is often categorized along two dimensions—*anxiety* and *avoidance* (e.g., Brennan, Clark, & Shaver, 1998). Whereas people high in *attachment anxiety* have a strong desire for closeness in their relationships and fear abandonment from their partners, people high in *attachment avoidance* tend to value independence and are uncomfortable with closeness and intimacy (e.g., Hazan & Shaver, 1994; Mikulincer & Shaver, 2003; see also Campbell, Simpson, Boldry, & Kashy, 2005). Given avoidantly attached people's fear of intimacy, their distancing tendencies may become triggered in sexual interactions with a romantic partner. People high in attachment avoidance tend to report lower levels of relationship satisfaction, sexual satisfaction (Birnbaum et al., 2006), and more negative feelings during sex (Birnbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006; Tracy, Shaver, Albino, & Cooper, 2003). In addition, they typically enjoy sex less and are generally less willing to engage in sex with a partner than those lower in attachment avoidance (Brassard, Shaver, & Lussier, 2007; Tracy et al., 2003). Avoidantly attached people are focused on avoiding intimacy and have a lower frequency of dyadic sex (Brassard et al., 2007; Gentzler & Kerns, 2004). Therefore, their motivation during sex may be to limit intimacy and focus on their own needs (Impett, Gordon, & Strachman, 2008).

Unlike secure or anxiously attached individuals who are generally more communal in

their relationships (Bartz & Lydon, 2006, 2008; Clark et al., 2010), avoidantly attached people tend to be less communal and more exchange-oriented, as keeping track of favors may enable them to avoid closeness and maintain independence from close others (Bartz & Lydon, 2008). In fact, avoidantly attached people dislike potential close others and feel more annoyed and anxious when others are more communal (rather than exchange-oriented), perhaps because communal cues signify increased closeness (Bartz & Lydon, 2006, 2008). When avoidantly attached people feel that experiences in their relationship are promoting emotional closeness, they redirect their motives to express manipulation and control over their partner and keep their distance in an attempt to protect themselves from negative outcomes (Birnbaum et al., 2006; Davis, Shaver, & Vernon, 2004). Applied to sexual need fulfillment in relationships, their discomfort with intimacy and the value they place on independence suggests that avoidantly attached people might be more focused on their own need fulfillment as opposed to their partner's sexual needs. In other words, it is possible that avoidantly attached people are less motivated to be responsive to their partner's sexual needs (i.e., they are less likely to endorse sexual communal norms), and more focused on tracking and trading benefits in a sexual relationship as a way to reduce sexual intimacy (i.e., they are more likely to endorse sexual exchange norms).

Partners of avoidantly attached people also tend to be less sexually satisfied (Butzer & Campbell, 2008) and do not gain as much from their sexual interactions, which has been theorized to be because their partner's sexual behaviors are often not enough to meet their emotional needs (Birnbaum, 2015; Birnbaum et al., 2006). Research has shown that avoidantly attached women are more likely to avoid sex (Brassard et al., 2007), which may be linked to their partner's own decreased motivations to engage in sex or experience intimacy (also termed the "dance of distance"; Gewirtz-Meydan & Finzi-Dottan, 2018; Middelberg, 2001). As such, when

both partners are avoidantly attached, they experience more sexual problems, perhaps due to their shared discomfort with intimacy (Brassard et al., 2007). These findings suggest that highly avoidantly attached people, or those with an avoidantly attached partner, might report a lower endorsement of sexual communal norms and a higher endorsement of sexual exchange norms. However, mixed existing findings on exchange norms in sexual relationships make it unclear the extent to which endorsing sexual exchange norms might subsequently impact sexual and relationship quality.

The Current Research

In the current research using data from three multi-method studies (i.e., cross-sectional, dyadic, daily experience, longitudinal), we test the associations between attachment avoidance, sexual communal and exchange norms, and sexual and relationship quality. Consistent with past research, we expect that endorsing sexual communal norms would be associated with greater sexual satisfaction and relationship quality (i.e., satisfaction and commitment), but that endorsing sexual exchange norms would not be associated with better sexual and relationship outcomes and instead might be linked to lower satisfaction. In addition, we expected that avoidantly attached people would be more likely to endorse sexual exchange norms and less likely to endorse sexual communal norms in their relationships. In Study 1, we tested the factor structure for a measure of sexual exchange and initial associations between attachment avoidance, endorsing sexual communal and exchange norms, and sexual and relationship quality. In Study 2, we extended findings from Study 1 by testing dyadic associations between approaches to sexual need fulfillment and sexual and relationship quality, as well as attachment avoidance and approaches to sexual need fulfillment. Finally, in Study 3, we tested whether people higher in attachment avoidance were less likely to endorse sexual communal norms and more likely to endorse sexual

exchange norms in daily life, and we also tested whether this mediated associations between attachment avoidance and sexual and relationship quality over time.

Study 1

In Study 1, a cross-sectional study of people in romantic relationships, we conducted an exploratory factor analysis (EFA) to test the factor structure of an adapted sexual exchange measure (the sexual exchange subscale of the Sexual Relationship Scale; Hughes & Snell, 1990). Next, we tested associations between approaches to sexual need fulfillment (i.e., sexual communal and sexual exchange norms) and sexual and relationship quality. We also tested our key question of whether people higher in attachment avoidance would be more likely to endorse sexual exchange norms in their relationship, and less likely to endorse sexual communal norms.

Method

Participants

Participants were recruited through Prolific (<https://www.prolific.co/>), an online recruitment platform. Eligible participants were sexually active, in a romantic relationship for at least six months, and 18 years of age or older. We recruited 267 participants—a sample size that is consistent with recommendations for extracting a small number of factors with moderately sized item communalities (Fabrigar & Wegener, 2012; MacCallum, Widaman, Zhang, & Hong, 1999; Sakaluk & Short, 2017). We excluded 19 participants for not meeting the eligibility criteria or not passing three or more attention checks using the Conscientious Responders Scale (Marjanovic, Struthers, Cribbie, & Greenglass, 2014). The final sample consisted of 248 participants ($N = 97$ men, 147 women, 1 trans-identified as female, 1 “other”, 2 missing), a sample size which gives us 95% power to detect a medium effect ($f = 0.25$) at an alpha of .05. Participants ranged in age from 18 to 70 years ($M = 32.18$, $SD = 10.27$). The average relationship

length was 8.16 years ($SD = 7.99$). Participants were White (85.5%), Black (1.2%), East Asian (1.2%), South Asian (.4%), Latin American (3.2%), bi- or multi-ethnic/racial (.4%), missing (.8%), or identified as ‘other’ (7.3%). Participants were straight/heterosexual (84.7%), bisexual (8.9%), asexual (2.4%), lesbian (1.2%), pansexual (1.2%), queer (1.2%), or missing (.4%). Finally, participants were married (40.3%), dating (24.2%), living together (23.8%), common-law (5.2%), engaged (5.2%), or indicated “other” (1.2%).

Procedure

Participants were pre-screened for eligibility. Once eligibility and consent were confirmed, participants completed a 25-minute online survey. We compensated participants up to £2.08 (approximately \$2.34 USD) for their participation.

Measures

In addition to the key variables, participants reported their age, ethnicity, sexual orientation, relationship status, and duration (see Table 3 for correlations, means and standard deviations).

Table 3

Correlations Among Variables (Study 1)

	1	2	3	4	5	6	7	8	9
1. Age	–	.72***	-.04	-.15*	-.04	.02	.02	-.11	.07
2. Relationship duration		–	.06	-.06	-.02	-.11	-.04	-.18**	.07
3. Avoidance			–	.28***	.20**	-.31***	-.61***	-.49***	-.53***
4. Anxiety				–	.21**	-.02	-.28***	-.26***	-.13*
5. Sexual exchange					–	.05	-.07	-.00	-.13*
6. Sexual communion						–	.32***	.37***	.15*
7. Relationship satisfaction							–	.68***	.52***
8. Sexual satisfaction								–	.30***
9. Commitment									–
Mean	32.18	8.16	2.04	3.24	3.15	2.76	5.87	5.75	6.27
Standard deviation	10.27	7.99	.92	1.08	1.12	.62	1.04	1.28	.95

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

Sexual exchange. We used seven items adapted from the Sexual Exchange subscale of the Sexual Relationship Scale (Hughes & Snell, 1990), and created two additional face valid items to assess sexual exchange. Given the addition of items and that the factor structure of the Sexual Exchange subscale has not been previously tested, we first aimed to test the factor structure. Data were analyzed using EFA according to best practices (e.g., Fabrigar, Wegener, MacCallum, & Strahan, 1999; Preacher & MacCallum, 2003; Sakaluk & Short, 2017). To test the factor structure of the Sexual Exchange subscale, we used maximum likelihood estimation and promax (i.e., oblique) rotation. The number of factors to retain was determined through parallel analysis using nested-model comparisons, and examining descriptive measures of model fit (O'Connor, 2000; Sakaluk & Short, 2017). Parallel analysis revealed that factor solutions containing one to two common factors explained more variance in the scale items than randomly simulated factors, and thus were plausible factor solutions. We subsequently extracted factor solutions of one and two common factors for further examination, anticipating that the one-factor solution may be best given the results of the parallel analysis. A two-factor model demonstrated acceptable fit, $\chi^2(19) = 36.78, p = .01, TLI = 0.91, RMSEA = .06$; however, upon examining the two-factor model, the second factor simply contained all of the reverse-coded items, suggesting that this may not represent a meaningful second factor. We next tested a single-factor solution. The single-factor solution with all items demonstrated poor fit to the data, $\chi^2(27) = 106.34, p < .001, TLI = 0.70, RMSEA = .11$. Therefore, we removed the reverse-coded items and tested a single factor model with the five remaining items, which demonstrated great fit ($\chi^2[5] = 3.19, p = .67, TLI = 1.02, RMSEA = .00$) and was a significant improvement compared to the two-factor solution with all items ($\Delta \chi^2[14] = 33.59, p = .002$) and to the one-factor solution with all items ($\Delta \chi^2[22] = 103.16, p < .001$). Thus, we chose the single-factor model with five items as the final

model for our analyses. See Supplemental Materials for factor-matrices of all solutions, and a full list of items.

The final measure included five items specific to exchange norms for fulfilling a partner's sexual needs: "When a person receives sexual pleasure from a partner, he or she ought to repay that person right away"; "It's best to make sure things are always kept 'even' between two people in a sexual relationship"; "I would do a special sexual favor for my partner only if my partner did a special sexual favor for me"; "In my relationship, I always know whether I have given more sexually to my partner or received more"; and "I keep track of whether my partner 'owes' me sexually (whether I have given to them more than I have received)". Participants rated all items on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*; $\alpha = .74$).

