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## **Broadening Your Horizons: Self-Expanding Activities Promote Desire and Satisfaction in Established Romantic Relationships**

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# Broadening Your Horizons: Self-Expanding Activities Promote Desire and Satisfaction in Established Romantic Relationships

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In the early stages of romantic relationships, sexual desire is often intense, but over time, as partners get to know each other, desire tends to decline. Low sexual desire has negative implications for relationship satisfaction and maintenance. Self-expansion theory suggests that engaging in novel activities with a long-term romantic partner can reignite feelings of passion from the early stages of a relationship. Across 3 studies using dyadic, daily experience, longitudinal, and experimental methods, we find evidence for our central prediction that engaging in self-expanding activities with a partner is associated with higher sexual desire. In turn, we found that higher desire fueled by self-expansion is associated with greater relationship satisfaction. Self-expansion, through sexual desire, is also associated with an increased likelihood that couples will engage in sex, and when they do engage in sex, they feel more satisfied with their sexual experiences. We also demonstrate that the benefits of self-expansion for relationship satisfaction are sustained over time, and that the effects cannot be attributed solely to increases in positive affect, time spent interacting with the partner or closeness during the activity. Implications for self-expansion theory and sexual desire maintenance in relationships are discussed.

*Keywords:* self-expansion, sexual desire, sexual satisfaction, relationship satisfaction, romantic couples

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Desire lives through the unknown and the unpredictable.

—Esther Perel, *Mating in Captivity*

Many couples fondly remember the early stages of their relationship—typically as people are “falling in love,” passions are running high and sexual desire is intense. However, over time, as partners get to know each other, sexual desire often fades, sometimes quite precipitously (Klusmann, 2002; McNulty, Wenner, & Fisher, 2016; Sprecher, 2002). Psychologists have devoted a great deal of attention to understanding how couples can successfully

resolve conflict but have paid considerably less attention to understanding how couples can flourish and thrive in their relationships (see Gable & Haidt, 2005 for a review). We know from relationship science that the success and longevity of romantic relationships are shaped not only by how couples manage conflict and provide support to each other during times of stress, but also by the extent to which they are able to enjoy positive events and maintain their intimate connection (Gable, 2006; Gable & Reis, 2001; Reis, O’Keefe, & Lane, 2017). That is, it is not only how couples manage negative events in their relationship, but also how they excite, inspire, and connect with each other that predict whether couples stay together and maintain satisfaction. Feeling high sexual desire for a partner is one aspect of a relationship that, if maintained, can have profound implications for relationship satisfaction (Breznyak & Whisman, 2004; Regan, 2000), but many couples find that keeping their sexual spark alive can be challenging.

According to self-expansion theory, engaging in activities with a romantic partner that broaden one’s sense of self and perspective of the world (e.g., novel, exciting, interesting, and challenging activities) can reignite feelings of exhilaration and passion reminiscent of when couples first fell in love (Aron & Aron, 1986,

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1996; Aron, Lewandowski, Mashek, & Aron, 2013; see also Aron et al., 2013; Mattingly & Lewandowski, 2014 for reviews). For instance, a long-term couple can have self-expanding experiences by learning a new activity together such as swing dancing or cooking a unique cuisine or by taking a road trip to a new city to explore interesting sights. Drawing on theory and qualitative reports from couples showing that novelty and unpredictability tend to enhance sexual desire in relationships (Ferreira, Fraenkel, Narciso, & Novo, 2015; Ferreira, Narciso, & Novo, 2012), we suggest that self-expansion theory is uniquely positioned to inform how couples can enhance sexual desire in long-term relationships since novel, exciting experiences may reignite the desire from the early stages of a relationship. In the current investigation, we test the central prediction that engaging in self-expanding activities with a partner contributes to *increased feelings of sexual desire*—that is, greater feelings of longing and motivation to engage in sexual activity with a partner (Diamond, 2003). In turn, sexual desire fueled by self-expansion is expected to be associated not only with greater relationship satisfaction, but also with more frequent and higher quality sexual experiences in the relationship. That is, we expect that engaging in self-expanding activities with a partner will be associated with higher relationship satisfaction, sexual satisfaction, and a greater likelihood of having sex and these associations will be mediated by higher sexual desire.

### Self-Expansion Theory

Self-expansion theory posits that people are innately motivated to broaden their sense of self by having novel experiences, learning new perspectives, and gaining new skills (Aron & Aron, 1986, 1996; see also Aron et al., 2013; Mattingly & Lewandowski, 2014 for reviews). In the context of romantic relationships, self-expansion represents the extent to which a partner facilitates the attainment of new resources, perspectives, and characteristics, as well as provides opportunities for novel and exciting experiences (Lewandowski & Ackerman, 2006; Lewandowski & Aron, 2002). Early in relationships, opportunities for self-expansion are numerous because partners are learning a great deal of new information about each other and are having many self-expanding experiences together (Aron, Paris, & Aron, 1995), which tends to be associated with feelings of passion as well as intense longing for closeness with a partner (Aron et al., 2005; Bartels & Zeki, 2000; Hatfield & Rapson, 1993; Hatfield & Sprecher, 1986; Jankowiak & Fischer, 1992; Rubin, 1970).

Over time in relationships, as partners get to know each other and routine sets in, opportunities for self-expansion often decline (Aron & Aron, 1996). Fortunately, research has shown that engaging in shared activities that are novel and exciting can revitalize feelings of self-expansion in the context of a long-term relationship (Aron & Aron, 1986, 1996), and this can have important implications for relationship satisfaction. Indeed, experimental evidence from in-lab studies (Aron, Norman, Aron, McKenna, & Heyman, 2000; Graham & Harf, 2015) and “homework style” studies conducted outside the laboratory (Coulter & Malouff, 2013; Reissman, Aron, & Bergen, 1993) support the notion that self-expanding (e.g., novel, exciting, interesting, and challenging) activities increase relationship quality. For example, couples randomly assigned to a 4-week online intervention that involved 1.5 h of shared exciting activities (that participants themselves gener-

ated) had greater pre- to postmeasurement increases in relationship quality than couples in a wait-list control group (Coulter & Malouff, 2013). These studies provide clear evidence that self-expansion is associated with higher relationship satisfaction, but the evidence to date does not suggest why engaging in self-expanding activities with a partner increases relationship quality. In the current article, we propose that higher sexual desire is one factor that accounts for the association between self-expansion and relationship satisfaction and seek to provide empirical evidence to support this claim.

### Extending Self-Expansion Theory to Promote Sexual Desire in Relationships

Self-expansion theorists have largely been silent on the role of self-expansion in promoting *sexual* outcomes in relationships. However, the idea that novelty, change, and unpredictability in relationships can contribute to increased sexual desire is reflected in theory and qualitative research about the maintenance of sexual desire in relationships (i.e., Baumeister & Bratslavsky, 1999; Ferreira et al., 2012; Ferreira, Narciso, Novo, & Pereira, 2014; Rubin & Campbell, 2012; Sims & Meana, 2010). Consistent with Baumeister and Bratslavsky’s (1999) theoretical model about the time course of intimacy and passion in relationships in which passion is a function of *changes* in intimacy, Rubin and Campbell (2012) found that day-to-day changes in feelings of intimacy in a sample of long-term romantic couples over a 3-week period predicted increases in passionate love (of which sexual desire is a key component), sexual frequency, and sexual satisfaction. Thus, it was not higher levels of intimacy per se that led to increases in sexual desire but rather a *change* in intimacy that prompted a boost in desire. Self-expansion provides a valuable lens to interpret these effects. At the heart of self-expansion is change and growth—that is, people are motivated to expand the self-concept by acquiring new experiences and perspectives (e.g., Aron & Aron, 1986)—and change and growth have been shown to promote desire and passion in relationships.

In a qualitative study of married couples about the factors that promote sexual desire (Ferreira et al., 2015), the most commonly reported desire-promoting strategy was innovation (i.e., change, novelty). A key part of the innovation strategy for promoting desire that participants described was injecting novel experiences into the relationship, such as doing new things together that are outside of the couples’ typical routine, aiming to foster some mystery or unpredictability, and having experiences that allow partners to view each other with a renewed gaze (Ferreira et al., 2015). In fact, the strategies the couples discussed were not focused on increasing closeness and intimacy, but rather on each partner having some aspects of themselves that is unknown to the other partner, leaving room to discover new things. Similarly, in a qualitative analysis of married women’s attributions for low sexual desire, overfamiliarity with a partner was listed as one of three core factors that detracted from their sexual desire, suggesting that the opposite experience—novelty and unpredictability in a relationship—might contribute to increases in sexual desire (Sims & Meana, 2010). However, these ideas are based on qualitative reports from couples about the factors that they see as promoting desire in their relationship and have not been put to the test in larger quantitative studies. Although this initial qualitative work

suggests the role of novelty (that is one component of self-expansion), it is not clear whether couples' perceptions of the factors that promote desire are accurate. In the current set of studies, we aim to test the prediction that engaging in self-expanding activities is, in fact, associated with increases in sexual desire (and sexual activity and satisfaction).