Attachment. Attachment was measured with the Experiences in Close Relationships Short-Form scale (Wei, Russell, Mallinckrodt, & Vogel, 2007). Six items assessed *attachment anxiety* (e.g., "I need a lot of reassurance that I am loved by my partner;" $\alpha = .71$) and six items assessed *attachment avoidance* (e.g., "I am nervous when my partner gets too close to me;" $\alpha = .84$). All questions were rated on 7-point scales (1 = *strongly disagree* to 7 = *strongly agree*).

Sexual communion. Sexual communal norms were measured with six items (e.g., "How far would you be willing to go to meet your partner's sexual needs?" $\alpha = .75$; Muise et al., 2013), rated on 5-point scales (0 = *not at all* to 4 = *extremely*).

Relationship satisfaction. Relationship satisfaction was assessed with the satisfaction subscale of the Perceived Relationship Quality Components Inventory (PRQC; e.g., "How satisfied are you with your relationship?" $\alpha = .95$; Fletcher, Simpson, & Thomas, 2000). Participants rated three items on 7-point scales (1 = *not at all* to 7 = *extremely*).

Sexual satisfaction. Sexual satisfaction was measured with the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1998; $\alpha = .96$). Participants rated five bipolar items on 7-point scales (e.g., “My sex life is very bad to very good”).

Commitment. Commitment was measured with the commitment subscale of the PRQC (e.g., “How committed are you to your relationship?” $\alpha = .93$; Fletcher et al., 2000). Participants rated three items on 7-point scales (1 = *not at all* to 7 = *extremely*).

Data Analysis

Data in Study 1 were analyzed in SPSS version 23.0. We explored initial associations between approaches to sexual need fulfillment (i.e., sexual communal and sexual exchange norms), attachment, and relationship and sexual outcomes. To test these links, we conducted linear regression analyses where both sexual communal and sexual exchange norms were entered simultaneously as predictors and centered around the grand mean of the sample. We report associations that were tested but not part of our key questions of interest (i.e., between attachment anxiety and sexual exchange/communal norms, and between attachment anxiety and avoidance and sexual and relationship outcomes) in Supplemental Materials. We tested for gender differences in the main effects of endorsing sexual communal norms and sexual exchange norms on outcomes, and between attachment avoidance and sexual communal or exchange norms across studies, but the effects were largely consistent across gender.¹ We also discuss whether associations between endorsing sexual communal and exchange norms and outcomes differed by attachment avoidance by testing moderations. Data and syntax for all analyses are available on the Open Science Framework:

https://osf.io/v264m/?view_only=ad53dc2913ca4d9c98404cb6440f66fe.

Results

First, we tested whether endorsing sexual exchange and communal norms were associated with sexual satisfaction and relationship quality (see Table 4). Consistent with past research, people who endorsed sexual communal norms reported higher relationship satisfaction, sexual satisfaction, and commitment. After accounting for sexual communion, people who endorsed sexual exchange norms reported lower commitment, but sexual exchange was not significantly associated with sexual or relationship satisfaction.

Table 4

Associations Between Approaches to Sexual Need Fulfillment and Outcomes in Study 1

	Relationship Satisfaction		Sexual Satisfaction		Commitment	
	<i>b</i> (<i>SE</i>)	<i>t</i>	<i>b</i> (<i>SE</i>)	<i>t</i>	<i>b</i> (<i>SE</i>)	<i>t</i>
Sexual exchange	-.08(.06)	-1.36	-.02(.07)	-.34	-.12(.05)	-2.23*
Sexual communion	.54(.10)	5.35***	.77(.12)	6.31***	.24(.10)	2.47*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Degrees of freedom were 245.

Next, we tested whether attachment avoidance is associated with endorsing sexual exchange norms and sexual communal norms. Our findings demonstrated that people who were high in attachment avoidance were more likely to endorse sexual exchange norms ($b = .19$, $SE = .08$, $t[245] = 2.38$, $p = .02$) and less likely to endorse sexual communal norms in their relationship ($b = -.22$, $SE = .04$, $t[245] = -5.24$, $p < .001$). Notably, the associations between endorsing sexual communal norms and sexual exchange norms with satisfaction and

commitment were not moderated by attachment avoidance, suggesting that avoidantly attached people may benefit when they endorse sexual communal norms, but they may also incur costs to their feelings of commitment when they endorse sexual exchange norms. Finally, unexpectedly in this study, we also found that attachment anxiety was associated with endorsing more sexual exchange norms, but it was not associated with the endorsement of sexual communal norms (see Supplement Materials for details).

Brief Discussion

Results from Study 1 demonstrated that being exchange-oriented in the sexual domain was associated with lower commitment, whereas being sexually communal was associated with greater relationship satisfaction, sexual satisfaction and commitment. In addition, people who were higher in attachment avoidance reported being more exchange-oriented and less communally-oriented in their sexual relationships, findings that are consistent with previous research on attachment and general approaches to need fulfillment in relationships (e.g., Bartz & Lydon, 2008). These findings suggest that, even in sexual interactions, avoidantly attached people tend to refrain from opportunities for increased intimacy with their partner by focusing on whether benefits are equally exchanged between partners (i.e., one person in the relationship is not over- or under-benefitting compared to the other), rather than being responsive to a partner's sexual needs.

Study 2

In Study 2, a cross-sectional study of romantic couples, we extended findings from Study 1 by testing dyadic associations. Specifically, we assessed whether people higher in attachment avoidance, and those with partners higher in attachment avoidance, would be more likely to endorse sexual exchange norms in relationships, and less likely to endorse sexual communal

norms. We also tested how endorsing sexual communal and exchange norms is associated with both partners' sexual and relationship quality.

Method

Participants

Participants were recruited through online postings (Canadian university campus, Kijiji, Craigslist) and classroom visits at a Canadian university and in the Greater Toronto Area as part of a larger study on sexual relationships (Day et al., 2015). Eligible couples were sexually active, in a romantic relationship, older than 18 years of age, saw their partner several times a week, and both partners agreed to participate. We aimed to recruit at least 100 couples based on recommendations for achieving sufficient power with dyadic data (Kenny, Kashy, & Cook, 2006). The final sample consisted of 101 couples ($N = 94$ men, 102 women, 1 "other", 5 missing) ranging in age from 18 to 53 years ($M = 25.97$, $SD = 6.98$). Post-hoc power analyses using an online application for calculating power in Actor-Partner Interdependence Models (APIM; Kenny & Ackerman, 2019) indicated that with 101 couples, we had 99% power to detect a medium actor effect and 87% power to detect a small partner effect. The average relationship length was 4.53 years ($SD = 3.82$). Participants were ethnically diverse: White (53%), European (14.4%), Black (10.4%), Chinese (7.9%), South Asian (4.5%), Filipino (3.5%), Latin American (3.5%), identified as 'other' (3.5%), Aboriginal (2.5%), South East Asian (2.5%), Arab/West Asian (1.5%), Japanese (1%), Korean (1%), and chose not to answer (2.5%). Participants were heterosexual (83.7%), bisexual (5%), gay or lesbian (2.5%), identified as 'other' (2%), uncertain or questioning (1.5%), queer (1%), or chose not to specify (1%). Couples were seriously dating one person but not living together (47%), cohabiting (28.7%), married (16.8%), did not respond

(3%), engaged (2.5%), casually dating one person (1.5%), or were seriously dating more than one person (.5%).

Procedure

Couples were pre-screened for eligibility via e-mail. Once eligibility and consent were confirmed, each partner completed a 30-minute online background survey. Participants were asked to complete the surveys on the same day as their partner and were also asked not to discuss their responses until they completed the study. We compensated each partner up to \$40 CAD for their participation in the study.

Measures

In addition to the key variables, both partners reported their age, ethnicity, sexual orientation, relationship status, and duration (see Table 5 for correlations, means and standard deviations).

Table 5

Correlations Among Person-Level Variables (Study 2)

	1	2	3	4	5	6	7	8	9
1. Age	.86***	.64***	.19*	-.01	-.05	-.04	-.25***	-.26***	-.14
2. Relationship duration		–	.20**	.02	-.12	-.15*	-.34***	-.30***	-.12
3. Avoidance			.32**	.29***	.28***	-.31***	-.55***	-.41***	-.59***
4. Anxiety				.14	.10	-.17*	-.35***	-.14*	-.20**
5. Sexual exchange					.15	-.12	-.14	-.07	-.23**
6. Sexual communion						.18	.35***	.34***	.40***
7. Relationship satisfaction							.57***	.56***	.59***
8. Sexual satisfaction								.53***	.34***
9. Commitment									.49***
Mean	25.97	4.53	2.12	3.33	2.20	2.89	5.86	5.97	6.19
Standard deviation	6.98	3.82	1.02	1.36	.94	.66	1.19	1.06	1.04

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. Correlations between partners are bolded and on the diagonal.

Attachment. Attachment was measured with the same items as Study 1 (Wei et al., 2007; attachment anxiety: $\alpha = .82$, attachment avoidance: $\alpha = .79$).

Sexual communion. Sexual communion was measured with the same items as Study 1 (Muisse et al., 2013; $\alpha = .69$).

Sexual exchange. Sexual exchange was measured with the same items as Study 1 (Hughes & Snell, 1990; $\alpha = .77$) but in this study, the items were rated on a 5-point scale (1 = *not at all characteristic of me* to 5 = *very characteristic of me*).

Sexual satisfaction. Sexual satisfaction was measured with the same items as Study 1 (Lawrance & Byers, 1998; $\alpha = .94$).

Relationship satisfaction. Relationship satisfaction was assessed with items from the satisfaction level subscale of the Investment Model Scale (Rusbult, Martz, & Agnew, 1998; $\alpha = .94$). Participants rated five items on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*).

Commitment. Commitment was measured with the commitment level subscale of the Investment Model Scale (Rusbult et al., 1998; $\alpha = .86$). Participants rated seven items on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*).

Data Analysis

Data were analyzed using multilevel modeling in SPSS 23.0 guided by the APIM (Kenny et al., 2006). We attempted to replicate the findings from Study 1 (see data analysis details in Study 1 for additional information, and Supplemental Materials for the results) and extend the results by also testing partner effects. We tested two-level indistinguishable models where persons were nested within dyads (Kenny et al., 2006) to account for non-independence in the data. All predictors were centered around the grand mean. As in Study 1, attachment anxiety and avoidance were entered simultaneously as predictors, as were sexual communion and exchange.

Separate models were tested for each outcome. We also report whether associations between endorsing sexual exchange and communal norms and sexual and relationship quality were moderated by attachment avoidance (controlling for moderations by attachment anxiety). The coefficients reported are unstandardized betas (*b*) and interpreted as the change in the outcome for every one-unit increase in the predictor beyond the sample mean.

Results

First, we tested whether sexual communal norms and sexual exchange norms are associated with sexual satisfaction and relationship quality (see Table 6). Consistent with past research, people who endorsed more sexual communal norms, and those with partners who endorsed more sexual communal norms reported higher relationship satisfaction, sexual satisfaction, and commitment. After accounting for sexual communion, and as in Study 1, people who endorsed more sexual exchange norms reported lower commitment, but there were no significant effects of a partner's endorsement of sexual exchange norms on relationship satisfaction, sexual satisfaction or commitment.

Table 6

Associations Between Actor and Partner Approaches to Sexual Need Fulfillment and Outcomes in Study 2

	Relationship Satisfaction		Sexual Satisfaction		Commitment	
	<i>b</i> (<i>SE</i>)	<i>t</i>	<i>b</i> (<i>SE</i>)	<i>t</i>	<i>b</i> (<i>SE</i>)	<i>t</i>
Actor sexual communion	.55(.12)	4.75***	.53(.11)	4.82***	.52(.10)	5.10***
Partner sexual communion	.45(.12)	3.88***	.26(.11)	2.37*	.28(.10)	2.75**
Actor sexual exchange	-.07(.08)	-.84	-.00(.08)	-.05	-.18(.07)	-2.43*
Partner sexual exchange	-.07(.08)	-.84	.04(.08)	.57	-.09(.07)	-1.21

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Degrees of freedom ranged from 155.46 to 168.53.

Next, we tested whether attachment avoidance is associated with the endorsement of sexual exchange norms and sexual communal norms. Our findings demonstrated that, as in Study 1, people who were high in attachment avoidance were more likely to endorse sexual exchange norms ($b = .23$, $SE = .07$, $t[180.46] = 3.15$, $p = .002$, 95% CI [.09, .37]) and less likely to endorse sexual communal norms in their relationship ($b = -.14$, $SE = .05$, $t[178.50] = -2.74$, $p = .01$, 95% CI [-.24, -.04]). Turning to the partner effects, when partners were higher (compared to lower) in attachment avoidance, people were less likely to endorse sexual communal norms ($b = -.12$, $SE = .05$, $t[178.43] = -2.38$, $p = .02$, 95% CI [-.22, -.02]), but a partner's attachment avoidance was not associated with the endorsement of sexual exchange norms ($b = .03$, $SE = .07$, $t[180.45] = .39$, $p =$

.70, 95% CI [-.11, .17]). Consistent with past research, actor and partner's attachment avoidance were both associated with lower relationship satisfaction, sexual satisfaction, and commitment (see Supplemental Materials for details).

Given that people higher in attachment avoidance tend to endorse more sexual exchange norms, we tested whether they might benefit more from this approach to sexual need fulfillment. However, a person's own attachment avoidance did not moderate any of the associations between sexual exchange and sexual and relationship quality, but these associations did differ by a partner's attachment avoidance. Partner attachment avoidance moderated the association between sexual exchange and relationship satisfaction ($b = .24$, $SE = .09$, $t[145.25] = 2.73$, $p = .01$, 95% CI [.07, .42]) and sexual satisfaction ($b = .33$, $SE = .09$, $t[120.83] = 3.63$, $p < .001$, 95% CI [.15, .51]). Simple effects revealed that for people with partners who were less avoidantly attached, endorsing sexual exchange norms was associated with significantly lower relationship satisfaction ($b = -.26$, $SE = .11$, $t[155.54] = -2.34$, $p = .02$, 95% CI [-.48, -.04]) and sexual satisfaction ($b = -.30$, $SE = .11$, $t[132.35] = -2.70$, $p = .01$, 95% CI [-.52, -.08]). However, when partners were highly avoidantly attached, endorsing sexual exchange norms was not associated with relationship satisfaction ($b = .24$, $SE = .13$, $t[153.25] = 1.75$, $p = .08$, 95% CI [-.03, .50]), and significantly *higher* sexual satisfaction ($b = .37$, $SE = .13$, $t[129.25] = 2.76$, $p = .01$, 95% CI [.10, .64]).

Brief Discussion

Consistent with the findings from Study 1, results from Study 2 demonstrated that people who were high in attachment avoidance reported being more exchange-oriented and less communally-oriented in their sexual relationships. In addition, as in Study 1, being exchange-oriented was associated with lower commitment, whereas being sexually communal (or having a

partner who was sexually communal) was associated with greater relationship and sexual quality. Finally, when a partner was low in attachment avoidance, endorsing sexual exchange norms was linked to lower satisfaction, but this was not the case when a partner was high in attachment avoidance. Endorsing more sexual exchange norms was also linked to *higher* sexual satisfaction for people whose partners were high in attachment avoidance. Therefore, although endorsing sexual exchange norms tended to be negatively associated with sexual and relationship quality, exchanging sexual favors in the bedroom may have some positive implications for the sex lives of those with avoidantly attached partners. In other words, endorsing sexual exchange norms may not be costly for everyone.

Study 3

In Study 3, a three-part study consisting of background, daily, and follow-up data, we sought to replicate and extend findings from Studies 1 and 2 by testing whether people higher in attachment avoidance would be more likely to endorse sexual exchange norms and less likely to endorse sexual communal norms in their daily lives. We also tested associations between daily sexual exchange and communal norms and sexual and relationship outcomes. In this study, we assessed communal and exchange norms for specific sexual experiences in daily life. This allowed us to repeatedly sample people's reports of their sexual communal and exchange norms and have them report on these norms as close in time to when sex occurred, reducing retrospective bias. In this study, we also assessed people's feelings about specific sexual experiences by asking about the positive (i.e., feeling connected, perceiving a partner as responsive) and negative (i.e., feeling detached) aspects of the sexual encounter.

In Study 3, we also assessed whether endorsing sexual exchange or communal norms is associated with sexual and relationship quality over time. Specifically, we tested whether

attachment avoidance was associated with sexual exchange and sexual communal norms over the course of the diary, and whether endorsing more sexual exchange norms and fewer sexual communal norms subsequently predicted avoidantly attached people's relationship and sexual well-being over time (i.e., three months later). This study extends the previous studies in two key ways: by providing a more precise measure of sexual exchange and sexual communion at the daily level (i.e., we assessed the endorsement of communal and exchange norms for specific sexual encounters in daily life) and by testing whether approaches to sexual need fulfillment in relationships mediate the association between attachment avoidance and sexual and relationship quality over time.

Method

Participants

Participants were recruited through online (e.g., Reddit, Kijiji, Facebook, Craigslist) and physical (e.g., Canadian university campuses, public transportation centers) advertisements in Canada and the United States (Raposo & Muise, under review). Eligible couples were currently living together or seeing each other at least five out of seven days per week, sexually active, 18 years of age or older, residing in Canada or the United States, able to read and understand English, and had daily access to a computer with internet. Both partners had to agree to participate. One couple was excluded because they only completed the baseline survey of the study. Our final sample consisted of 121 couples ($N = 115$ men, 124 women, 2 "other", 1 missing). Post-hoc power analyses using an online application for calculating power curves for multi-level studies (Kleiman, 2019) indicated that with 242 participants and 4,488 days, we had 99% power to detect a small effect. Participants ranged in age from 20 to 78 years ($M = 32.63$, $SD = 10.19$). Participants were White (65.3%), East Asian (8.3%), South Asian (7.4%), bi- or

multi-ethnic/racial (5.8%), Black (4.5%), Latin American (4.1%), other (4.1%), or missing (.4%). People identified as straight/heterosexual (81.4%), bisexual (9.1%), asexual (2.9%), lesbian (2.5%), pansexual (1.7%), gay (.8%), queer (.8%), or other (.8%), Couples were married (46.7%), living together (not common-law or married; 29.3%), common-law (13.6%), engaged (7.9%), dating (1.2%), or other (.4%). The average relationship length was 8.50 years ($SD = 8.41$).

Procedure

Couples were pre-screened for eligibility via e-mail and telephone. Once eligibility and consent were confirmed, each partner completed a 60-minute online background survey, followed by 10- to 15-minute online surveys for 21 consecutive days, and a 20-minute online follow-up survey three months later. We instructed participants to complete their surveys before bed and on the same day as their partner. We compensated each partner up to \$60 CAD (\$48 USD) for their participation.

Measures

In addition to the key variables, both partners reported their age and relationship duration (a couple-level variable calculated by taking the mean of each partner's report; see Table 7 for correlations). For the daily (within-person) measures, we used brief versions with only one to three items to increase efficiency and minimize participant attrition (Bolger, Davis, & Rafaeli, 2003).

Table 7

Correlations Among Person-Level Variables (Study 3)

	1	2	3	4	5	6	7	8	9
1. Age	.93***	.76***	.09	-.01	.00	.06	.04	.12	.03
2. Relationship duration		–	.04	-.03	.01	.01	.04	.06	.00
3. Avoidance			.37***	.42***	.37***	-.27***	-.42***	-.24***	-.40***
4. Anxiety				.21*	.29***	-.09	-.31***	-.20**	-.25***
5. Sexual exchange					.48***	-.23***	-.25***	-.20**	-.34***
6. Sexual communion						.21*	.36***	.23***	.43***
7. Relationship satisfaction							.62***	.61***	.77***
8. Sexual satisfaction								.60***	.42***
9. Commitment									.63***

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. Correlations between partners are bolded and on the diagonal. Baseline reports of specific variables (age, relationship duration, attachment avoidance, attachment anxiety) were included in correlations. All other variables were at the daily level. Daily variables were aggregates across the diary.

Person-Level Measures

Attachment. Attachment was measured at background with the same measure as Studies 1 and 2 (Wei et al., 2007; attachment anxiety: $\alpha = .71$, $M = 3.40$, $SD = 1.12$; attachment avoidance: $\alpha = .79$, $M = 2.03$, $SD = .90$).

Sexual exchange. Sexual exchange was measured with the same items as Studies 1 and 2 on a 5-point scale from 1 = *not at all characteristic of me* to 5 = *very characteristic of me* (Hughes & Snell, 1990; $\alpha = .73$, $M = 2.05$, $SD = .84$).

Sexual communion. Sexual communion was measured with the same items as Studies 1 and 2 (Muise et al., 2013; $\alpha = .62$, $M = 3.00$, $SD = .56$).

Relationship satisfaction. Relationship satisfaction was measured with the same items as Study 1 at background (Fletcher et al., 2000; $\alpha = .95$, $M = 6.14$, $SD = .92$) and follow-up ($\alpha = .94$, $M = 5.97$, $SD = 1.16$).

Sexual satisfaction. Sexual satisfaction was measured with the same items as Studies 1 and 2 at background (Lawrance & Byers, 1998; $\alpha = .96$, $M = 6.01$, $SD = 1.41$) and follow-up ($\alpha = .97$, $M = 5.83$, $SD = 1.50$).

Commitment. Commitment was measured with two items from the measure used in Study 1 (Fletcher et al., 2000; $\alpha = .83$, $M = 6.69$, $SD = .59$). One item was administered at follow-up ($M = 6.58$, $SD = .85$).