We suggest that self-expansion theory is uniquely positioned to inform how couples can enhance sexual desire in long-term relationships and, in turn, their relationship and sexual satisfaction. One of the reasons why sexual desire may be high in the early stages of relationship is because partners are getting to know each other and having many self-expanding experiences together, but over time, opportunities for self-expanding experiences typically decline (Aron & Aron, 1996), as does sexual desire (Klusmann, 2002; McNulty et al., 2016; Sprecher, 2002). Given that novel experiences can be self-expanding (Mattingly & Lewandowski, 2014), and novelty has been indicated as a factor that can enhance sexual desire by creating intrigue and unpredictability (e.g., Ferreira et al., 2012; Schnarch, 2009), we propose that engaging in self-expanding activities promotes sexual desire. In turn, we expect higher sexual desire to be associated with feeling more satisfied in the relationship, as well as a greater likelihood of engaging in sex and higher sexual satisfaction.

### The Crucial Role of Sexual Desire in Relationships

Sexual desire—the motivation to engage in sex with a partner (see Ferreira et al., 2012)—is associated with people's evaluations of their relationship: people who report lower levels of sexual desire report feeling less satisfied with their relationship (Breznyak & Whisman, 2004) and have more frequent thoughts about leaving their current relationship (Regan, 2000). In a large, population-based survey conducted in Australia, both men and women who reported higher desire for sex reported feeling more satisfied with their relationship (Smith et al., 2011), suggesting that sexual desire has important implications for relationship satisfaction. In fact, the maintenance of sexual desire has been empirically identified as one of the key factors promoting relationship satisfaction and strongly affecting the maintenance of a relationship (Hinchliff & Gott, 2004; McCarthy, Ginsberg, & Fucito, 2006).

Not surprisingly, sexual desire is also associated with frequency of sexual activity in romantic relationships (Regan & Atkins, 2006; Trudel, Aubin, & Matte, 1995). In a nationally representative sample of adults aged 18–49 years in Norway, people who reported higher levels of desire also reported greater sexual frequency (Hamilton, Kulseng, Traeen, & Lundin Kvaem, 2001). In addition, partners reported higher sexual desire on days when they engaged in sex compared with days when they did not engage in sex (Muise, Impett, & Desmarais, 2013), and when people report higher desire, they also report having more satisfying sexual experiences (Muise et al., 2013; Smith et al., 2011). We suspect that, through enhancing partners' sexual desire, engaging in self-expanding activities will be associated with a greater likelihood of engaging in sex and higher sexual and relationship satisfaction.

### Methodological Extensions and Overview of the Current Studies

The bulk of the previous research on self-expansion in relationships has been conducted in the lab or using one-time surveys,

limiting our understanding of how self-expanding activities naturally unfold over the course of couples' daily lives. In one study, however, Graham (2008) investigated self-expanding experiences in daily life and found that when people reported higher levels of self-expansion with their partner they also reported increased relationship quality in that moment. Therefore, it seems that both experimenter-prescribed and naturally occurring self-expanding activities have the potential to increase relationship quality. In the current set of studies, we extend past research on self-expansion by following romantic couples in their daily lives and over time with the goal of testing how naturally occurring self-expanding activities in a relationship are associated with both partners' sexual desire, sexual and relationship satisfaction, as well as with their actual sexual behavior. In addition, the current research also provides rich, descriptive information about the kinds of activities in which couples actually engage in their daily lives that provide them with a sense of self-expansion.

Despite the dyadic nature of self-expansion in relationships, limited research has considered how a person's feelings of self-expansion influence their partner's relationship satisfaction and no research to our knowledge has linked self-expansion to couples' sexual behavior or to a partner's sexual desire or satisfaction. Theoretically, one partner's growth or self-expansion should provide something new for the other partner to incorporate into their self-concept, which may be one pathway to promoting relationship quality (Aron & Aron, 1986). This suggests that a partner's self-expansion may have a unique influence on a person's feelings about their relationship, above and beyond their own self-expansion.