Daily-Level Measures

Sexual exchange. Sexual exchange was measured with two items adapted to be about that day (e.g., “My goal during sex was to ‘keep things even’ between me and my partner”) rated on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*; $M = 1.62$, $SD = 1.22$). Within-person reliability of the items (indicated by R_c ; Bolger & Laurenceau, 2013) was .81.

Sexual communion. Sexual communal norms were measured with three items adapted to be about their sexual experience that day (e.g., “During sex, I was focused on meeting my partner’s needs”; Muise et al., 2013) rated on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*; $M = 5.71$, $SD = 1.24$, $R_c = .88$).

Relationship satisfaction. Relationship satisfaction was assessed with one item from the relationship satisfaction subscale of the PRQC adapted to be about that day (i.e., “How satisfied were you with your relationship?”; Fletcher et al., 2000) on a 7-point scale (1 = *not at all* to 7 = *extremely*; $M = 6.04$, $SD = 1.25$).

Sexual satisfaction. Sexual satisfaction was measured with the GMSEX adapted to be about that day (e.g., “Today, my sex life was bad to good;” Lawrance & Byers, 1998). Participants rated five bipolar items on 7-point scales ($M = 5.55$, $SD = 1.68$; $R_c = .97$).

Commitment. Commitment was assessed with one item from the commitment subscale of the PRQC adapted to be about that day (i.e., “How committed were you with your relationship?”; Fletcher et al., 2000) on a 7-point scale (1 = *not at all* to 7 = *extremely*; $M = 6.46$, $SD = 1.00$).

Positive and negative sexual experiences. Positive and negative sexual experiences were measured with items adapted to be about their sexual experience that day (Birnbaum et al., 2006; see also Impett, Muise, & Harasymchuk, 2019). Two items assessed *positive sexual experiences* (e.g., “My partner was responsive to my needs;” $M = 6.38$, $SD = .93$; $R_c = .91$) and one item assessed *negative sexual experiences* (i.e., “I felt detached;” $M = 1.81$, $SD = 1.66$). Participants rated 7-point scales (1 = *strongly disagree* to 7 = *strongly agree*).

Data Analysis

Data in Study 3 were analyzed using multilevel modeling in SPSS version 23.0, guided by the APIM (Kenny et al., 2006). We attempted to replicate the findings from Studies 1 and 2 (see data analysis details in Studies 1 and 2 for additional information, and Supplemental Materials for the results). To assess daily fluctuations in the endorsement of sexual communal and exchange norms, we tested two-level indistinguishable cross models with random intercepts where persons were nested within days, and persons and days were crossed to account for the fact that both partners completed the daily surveys on the same days (Kenny et al., 2006). To avoid confounding within- and between-person effects, we partitioned the level-1 predictors (e.g., actor and partner attachment avoidance and attachment anxiety) into their within- and between-variance components, which were person-mean centered and aggregated respectively (Raudenbush, Bryk, Cheong, & Congdon, 2004). The coefficients reported will be unstandardized betas (*b*). Coefficients will be interpreted as the change in the dependent variable for every one-unit deviation from the person's own mean. We also tested whether attachment avoidance (controlling for attachment anxiety) moderated associations between daily sexual exchange and sexual and relationship outcomes.

Given our interest in whether approaches to sexual need fulfillment might account for the links between attachment and sexual and relationship well-being, we conducted tests of mediation (Zhang, Zyphur, & Preacher, 2009) using the Monte Carlo Method of Assessing Mediation with 20,000 resamples and 95% confidence intervals (MacKinnon, Lockwood, & Williams, 2004). By testing mediation models, we were able to assess whether there were significant indirect effects of attachment avoidance on relationship and sexual well-being through approaches to sexual need fulfillment.

Results

Replication of Cross-Sectional Associations from Studies 1 and 2

As in Studies 1 and 2, the associations from the background data showed that people who endorsed sexual communal norms reported higher relationship satisfaction, sexual satisfaction and commitment, whereas people who endorsed sexual exchange norms reported lower commitment. In this study, endorsing sexual exchange norms was also associated with lower sexual satisfaction. As in the previous studies, attachment avoidance was also associated with being more likely to endorse sexual exchange norms and less likely to report sexual communal norms (see Supplemental Materials for details).

Sexual Exchange and Communal Norms in Daily Life

In this study, our key interest was in testing how endorsing communal and exchange norms during sex is associated with daily sexual and relationship quality (see Table 8). Beginning with the within-person effects, we tested if endorsing higher sexual communal and sexual exchange norms during sex than people typically did was associated with sexual and relationship quality. On days when people reported more sexual communal norms during sex than they did on average, they reported that the sexual experience was more positive (i.e., they felt more connected to their partner and felt that their partner was more responsive during sex) and less negative (i.e., they felt less detached), as well as greater sexual satisfaction and commitment, although endorsing sexual communal norms in daily life was not associated with relationship satisfaction. In addition, people whose partners reported more sexual communal norms also reported having more positive sexual experiences. However, after accounting for daily sexual communal norms, on days when people or their partners reported endorsing more

sexual exchange norms, they reported no differences in their daily relationship satisfaction, sexual satisfaction, commitment, or positive and negative sexual experiences that day.

Table 8

Associations Between Actor and Partner Approaches to Sexual Need Fulfillment and Daily Outcomes

	Relationship Satisfaction		Sexual Satisfaction		Commitment		Positive Sex. Experiences		Negative Sex. Experiences		
	<i>b</i> (SE)	<i>t</i>	<i>b</i> (SE)	<i>t</i>	<i>b</i> (SE)	<i>t</i>	<i>b</i> (SE)	<i>t</i>	<i>b</i> (SE)	<i>t</i>	
Within-person effects (group-mean centered)											
Actor sexual communion	.04(.02)	1.81	.06(.03)	2.42*	.07(.02)	3.47**	.10(.03)	3.93***	-.11(.05)	-2.46*	
Partner sexual communion	.02(.02)	1.02	.03(.03)	1.10	-.00(.02)	-.02	.08(.03)	3.04**	-.04(.05)	-.96	
Actor sexual exchange	-.03(.03)	-.89	.06(.03)	1.75	.00(.03)	.11	.01(.03)	.41	.11(.06)	1.74	
Partner sexual exchange	-.06(.03)	-1.82	-.02(.03)	-.45	-.03(.03)	-1.00	-.03(.03)	-.82	.04(.06)	.71	
Between-person effects (aggregate)											
Actor sexual communion	.19(.04)	4.39***	.21(.08)	2.65**	.20(.04)	4.59***	.21(.05)	4.16***	-.13(.09)	-1.53	
Partner sexual communion	.09(.04)	2.07*	.20(.08)	2.58*	.10(.04)	2.32*	.16(.05)	3.20**	-.23(.09)	-2.71**	
Actor sexual exchange	-.03(.04)	-.81	-.06(.07)	-.85	-.06(.04)	-1.51	-.05(.05)	-1.00	.38(.08)	4.76***	
Partner sexual exchange	-.10(.04)	-2.48*	-.15(.07)	-2.11*	-.08(.04)	-1.95*	-.09(.05)	-1.91	.24(.08)	3.01**	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Sex. = Sexual.

Turning to the between-person effects, we next tested how engaging in sex more for communal or exchange norms over the course of the diary study (i.e., aggregated reports of sexual exchange and sexual communal norms over the 21-day diary study) was associated with sexual and relationship quality (see Table 8). People who reported endorsing more sexual communal norms over the course of the diary study reported having more positive sexual experiences, as well as greater relationship satisfaction, sexual satisfaction, and commitment. In addition, people whose partners reported endorsing more sexual communal norms over the course of the diary reported more positive and less negative sexual experiences, as well as greater relationship satisfaction, sexual satisfaction, and commitment. Accounting for sexual communal norms, when people endorsed more sexual exchange norms over the course of the diary study, they reported more negative sexual experiences. People whose partners reported endorsing more sexual exchange norms over the course of the diary also reported more negative sexual experiences, as well as lower relationship satisfaction, sexual satisfaction, and commitment.

Attachment Avoidance and Sexual Exchange and Communal Motivation

Next, we tested whether attachment avoidance would be associated with endorsing sexual exchange or communal norms in daily life. On days when people engaged in sex, our findings demonstrated that people higher in attachment avoidance reported being more likely to endorse sexual exchange norms ($b = .30, SE = .09, t[207.51] = 3.57, p < .001, 95\% CI [.14, .47]$) and less likely to endorse sexual communal norms ($b = -.27, SE = .08, t[208.65] = -3.28, p = .001, 95\% CI [-.43, -.11]$). People with avoidantly attached partners also reported being more likely to endorse sexual exchange norms ($b = .36, SE = .09, t[208.19] = 4.21, p < .001, 95\% CI [.19, .53]$)

and less likely to endorse sexual communal norms ($b = -.17$, $SE = .08$, $t[210.17] = -2.04$, $p = .04$, 95% CI [-.33, -.01]) in daily life.

As in Studies 1 and 2, we were interested in whether people high in attachment avoidance might benefit from endorsing sexual exchange norms, whereas less avoidantly attached people would experience costs from endorsing sexual exchange norms. We found that attachment avoidance moderated two of the associations between sexual communal/exchange norms and sexual and relationship quality. Among the within-person (daily) effects, attachment avoidance significantly moderated the association between a partner's daily endorsement of sexual communal norms and daily positive sexual experiences ($b = -.07$, $SE = .03$, $t[723.86] = -2.16$, $p = .03$, 95% CI [-.13, -.01]). Simple effects revealed that when people were less avoidantly attached, having a partner who endorsed more daily sexual communal norms was associated with significantly more daily positive sexual experiences ($b = .14$, $SE = .04$, $t[726.57] = 3.64$, $p < .001$, 95% CI [.07, .22]). However, when people were more avoidantly attached, having a partner who endorsed more sexual communal norms was not associated with daily positive sexual experiences ($b = .03$, $SE = .04$, $t[719.56] = .76$, $p = .45$, 95% CI [-.04, .10]).

Among the between-person (aggregated) effects, attachment avoidance significantly moderated the association between a partner's endorsement of sexual exchange norms over the course of the diary study and daily negative sexual experiences ($b = .28$, $SE = .13$, $t[166.39] = 2.21$, $p = .03$, 95% CI [.03, .53]). When people were less avoidantly attached, having a partner who endorsed more sexual exchange norms over the course of the diary study was not associated with daily negative sexual experiences ($b = .06$, $SE = .17$, $t[181.88] = .37$, $p = .71$, 95% CI [-.27, .40]). However, when people were more avoidantly attached, having a partner who endorsed more sexual exchange norms over the course of the diary study was associated with more daily

negative sexual experiences ($b = .57, SE = .15, t[184.94] = 3.88, p < .001, 95\% CI [.28, .85]$).

Overall, the moderation effects were inconsistent with Study 2, and the findings in this study suggest that avoidantly attached people do not benefit more from endorsing sexual exchange norms than communal norms.

Longitudinal Associations

Finally, we tested whether endorsing sexual communal or exchange norms over the course of the diary study would be associated with relationship and sexual quality three months later, controlling for relationship and sexual quality at background (see Table 9). Overall, when people endorsed sexual communal norms more over the course of the diary study, this was not associated with changes in relationship satisfaction, sexual satisfaction or commitment three months later, but when their partners endorsed sexual communal norms more over the course of the diary study, people reported significantly higher commitment three months later. Accounting for sexual communion, when people endorsed sexual exchange norms more over the course of the diary study, they reported significantly lower relationship satisfaction three months later, but their partner's endorsement of sexual exchange norms over the course of the diary study did not influence relationship satisfaction, sexual satisfaction or commitment three months later.

Table 9

Associations Between Actor and Partner Approaches to Sexual Need Fulfillment Over the Course of the Diary Study and Relationship and Sexual Quality Three Months Later

	Relationship Satisfaction		Sexual Satisfaction		Commitment	
	<i>b</i> (<i>SE</i>)	<i>t</i>	<i>b</i> (<i>SE</i>)	<i>t</i>	<i>b</i> (<i>SE</i>)	<i>t</i>
Actor sexual communion	-.03(.07)	-.38	.16(.10)	1.64	.05(.05)	1.12
Partner sexual communion	-.02(.07)	-.36	.11(.10)	1.15	.10(.05)	2.17*
Actor sexual exchange	-.19(.06)	-3.13**	-.03(.09)	-.31	-.05(.04)	-1.17
Partner sexual exchange	-.04(.06)	-.61	.11(.09)	1.16	.04(.04)	.86

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Degrees of freedom ranged from 181.11 to 195.61.

Analyses control for the outcome variable assessed at background.

In this study, given that we have found links between endorsing sexual exchange norms and relationship satisfaction over time, we tested whether endorsing sexual exchange norms more over the course of the diary study mediated the links between attachment avoidance and relationship satisfaction. Our results demonstrated that avoidantly attached people were more likely to endorse sexual exchange norms over the course of the 21-day diary study ($b = .30$, $SE = .09$, $t[213.02] = 3.53$, $p = .001$, 95% CI [.13, .47]) and less likely to endorse sexual communal norms ($b = -.28$, $SE = .08$, $t[224.10] = -3.32$, $p = .001$, 95% CI [-.45, -.11]). Similarly, those with avoidantly attached partners were also more likely to endorse sexual exchange norms over the course of the study ($b = .36$, $SE = .09$, $t[212.88] = 4.18$, $p < .001$, 95% CI [.19, .52]) and less likely to endorse sexual communal norms over the course of the study ($b = -.17$, $SE = .08$,

$t[224.05] = -2.04, p = .04, 95\% \text{ CI } [-.34, -.01]$). Although actor and partner attachment avoidance did not directly predict relationship satisfaction over time (see Supplemental Materials), when people higher in attachment avoidance, or those with more avoidantly attached partners, endorsed sexual exchange norms over the course of the diary study, in turn, they reported declines in their relationship satisfaction from background to the three-month follow-up (own attachment avoidance: 95% CI [-0.09, -0.00]; partner attachment avoidance: 95% CI [-0.11, -0.00]). There were no other significant mediations.

Brief Discussion

Results from Study 3 demonstrated that on days when people endorsed more communal norms during sex than they typically did, they reported greater daily sexual and relationship quality. People who reported endorsing sexual communal norms more chronically over the course of the diary (and people with partners who endorsed sexual communal norms more chronically) also reported greater sexual and relationship quality in daily life, and when partners endorsed more sexual communal norms, people were more committed to their relationships over time. Although daily fluctuations in the endorsement of sexual exchange norms were not associated with sexual and relationship quality, when people were more chronically exchange-oriented during sex, they reported more negative daily sexual experiences, as well as declines in their relationship satisfaction three months later. Having an exchange-oriented partner over the course of the diary was also associated with more negative sexual experiences and lower relationship satisfaction, sexual satisfaction, and commitment in daily life.

Consistent with our key predictions and Studies 1 and 2, people higher in attachment avoidance were more likely to endorse sexual exchange norms and less likely to endorse sexual communal norms in daily life. People with avoidantly attached partners were also more likely to

endorse sexual exchange norms and less likely to endorse sexual communal norms. If anything, moderations by attachment avoidance for the associations between the endorsement of sexual exchange and communal norms and sexual and relationship quality suggested that people higher in attachment avoidance benefit less from their partner endorsing sexual communal norms and reported more daily negative sexual experiences in response to their partner's endorsement of exchange norms. However, these findings were not consistent with the other studies and it is not clear how associations between sexual communal or exchange norms and satisfaction and commitment differ based on attachment avoidance. Finally, avoidantly attached people's endorsement of sexual exchange norms accounted for declines in relationship satisfaction three months later.

General Discussion

People high in attachment avoidance are uncomfortable with intimacy and value independence (Mikulincer & Shaver, 2003). The findings from the current set of studies suggest that being more exchange-oriented and less communally-oriented in their sexual relationships may be one way in which avoidantly attached people keep distance from their partner in intimate situations. Consistent across all three studies, people high in attachment avoidance reported endorsing more sexual exchange norms (i.e., they were more likely to endorse tracking and trading sexual benefits to keep things even) and fewer sexual communal norms (i.e., they were less motivated to meet their partner's sexual needs). In addition, as in past research (Muisse & Impett, 2015; Muise et al., 2013), being sexually communal and having a communal partner were associated with higher quality sex lives and relationships. However, although the specific links between sexual exchange and sexual and relationship quality differed somewhat across studies, overall, tracking and trading sexual benefits in a relationship was associated with having

more negative experiences and lower satisfaction and commitment. Endorsing sexual exchange norms in daily life also accounted for declines in avoidantly attached people's relationship satisfaction three months later.

An Attachment Perspective on Sexual Need Fulfillment

Research on sexual communal norms—being motivated to meet a partner's sexual needs—has demonstrated benefits for romantic couples (e.g., higher sexual desire, relationship satisfaction and commitment; Muise & Impett, 2015; Muise et al., 2013). In line with past work, our findings demonstrate that endorsing sexual communal norms (or having a partner who endorses sexual communal norms) is associated with greater sexual satisfaction, relationship satisfaction and commitment, and more positive and less negative sexual experiences. One reason why people who endorsed sexual communal norms report these benefits is because they are more likely to pursue sex to promote positive relationship outcomes, including higher intimacy and closeness (Muise & Impett, 2016; Muise et al., 2013). As expected, our findings show that avoidantly attached people were less likely to endorse sexual communal norms, which may be explained by their chronic discomfort with closeness and lack of responsiveness to their partners (Bartz & Lydon, 2008; Feeney & Collins, 2001). Avoidantly attached people tend to be less responsive, lack trust in others, and perceive their partners as being less responsive (e.g., Bartz & Lydon, 2006; Mikulincer, 1998; Mizrahi, Kanat-Maymon, & Birnbaum, 2018). Thus, endorsing sexual communal norms in a relationship may introduce an element of risk for avoidantly attached people. That is, avoidantly attached people may be less inclined to meet their partner's needs because they lack trust and have low expectations that a partner will be responsive to their needs.

Compared to research on sexual communal norms, past work on the role of sexual exchange norms on satisfaction has been mixed. On the one hand, feeling that a sexual relationship is equitable leads people to feel more satisfied with their relationships and sex lives (Hatfield et al., 1982), but feeling under- or over-benefitted in a sexual relationship is linked to sexual dissatisfaction, distress, and frustration (e.g., Hatfield et al., 1982; Sprecher, 1998, 2001). In line with the latter findings, we demonstrate that when people endorse exchange norms in their sexual relationship (i.e., they track and trade sexual benefits with the goal of keeping things even), they do not report greater sexual satisfaction and if anything, they feel less committed and have more negative sexual interactions. In fact, our findings suggest that people who more chronically endorse exchange norms in their sexual relationship report declines in relationship satisfaction over time. In the context of romantic attachment, avoidantly attached partners seek to exert control over sexual experiences to prevent them from becoming overly intimate (Birnbau, Reis, Mikulincer, Gillath, & Orpaz, 2006; Davis et al., 2004), and endorsing exchange norms has been theorized as one way those high in attachment avoidance establish boundaries when others are getting too close (Bartz & Lydon, 2006). Tracking and trading benefits may also enable avoidantly attached people to ensure sexual favors are evenly reciprocated, especially given their lack of trust and low perceived partner responsiveness (Mikulincer, 1998; Mizrahi et al., 2018). It is also possible that avoidantly attached people see sexual exchange as a way for them to keep shared intimacy and closeness at bay, despite negative consequences of endorsing sexual exchange norms for sexual and relationship quality.

Consistent with the “dance of distance” (i.e., partners of avoidantly attached people decrease their own motivations for sex and intimacy given their partner’s motivation to distance themselves from intimacy; Gewirtz-Meydan & Finzi-Dottan, 2018; Middelberg, 2001), we find

several novel associations between a partner's attachment avoidance and endorsement of sexual norms. Specifically, people with avoidantly attached partners are more likely to endorse sexual exchange norms in daily life and over the course of the diary study. Although we did not find consistent partner effects in Studies 2 and 3, we provide evidence that people are more likely to endorse sexual exchange norms when they have avoidantly attached partners (perhaps because avoidant partners may also be more sexual exchange-oriented). We also demonstrate the importance of considering both partners when exploring associations between attachment avoidance and sexual exchange norms.

When assessing gender moderations to see if effects differed for men compared to women, we only found two significant associations and there was no consistent pattern, suggesting that the effects were largely consistent for men versus women. In addition, some of the associations between the endorsement of sexual exchange norms and sexual and relationship quality were null or inconsistent, suggesting that there may be important moderators of the associations between the endorsement of sexual exchange norms and sexual and relationship quality. In the current set of studies, we were able to test whether the associations between sexual exchange and sexual and relationship quality differed based on attachment avoidance. Given that avoidantly attached people are more likely to endorse sexual exchange norms, it is possible that this approach might have benefits for them; however, the evidence was mixed across studies. In Study 2, we found that when partners were less avoidantly attached, endorsing sexual exchange norms was associated with lower relationship and sexual satisfaction, but when partners were more avoidantly attached, endorsing sexual exchange norms was associated with higher sexual satisfaction. In addition, when their partner endorsed more sexual exchange norms, avoidantly attached people had more negative daily sexual experiences, a finding that is to be expected

given their discomfort with intimate situations. Overall, however, attachment avoidance did not consistently moderate the associations between sexual exchange, satisfaction and commitment. These findings suggest that avoidantly attached people may actually benefit from being more sexually communal (even though they endorse communal norms less), and with one exception for the association between endorsing sexual exchange norms and *greater* sexual satisfaction in Study 2, endorsing sexual exchange norms was largely not beneficial for the sex lives and relationships of avoidantly attached people.