Some empirical evidence supports that idea that one partner's self-expansion is associated with positive outcomes for the other partner. In one study, self-expansion independent of a partner was not only associated with a person's own positive affect but was also associated with their romantic partner's positive affect, above and beyond the partner's own reports of personal self-expansion (Gordon & Baucom, 2009). Shared activities in a relationship have also been shown to be associated with both partners' relationship satisfaction. In a study in which couples interacted "double date" style with another couple, couples who were assigned to a high disclosure interaction (linked to self-expansion; Aron & Aron, 1986; Aron & Henkemeyer, 1995) reported feeling closer to each other compared with couples assigned to a low disclosure interaction (Slatcher, 2010). In another study on shared relationship activities, when one partner reported a positive shared activity in the relationship, the other partner reported greater relationship quality above and beyond their own reports of shared activities in the relationship (Girme, Overall, & Simpson, 2013). Although in this study, the associations did not differ based on the extent to which the activity was rated as self-expanding by outside observers (however, couples did not report their own levels of self-expansion).

Previous qualitative research and anecdotal accounts from clinicians also suggest that a person's self-expansion may be associated with their partner's sexual desire and satisfaction. People describe feeling higher sexual desire for their partner when they see them in novel settings or engaging in novel activities (i.e., interacting with others in a novel setting, learning a new activity; Ferreira et al., 2015; Perel, 2007). Taken together, these findings suggest that a person's self-expansion not only influences their

own desire and satisfaction but may be associated with their partner's desire and satisfaction as well. Therefore, in the current research we extend past work on self-expansion by testing dyadic associations in couples' daily lives.

We conducted three studies using daily experience, longitudinal, and experimental methods to test several key predictions regarding the role of self-expansion in predicting sexual desire, and in turn, sexual activity, and sexual and relationship satisfaction. In Studies 1 and 2—both 21-day dyadic daily experience studies, we test the prediction that higher levels of self-expansion in daily life will be associated with higher sexual desire for both partners and in turn, both partners will report greater relationship satisfaction. We also predict that higher levels of self-expansion will be associated with an increased likelihood of engaging in sex, and when couples do engage in sex; both partners will feel more satisfied with the sexual experience. These are the first studies to our knowledge to investigate dyadic associations between self-expansion and sexual and relationship outcomes in daily life. Study 2 also builds on Study 1 by collecting information about the types of self-expanding activities couples report in daily life and by including a 3-month longitudinal follow-up to test the associations between self-expansion and sexual and relationship outcomes over time. In Study 3, an ecologically valid experiment, we tested the prediction that learning about and being encouraged to engage in self-expanding activities over the course of a weekend (compared with engaging in familiar and comfortable activities or being given no information), will boost sexual desire and in turn, sexual activity and sexual and relationship satisfaction. Study 3 provides the first experimental test of the link between self-expansion and sexuality outcomes in relationships.

### Study 1

In addition to testing our key predictions about the daily associations between self-expansion and sexual and relationship outcomes, we also attempted to rule out several alternative explanations for our predicted effects, including positive affect and time spent interacting with a partner. In previous research, the association between self-expansion and relationship satisfaction has been partially accounted for by heightened positive affect (Graham, 2008; Slatcher, 2010; see also Aron et al., 2000; Mattingly & Lewandowski, 2014; Strong & Aron, 2006 for conceptual reviews; see Aron & Henkemeyer, 1995 for null findings about the role of positive affect). Although people tend to experience heightened positive affect while engaging in self-expanding activities since self-expanding activities are often enjoyable (e.g., see review by Mattingly & Lewandowski, 2014), we assert that self-expanding activities are not simply positive activities, but activities that provide novelty or broaden one's sense of self or the world. Therefore, in Study 1, we test whether the associations between self-expansion and our key outcomes differ based on how much time partners generally spend engaging in shared activities together.

In addition, we also tested the generalizability of our effects across gender and relationship length in an exploratory manner—as past research has not found consistent differences for men and women or for couples of longer or shorter relationship duration. In one study, women reported higher self-expansion in their relationships compared with men (Lewandowski & Acker-

man, 2006), but, when tested, significant differences between self-expansion and relationship outcomes have not been found (e.g., Aron et al., 2000; Reissman et al., 1993). In addition, relationship duration has not been significantly linked with self-expansion (Lewandowski & Ackerman, 2006), but in one study, couples in longer-term relationships felt closer during a self-expanding activity than couples in shorter relationships (Slatcher, 2010).

### Method

**Participants and procedure.** We recruited 122 mixed-sex couples through advertisements on the Web sites Reddit and Kijiji (posted in five major Canadian cities), as well as through advertisements posted in various public locations (e.g., libraries, community centers, and coffee shops) in a major Canadian city. In terms of sample size, our goal was to recruit at least 100 couples following recommendations from Kenny, Kashy, and Cook (2006). We aimed to recruit additional couples to account for attrition or missing data and surpassed our goal by recruiting 122 couples. As well, all of our predictions are at the daily level and we have 4,775 days in the current study.