Limitations and Future Directions

The current research provides initial evidence that attachment avoidance underlies approaches to sexual need fulfillment. Despite the strengths of this work (e.g., including data collected from both partners over time in their relationship), there are limitations. First, although we provide evidence in Study 3 that endorsing sexual exchange norms over the course of the diary study was associated with lower sexual and relationship quality at the daily level and over time, our studies are correlational and cannot provide evidence for causality. Past work has shown that it is possible to enhance people's endorsement of sexual communal norms, at least temporarily, but this work has used hypothetical scenarios (Day et al., 2015). It is not yet clear if it is possible to enhance sexual communal norms for a more sustained period of time and whether this would have implications for couples' sexual and relationship satisfaction. Given current and past research suggesting that a communal approach to a sexual relationship is associated with greater relationship and sexual satisfaction, even for those high in attachment avoidance, future work could consider whether it is possible to enhance people's endorsement of sexual communal norms, and if doing so would be beneficial for both people low and high in

attachment avoidance. Future experimental work in which sexual communal and exchange norms are manipulated could also help provide evidence of the direction of our findings.

The current work also does not indicate why avoidantly attached people endorse more sexual exchange norms and fewer sexual communal norms. For example, endorsing sexual exchange norms may help avoidantly attached people to minimize intimacy in their sexual interactions (e.g., Birnbaum et al., 2006). That is, tracking and trading sexual favors may enable avoidantly attached people to capitalize on their highly valued independence (Mikulincer & Shaver, 2003) by limiting intimate sexual favors to situations of repayment, rather than understanding and aiming to be responsive to a partner's sexual needs as they arise. Although not always, endorsing exchange norms also tends to be characteristic of casual relationships (e.g., acquaintances or business partners; Bartz & Lydon, 2006, 2008; Clark & Mills, 1993; Clark, Mills, & Powell, 1986), which are avoidantly attached people's preferred sexual relationship (Brennan & Shaver, 1995). In the current research on committed couples, it is possible that highly avoidantly attached people are less comfortable and confident with endorsing sexual communal (rather than sexual exchange) norms as commitment increases over time (Clark et al., 2010). This may also explain why highly avoidantly attached people (i.e., those who have more positive attitudes about casual [vs. committed] sex and are uncomfortable with communal tendencies; Bartz & Lydon, 2008; Ridge & Feeney, 1998) endorsed more sexual exchange norms and ultimately experienced poorer relationship quality over time, whereas less avoidantly attached people endorsed more sexual communal norms (and fewer sexual exchange norms). Given their inclination toward short-term relationships, avoidantly attached people are less personally impacted when their partner is distressed (Monin, Schulz, Feeney, & Cook, 2010) and instead, they are typically more focused on their own needs (Birnbaum et al., 2006; Brennan &

Shaver, 1995; Gentzler & Kerns, 2004; Schachner & Shaver, 2002). These findings suggest that avoidantly attached people may prefer to pursue sexual exchange norms as a way to make their relationship feel less intimate and committed. Future research could test possible mechanisms (e.g., independence, control, fear of intimacy) for why avoidantly attached people endorse sexual exchange norms.

As discussed above, the associations between sexual exchange and sexual and relationship quality for those high (vs. low) in attachment avoidance were not consistent across studies, which suggests that there may be other important moderating factors of the associations between the endorsement of sexual exchange norms and sexual and relationship quality. Clark et al. (2010) theorize that low satisfaction and a lack of trust might be driving avoidantly attached people's adherence to general exchange norms in committed relationships, and our findings suggest that when partners are highly avoidantly attached, people may report greater sexual satisfaction than they typically experience when they are high in sexual exchange. Taken together, both past and current findings suggest that differences in relationship security (e.g., trust, commitment, satisfaction) may explain why highly avoidantly attached people (i.e., those who report lower trust and commitment) adhere more to, and sometimes even benefit from, endorsing sexual exchange norms compared to less avoidantly attached partners who instead endorse and benefit more from endorsing sexual communal norms. It is also possible that the effects of endorsing sexual exchange norms on sexual and relationship quality are dependent on whether partners feel that things are, in fact, even. For example, the act of tracking and trading could emphasize people's concerns about favors being imbalanced, and this may explain why endorsing sexual exchange norms was linked to poorer outcomes over time. However, if people are exchange-oriented and feel that the exchange of benefits is even (i.e., partners are not under-

or over-benefitted), their sexual and relationship quality may not be negatively impacted. Future work could test whether associations between endorsing sexual exchange norms and sexual and relationship quality differ based on partners' perceptions of whether the exchanges are equitable.

Conclusion

The current research extends previous work on attachment and approaches to sexual need fulfillment by demonstrating that highly avoidantly attached people endorse more sexual exchange norms and fewer sexual communal norms. Our findings contribute to a growing body of research on the associations between sexual communal and exchange norms and sexual and relationship quality (e.g., Hatfield et al., 1982; Muise & Impett, 2016), and to research on the sexual and relationship outcomes for avoidantly attached partners (e.g., Birnbaum et al., 2006). We also provide initial evidence that endorsing sexual exchange norms in relationships is one reason why avoidantly attached people experience lower relationship satisfaction over time. The findings advance theory in the study of romantic attachment and sexual need fulfillment by demonstrating that, even though avoidantly attached people are more likely to endorse sexual exchange norms, endorsing sexual exchange (compared to sexual communal) norms in the bedroom does not benefit, and may actually detract from, sexual and relationship quality.

Footnotes

1In Study 1, the association between endorsing sexual communal norms and commitment was significantly moderated by gender ($b = .52, SE = .21, t[238] = 2.41, p = .02$). For women, endorsing more sexual communal norms was not associated with commitment ($b = .20, SE = .12, t[238] = 1.60, p = .11$). However, when men endorsed more sexual communal norms, they reported significantly higher commitment ($b = .71, SE = .18, t[238] = 4.07, p < .001$). In Study 2, the association between actor's sexual communal norms and sexual satisfaction was significantly moderated by gender ($b = -.79, SE = .24, t[132.27] = -3.24, p = .002, 95\% CI [-1.28, -.31]$). Women who endorsed more sexual communal norms reported significantly higher sexual satisfaction ($b = .85, SE = .16, t[146.51] = 5.46, p < .001, 95\% CI [.54, 1.15]$). However, for men, the association between endorsing sexual communal norms and sexual satisfaction was not significant ($b = .05, SE = .18, t[150.56] = .31, p = .76, 95\% CI [-.29, .40]$).

Supplemental Materials 2

Study 1 Sexual Exchange Exploratory Factor Analysis

The list of items below are from the original Sexual Relationship Scale (Hughes & Snell, 1990). These items were included in the two-factor solution (see Table S4) and the one-factor solution (with reverse-coded items; see Table S5).

1. I don't feel obligated to repay my partner for sexual favors. (Reverse-coded)
2. I wouldn't feel all that exploited if my partner failed to repay me for a sexual favor. (Reverse-coded)
3. I wouldn't bother to keep track of the times my partner asked me for sexual pleasure. (Reverse-coded)
4. When a person receives sexual pleasure from a partner, he or she ought to repay that person right away.
5. It's best to make sure things are always kept "even" between two people in a sexual relationship.
6. I would do a special sexual favor for my partner only if my partner did a special sexual favor for me.
7. If my partner performed a sexual request for me, I wouldn't feel that I'd have to repay him or her later on. (Reverse-coded)
8. In my relationship, I always know whether I have given more sexually to my partner or received more.
9. I keep track of whether my partner "owes" me sexually (whether I have given to them more than I have received).

Table S4

Pattern Matrix of Two-Factor Solution

	Factor	
	1	2

1 (Reverse-coded)	.038	.406
2 (Reverse-coded)	-.023	.776
3 (Reverse-coded)	-.008	.540
4	.761	-.147
5	.527	.008
6	.671	.046
7 (Reverse-coded)	.117	.215
8	.416	.155
9	.572	.107

Note. The extraction method was Maximum Likelihood. The Rotation method was Promax with Kaiser Normalization. The rotation converged in three iterations. Bolded items were retained in the final solution.

Table S5

Factor Matrix of One-Factor Solution (With Reverse-Coded Items)

	Factor
	1
1 (Reverse-coded)	.263
2 (Reverse-coded)	.376
3 (Reverse-coded)	.294
4	.626
5	.514
6	.686

7 (Reverse-coded)	.230
8	.507
9	.634

Note. The extraction method was Maximum Likelihood. One factor was extracted. Four iterations were required. Bolded items were retained in the final solution.

The list of items below are from the final one-factor solution (without reverse-coded items; see Table S6).

1. When a person receives sexual pleasure from a partner, he or she ought to repay that person right away.
2. It's best to make sure things are always kept "even" between two people in a sexual relationship.
3. I would do a special sexual favor for my partner only if my partner did a special sexual favor for me.
4. In my relationship, I always know whether I have given more sexually to my partner or received more.
5. I keep track of whether my partner "owes" me sexually (whether I have given to them more than I have received).

Table S6

Factor Matrix of Final One-Factor Solution (Without Reverse-Coded Items)

	Factor
	1
4	.675
5	.534

6	.692
8	.487
9	.626

Note. The extraction method was Maximum Likelihood. One factor was extracted. Three iterations were required.

Study 1 Results

Effects of attachment on relationship and sexual outcomes

Consistent with previous research, people high in attachment avoidance reported lower relationship satisfaction ($b = -.65$, $SE = .06$, $t[245] = -10.93$, $p < .001$), sexual satisfaction ($b = -.63$, $SE = .08$, $t[245] = -7.92$, $p < .001$), and commitment ($b = -.55$, $SE = .06$, $t[245] = -9.39$, $p < .001$) compared to those low in attachment avoidance. In contrast, people high in attachment anxiety reported lower relationship satisfaction ($b = -.12$, $SE = .05$, $t[245] = -2.29$, $p = .02$) and sexual satisfaction ($b = -.16$, $SE = .07$, $t[245] = -2.35$, $p = .02$) compared to those low in attachment anxiety, but no differences in commitment ($b = .02$, $SE = .05$, $t[245] = .40$, $p = .69$).

Effects of attachment anxiety on approaches to sexual need fulfillment

We tested whether attachment anxiety would be associated with endorsing sexual exchange or sexual communal norms. Our findings demonstrated that attachment anxiety was associated with endorsing more sexual exchange norms ($b = .17$, $SE = .07$, $t[245] = 2.57$, $p = .01$), but it was not associated with endorsing sexual communal norms in a relationship ($b = .04$, $SE = .04$, $t[245] = 1.13$, $p = .26$).

Study 2 Results

Effects of attachment on relationship and sexual outcomes

People high in attachment avoidance reported lower relationship satisfaction ($b = -.50$, $SE = .07$, $t[178.02] = -6.85$, $p < .001$, 95% CI [-.64, -.36]), sexual satisfaction ($b = -.42$, $SE = .07$, $t[169.79] = -5.62$, $p < .001$, 95% CI [-.56, -.27]), and commitment ($b = -.53$, $SE = .07$, $t[175.09] = -8.14$, $p < .001$, 95% CI [-.66, -.40]) compared to those low in attachment avoidance. Similarly, when their partners were higher in attachment avoidance, people reported lower relationship satisfaction ($b = -.23$, $SE = .07$, $t[178.02] = -3.22$, $p = .002$, 95% CI [-.38, -.09]), sexual satisfaction ($b = -.20$, $SE = .07$, $t[169.79] = -2.73$, $p = .01$, 95% CI [-.35, -.06]), and commitment ($b = -.14$, $SE = .07$, $t[175.09] = -2.13$, $p = .04$, 95% CI [-.27, -.01]) compared to when partners were less avoidantly attached.

In contrast, people high in attachment anxiety reported lower relationship satisfaction ($b = -.16$, $SE = .06$, $t[159.03] = -2.81$, $p = .01$, 95% CI [-.27, -.05]) compared to those low in attachment anxiety, but no differences in sexual satisfaction ($b = .01$, $SE = .06$, $t[148.30] = .13$, $p = .90$, 95% CI [-.11, .12]) or commitment ($b = -.00$, $SE = .05$, $t[154.72] = -.07$, $p = .94$, 95% CI [-.10, .10]). Similarly, a partner's attachment anxiety was not associated with relationship satisfaction ($b = -.05$, $SE = .06$, $t[159.03] = -.91$, $p = .37$, 95% CI [-.16, .06]), sexual satisfaction ($b = .09$, $SE = .06$, $t[148.30] = 1.65$, $p = .10$, 95% CI [-.02, .21]), or commitment ($b = -.07$, $SE = .05$, $t[154.72] = -1.32$, $p = .19$, 95% CI [-.17, .03]).

Effects of attachment anxiety on approaches to sexual need fulfillment

We tested whether attachment anxiety would be associated with endorsing sexual exchange or sexual communal norms. Our findings demonstrated that attachment anxiety was not associated with endorsing sexual exchange norms ($b = .00$, $SE = .05$, $t[178.31] = .05$, $p = .96$, 95% CI [-.10, .11]) or sexual communal norms in a relationship ($b = -.03$, $SE = .04$, $t[180.18] = -.77$, $p = .44$, 95% CI [-.10, .04]). Similarly, a partner's levels of attachment anxiety were not

associated with people's endorsement of sexual exchange norms ($b = .05$, $SE = .05$, $t[178.23] = .93$, $p = .36$, 95% CI [-.06, .15]) or sexual communal norms ($b = -.03$, $SE = .04$, $t[180.14] = -.84$, $p = .40$, 95% CI [-.10, .04]) in their relationship.

Study 3 Results

Effects of attachment on relationship and sexual outcomes (replication of Study 1 and Study 2)

People high in attachment avoidance reported lower relationship satisfaction ($b = -.31$, $SE = .07$, $t[215.68] = -4.49$, $p < .001$, 95% CI [-.44, -.17]), sexual satisfaction ($b = -.53$, $SE = .11$, $t[209.76] = -4.76$, $p < .001$, 95% CI [-.75, -.31]), and commitment ($b = -.23$, $SE = .05$, $t[208.96] = -4.90$, $p < .001$, 95% CI [-.32, -.14]) compared to those low in attachment avoidance. Similarly, when their partners were higher in attachment avoidance, people reported lower relationship satisfaction ($b = -.19$, $SE = .07$, $t[215.68] = -2.83$, $p = .01$, 95% CI [-.33, -.06]) and sexual satisfaction ($b = -.28$, $SE = .11$, $t[210.22] = -2.52$, $p = .01$, 95% CI [-.50, -.06]) compared to when partners were less avoidantly attached, but no differences in commitment ($b = .02$, $SE = .05$, $t[208.96] = .51$, $p = .61$, 95% CI [-.07, .11]).

In contrast, people high in attachment anxiety reported lower relationship satisfaction ($b = -.14$, $SE = .05$, $t[198.23] = -2.61$, $p = .01$, 95% CI [-.25, -.04]) compared to less anxiously attached people, but no differences in sexual satisfaction ($b = -.02$, $SE = .09$, $t[194.30] = -.22$, $p = .83$, 95% CI [-.20, .16]) or commitment ($b = .02$, $SE = .04$, $t[191.37] = .51$, $p = .61$, 95% CI [-.05, .09]). However, when their partners were higher in attachment anxiety, people reported lower commitment ($b = -.10$, $SE = .04$, $t[191.37] = -2.79$, $p = .01$, 95% CI [-.18, -.03]), but no differences in relationship satisfaction ($b = .01$, $SE = .05$, $t[198.23] = .12$, $p = .90$, 95% CI [-.10,

.11]) or sexual satisfaction ($b = .17, SE = .09, t[193.71] = 1.87, p = .06, 95\% CI [-.01, .35]$) compared to when partners were less anxiously attached.

Effects of attachment on approaches to sexual need fulfillment (replication of Study 1 and Study 2)

We tested whether attachment avoidance would be associated with sexual exchange or communal norms to fulfill a partner's sexual needs. Our findings demonstrated that people who were highly avoidantly attached endorsed more sexual exchange norms ($b = .23, SE = .07, t[235.54] = 3.43, p = .001, 95\% CI [.10, .37]$) and less sexual communal norms in their relationship ($b = -.18, SE = .05, t[229.78] = -3.88, p < .001, 95\% CI [-.27, -.09]$). However, a partner's attachment avoidance was not associated with people's endorsement of sexual exchange norms ($b = .03, SE = .07, t[235.54] = .45, p = .65, 95\% CI [-.10, .17]$), but it was associated with lower sexual communion ($b = -.10, SE = .05, t[229.83] = -2.07, p = .04, 95\% CI [-.19, -.00]$).

We also tested whether attachment anxiety would be associated with sexual exchange or sexual communion. Our findings demonstrated that attachment anxiety was not significantly associated with sexual exchange norms ($b = .10, SE = .05, t[227.80] = 1.78, p = .08, 95\% CI [-.01, .20]$) or sexual communion ($b = .02, SE = .04, t[235.94] = .43, p = .67, 95\% CI [-.06, .09]$). Similarly, a partner's attachment anxiety was not associated with people's endorsement of sexual exchange norms ($b = .02, SE = .05, t[227.92] = .38, p = .71, 95\% CI [-.09, .13]$) or sexual communal norms ($b = .03, SE = .04, t[235.94] = .92, p = .36, 95\% CI [-.04, .10]$).

Effects of approaches to sexual need fulfillment and outcomes (replication of Study 1 and Study 2)

As in Study 1 and Study 2, people higher in sexual communion and those with partners higher in sexual communion generally reported greater sexual and relationship quality, whereas people higher in sexual exchange and those with partners higher in sexual exchange generally reported lower sexual satisfaction and commitment (see Table S7).

Table S7

Associations Between Actor and Partner Approaches to Sexual Need Fulfillment and Outcomes

	Relationship Satisfaction		Sexual Satisfaction		Commitment	
	<i>b</i> (<i>SE</i>)	<i>t</i>	<i>b</i> (<i>SE</i>)	<i>t</i>	<i>b</i> (<i>SE</i>)	<i>t</i>
Actor sexual communion	.29(.10)	2.76**	.48(.16)	3.04**	.26(.07)	3.91***
Partner sexual communion	.38(.10)	3.69***	.30(.16)	1.94*	.10(.07)	1.49
Actor sexual exchange	-.05(.07)	-.76	-.32(.10)	-3.14**	-.13(.04)	-3.02**
Partner sexual exchange	-.10(.07)	-1.55	-.21(.10)	-2.06*	.03(.04)	.77

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Beta values are unstandardized coefficients. Degrees of freedom ranged from 192.74 to 221.57.

Effects of attachment on daily relationship and sexual outcomes

People high in attachment avoidance reported lower daily relationship satisfaction ($b = -.30$, $SE = .07$, $t[187.91] = -4.52$, $p < .001$, 95% CI [-.44, -.17]), sexual satisfaction ($b = -.30$, $SE = .12$, $t[176.95] = -2.54$, $p = .01$, 95% CI [-.53, -.07]) and commitment ($b = -.28$, $SE = .06$, $t[178.53] = -4.81$, $p < .001$, 95% CI [-.40, -.17]), fewer positive sexual experiences ($b = -.27$, SE

= .07, $t[178.19] = -3.99$, $p < .001$, 95% CI [-.40, -.14]), and more negative sexual experiences ($b = .35$, $SE = .11$, $t[194.94] = 3.12$, $p = .002$, 95% CI [.13, .58]) compared to those low in attachment avoidance. When their partners were higher in attachment avoidance, people also reported lower relationship satisfaction ($b = -.21$, $SE = .07$, $t[188.53] = -3.19$, $p = .002$, 95% CI [-.35, -.08]), sexual satisfaction ($b = -.23$, $SE = .12$, $t[177.59] = -1.94$, $p = .05$, 95% CI [-.46, .00]), and commitment ($b = -.16$, $SE = .06$, $t[179.19] = -2.76$, $p = .01$, 95% CI [-.28, -.05]), fewer positive sexual experiences ($b = -.16$, $SE = .07$, $t[179.16] = -2.33$, $p = .02$, 95% CI [-.29, -.02]), and more negative sexual experiences ($b = .44$, $SE = .11$, $t[196.09] = 3.82$, $p < .001$, 95% CI [.21, .66]) compared to when partners were low in attachment avoidance (for more details on links between attachment and daily relationship and sexual well-being, see Raposo & Muise, under review).

In contrast, attachment anxiety was not associated with relationship satisfaction ($b = -.07$, $SE = .05$, $t[172.26] = -1.21$, $p = .23$, 95% CI [-.17, .04]), sexual satisfaction ($b = -.10$, $SE = .10$, $t[163.74] = -1.06$, $p = .29$, 95% CI [-.29, .09]), commitment ($b = -.01$, $SE = .05$, $t[164.84] = -.28$, $p = .78$, 95% CI [-.11, .08]), positive sexual experiences ($b = -.05$, $SE = .05$, $t[162.08] = -1.00$, $p = .32$, 95% CI [-.16, .05]), or negative sexual experiences ($b = -.00$, $SE = .09$, $t[178.44] = .00$, $p = 1.00$, 95% CI [-.18, .18]). Similarly, a partner's attachment anxiety was not associated with relationship satisfaction ($b = -.02$, $SE = .05$, $t[170.90] = -.35$, $p = .73$, 95% CI [-.13, .09]), sexual satisfaction ($b = .05$, $SE = .10$, $t[162.93] = .49$, $p = .63$, 95% CI [-.14, .24]), commitment ($b = -.01$, $SE = .05$, $t[163.66] = -.27$, $p = .79$, 95% CI [-.11, .08]), positive sexual experiences ($b = .05$, $SE = .05$, $t[161.90] = 1.00$, $p = .32$, 95% CI [-.05, .16]), or negative sexual experiences ($b = -.17$, $SE = .09$, $t[178.37] = -1.82$, $p = .07$, 95% CI [-.35, .01]).

Associations between attachment anxiety and daily approaches to sexual need fulfillment

We tested whether attachment anxiety would be associated with endorsing sexual exchange or communal norms to fulfill a partner's needs during sex. On days people engaged in sex, people higher in attachment anxiety did not report being sexually exchange oriented ($b = .07, SE = .07, t[188.20] = .98, p = .33, 95\% \text{ CI } [-.07, .20]$) or sexually communal ($b = .07, SE = .06, t[196.98] = 1.05, p = .30, 95\% \text{ CI } [-.06, .20]$). Similarly, people with anxious partners also did not report being sexually exchange oriented ($b = -.01, SE = .07, t[187.26] = -.11, p = .91, 95\% \text{ CI } [-.14, .13]$) or sexually communal ($b = -.02, SE = .06, t[197.97] = -.28, p = .78, 95\% \text{ CI } [-.14, .11]$) in daily life.

Associations between attachment anxiety and approaches to sexual need fulfillment over the course of the study

We tested whether attachment anxiety would be associated with endorsing sexual exchange or communal norms to fulfill a partner's needs during sex. There were no associations between own attachment anxiety and endorsing sexual exchange norms over the course of the study ($b = .06, SE = .07, t[194.64] = .92, p = .36, 95\% \text{ CI } [-.07, .20]$), or those with partners who are high in attachment anxiety and endorsing sexual exchange norms over the course of the study ($b = -.00, SE = .07, t[192.66] = -.04, p = .97, 95\% \text{ CI } [-.14, .13]$). Similarly, there were no associations between own attachment anxiety and endorsing sexual communal norms over the course of the study ($b = .07, SE = .07, t[210.60] = 1.03, p = .30, 95\% \text{ CI } [-.06, .20]$), or those with partners who are high in attachment anxiety and endorsing sexual communal norms over the course of the study ($b = -.03, SE = .07, t[209.49] = -.44, p = .66, 95\% \text{ CI } [-.16, .10]$).

Effects of attachment on relationship and sexual outcomes at the three-month follow-up

Compared to people low in attachment avoidance, those high in attachment avoidance did not report changes in their relationship satisfaction ($b = -.16, SE = .09, t[153.00] = -1.68, p = .10,$

95% CI [-.34, .03]), sexual satisfaction ($b = -.00$, $SE = .12$, $t[195.98] = -.01$, $p = .99$, 95% CI [-.25, .24]), or commitment ($b = -.09$, $SE = .07$, $t[183.76] = -1.29$, $p = .20$, 95% CI [-.23, .05]) three months later. Similarly, a partner's attachment avoidance was not associated with relationship satisfaction ($b = .06$, $SE = .09$, $t[147.29] = .69$, $p = .49$, 95% CI [-.12, .24]), sexual satisfaction ($b = .20$, $SE = .12$, $t[194.74] = 1.62$, $p = .11$, 95% CI [-.04, .43]), or commitment three months later ($b = -.08$, $SE = .07$, $t[179.98] = -1.16$, $p = .25$, 95% CI [-.21, .06]).

In contrast, people high in attachment anxiety reported lower relationship satisfaction ($b = -.16$, $SE = .08$, $t[138.34] = -2.03$, $p = .04$, 95% CI [-.31, -.00]) and sexual satisfaction ($b = -.32$, $SE = .10$, $t[181.82] = -3.24$, $p = .001$, 95% CI [-.52, -.13]) three months later compared to those low in attachment anxiety, but no differences in commitment ($b = .00$, $SE = .06$, $t[166.95] = .01$, $p = .99$, 95% CI [-.11, .11]) three months later. Similarly, when their partners were higher in attachment anxiety, people reported significantly lower relationship satisfaction ($b = -.15$, $SE = .08$, $t[133.17] = -2.03$, $p = .05$, 95% CI [-.31, -.00]) and sexual satisfaction ($b = -.25$, $SE = .10$, $t[181.69] = -2.48$, $p = .01$, 95% CI [-.45, -.05]), but no differences in commitment ($b = .06$, $SE = .06$, $t[168.68] = .95$, $p = .35$, 95% CI [-.06, .17]) three months later compared to when partners were low in attachment anxiety.

CHAPTER 4

General Discussion

Sexuality is key contributor to overall relationship quality (for a review, see Diamond & Huebner, 2012), but it is also a domain of relationships that can trigger attachment-related insecurities (e.g., Birnbaum et al., 2006). Across two papers and four studies of people in romantic relationships, I explored associations between romantic attachment styles (i.e., attachment avoidance and attachment anxiety) and sexual need fulfillment (i.e., sexual communal and exchange norms). In the first paper, in line with my predictions, perceiving a partner as being highly sexually responsive in daily life can buffer highly anxious people from the lower relationship and sexual quality they typically experience. In fact, on days when they perceived their partner as highly sexually responsive, they reported similar levels of relationship satisfaction, sexual satisfaction, trust and commitment as people low in attachment anxiety. These associations held above and beyond general perceptions of partner responsiveness. In addition, perceiving that a partner was sexually responsive marginally buffered highly anxiously attached people from declines in their feelings of commitment over time, but this effect did not persist above and beyond general partner responsiveness.

In the second paper, across three studies using dyadic, daily experience and longitudinal data, I found that people who were higher in attachment avoidance were less likely to endorse sexual communal norms and more likely to endorse sexual exchange norms in a relationship. In addition, endorsing sexual communal norms was associated with greater sexual and relationship quality, whereas endorsing sexual exchange norms was associated with poorer sexual and relationship quality. Overall, the findings from the current research advance attachment theory and theories of sexual norms in relationships by demonstrating the key role of attachment in approaches to sexual need fulfillment and subsequent sexual and relationship quality.

Merging Attachment Theory and Theories of Sexual Need Fulfillment

Understanding and valuing the needs of others (i.e., being responsive) is important for maintaining satisfying and secure relationships (Lemay et al., 2007; Maisel & Gable, 2009). However, anxiously attached people perceive their partners as less responsive to their needs (Collins, 1996; Mizrahi et al., 2018) and tend to experience poorer relationship and sexual quality in their relationships (Birnbaum, 2007). In line with past work (Little et al., 2010), our findings emphasize the sexual domain as one way for people to demonstrate responsiveness and availability to anxiously attached partners. Past work has shown that the intimacy and availability that anxiously attached people desire to feel secure can be attained through satisfying sexual experiences (Little et al., 2010), and our work demonstrates that perceiving a partner as sexually responsive is another effective protective factor for anxiously attached people's sexual and relationship quality. For people who are anxiously attached, having a partner who is responsive to their sexual needs might signal that their partner shares the same values of intimacy, closeness, and connection, or that their partner is available and willing to attend to their feelings. Overall the findings suggest that responsiveness can be effectively demonstrated in the sexual domain and this has benefits, even for people high in attachment anxiety, who tend to be less satisfied and secure in their relationships.

Avoidantly attached people, however, are uncomfortable with intimacy, lack trust, and strive to maintain independence from their partner (Mikulincer, 1998; Mikulincer & Shaver, 2003). Unlike anxious attachment, there may be unique strategies that avoidantly attached people can use during sex to facilitate sexual need fulfillment while simultaneously meeting their goals of preventing sexual interactions from becoming overly intimate (e.g., Impett, Gordon, & Strachman, 2008). The intimacy derived from endorsing sexual communal norms in a

relationship may appear risky for avoidantly attached people, especially given their discomfort with closeness and lack of responsivity to their partner's needs (Bartz & Lydon, 2008; Feeney & Collins, 2001). Thus, tracking and trading sexual benefits may be a more appealing way for avoidantly attached people to maintain their committed relationships while keeping intimacy at bay. Therefore, the current research demonstrates that given the highly intimate nature of sexuality, it is a domain in which avoidantly attached people might enact strategies to limit closeness and vulnerability. Interestingly, our findings also suggest that overall, avoidant people could benefit (as much as people low in avoidance) from endorsing sexual communal norms, but that instead, their greater endorsement of sexual exchange norms is one reason why their experience declines in relationship satisfaction over time.

Future Directions

Although our findings demonstrated initial evidence for associations between attachment styles and sexual communal and exchange norms in romantic relationships, we know less about how these norms *develop*—especially in newer relationships. Research has shown that people can adapt the strength of their general communal or exchange norms depending on the person they are interacting with (e.g., child, best friend or stranger; see Clark & Mills, 1979), but it is unclear how *sexual* communal or exchange norms develop and change in relationships. Do people change their adherence to sexual communal or exchange norms to better fit a new romantic partner, or do they tend to maintain their sexual tendencies despite having mismatched norms with their partner? It is possible that people recognize such differences with their partner and modify their behaviour to allow for more satisfying sexual experiences for themselves or their partner, but it may also be the case that the endorsement of sexual communal and exchange norms is fairly stable. Future research following new couples over time could provide insight

into the trajectory and adaptability of sexual communal and exchange norms in romantic relationships.

If it is generally beneficial to be sexually communal and have a partner who endorses sexual communal norms, future work could also assess whether people can change their sexual norms. That is, is it possible to enhance people's sexual communal norms? Limited existing evidence suggests that sexual communal norms can be temporarily enhanced in a hypothetical situation (Day et al., 2015), but it is unclear whether these changes can be sustained, and if enhancing a person's sexual communal norms would subsequently impact their sexual and relationship quality over time. Future research could provide people with information about the benefits of endorsing communal norms in a sexual relationship and follow couples over time to test the effects of endorsing sexual communal norms on sexual and relationship quality.

Closing Remarks

The current research explored the role of attachment in people's endorsement of sexual communal and exchange norms in committed relationships. I also demonstrated how the implications of such norms for sexual and relationship quality differed based on a person's or their partner's attachment style. Across two papers consisting of four multi-method studies, I emphasize the importance of considering the sexual domain in the relationships of anxious and avoidantly attached people. Specifically, results from the first paper show that perceived partner sexual responsiveness is one way for anxiously attached people to buffer the lower relationship quality (satisfaction, commitment, trust) and sexual satisfaction they typically experience. One possible explanation for this link is that perceptions of a partner's sexual responsiveness signals their availability and shared need for intimacy and closeness to their anxiously attached partners. In the second paper, I show that highly endorsing sexual exchange norms in relationships in daily

life and more chronically is one reason why avoidantly attached people experience lower relationship quality over time. Taken together, this work demonstrates the key role of attachment theory in the endorsement of sexual need fulfillment norms, as well as the implications of such norms for anxious and avoidantly attached people's sexual and relationship quality.

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