Couples were eligible to participate if they were in an exclusive, monogamous relationship, had been together for at least 2 years, were currently living together, and if both partners agreed to participate. Participants ranged in age from 19 to 67 years ( $M = 31.53$ ,  $SD = 9.46$ ) and had been in their current relationship from 2 to 48 years ( $M = 8.24$ ,  $SD = 7.10$ ). Most participants were married (56.2%) and 21.6% were engaged. The majority of participants identified as heterosexual (86%), with 7% identifying as gay/lesbian, 5% identifying as bisexual, and 2% as "other." Approximately one quarter (22.8%) of participants had children who were living in the home, and of those with children, participants had one or two children on average ( $M = 1.54$ ,  $SD = 0.64$ ). Participants predominately identified as White/European (78.3%), followed by Latin American (6.8%), East Asian (4.3%), South Asian (2.6%), Black/African (2.1%), and 6.0% were bi- or multi-ethnic/racial or self-identified as other.

Participants were prescreened for eligibility (via e-mail and telephone). After agreeing to participate, each partner was e-mailed a unique link to begin the background survey (55 min). Beginning on the following day, each partner was e-mailed a brief survey (10–15 min) for the next 21 consecutive days. Participants were instructed to complete the survey before bed, although they had access to the survey between 5 p.m. and 9 a.m. the next morning. Each partner was paid up to CAD\$55 for participating; payment was prorated depending on the number of daily surveys completed. Participants completed a total of 4,773 entries, for an average of 19.56 (out of 21) entries per person.

**Measures.** At background, to rule out an alternative explanation for our effects, we asked participants how much time they spend engaging in shared activities together using one item: "How often do you and your partner engage in outside interests together (i.e., hobbies together)?" The item was rated on a 6-point scale from 1 = *never* to 6 = *everyday* ( $M = 4.01$ ,  $SD = 1.14$ ).

Then, each day, participants completed measures of self-expansion, sexual desire, and relationship satisfaction. Additionally, participants reported whether or not they had sex each day, and if they did, they completed a measure of sexual satisfaction.



We used outcome measures with only a few items or a single item in the diary study to increase efficiency and minimize participant attrition (Bolger, Davis, & Rafaeli, 2003). All items were rated on a 7-point scale. Self-expansion was assessed using six items from the Self-Expansion Questionnaire (SEQ; Lewandowski & Aron, 2002), which were adapted for daily use. Participants responded to the following questions according to how they felt that day: "How much did being with your partner result in you having new experiences?"; "Did you feel a greater awareness of things because of your partner?"; "How much did being with your partner expand your sense of the kind of person you are?"; "How much did your partner provide you with a source of excitement?"; "How much did you feel you gained a larger perspective on things because of your partner?"; and "How much did your partner increase your knowledge?" ( $\alpha = .96$ ,  $M = 3.07$ ,  $SD = 1.79$ ). All participants rated their daily sexual desire using one item, "I felt a great deal of sexual desire for my partner today" ( $M = 4.29$ ,  $SD = 1.61$ ; Impett, Strachman, Finkel, & Gable, 2008; Muise et al., 2013), as well as daily relationship satisfaction using one item, "How satisfied were you with your relationship?" ( $M = 6.13$ ,  $SD = 1.17$ ; Fletcher, Simpson, & Thomas, 2000).

Participants were also asked "Did you and your partner have sex today?" (yes/no). Participants reported engaging in sex with their partner on a total of 830 days (17%), where the number of days in which they had sex ranged from 0 to 17 days over the course of the 21-day study ( $M = 3.47$ ,  $SD = 3.00$ ). On days when people reported they had sex, participants rated their daily sexual satisfaction on five dimensions: bad/good, pleasant/unpleasant, negative/positive; unsatisfying/satisfying; and worthless/valuable (adapted from Lawrance & Byers, 1998;  $\alpha = .94$ ,  $M = 6.43$ ,  $SD = 0.90$ ). Finally, to rule out the possibility that our effects are driven by positive affect, we asked participants each day to report on their positive affect with three items: "Happy, pleased, joyful," "Interested, attentive," and "Amused, having fun" (adapted from Impett et al., 2010) rated on a 7-point scale from 1 (*not at all*) to 7 (*very much*). Table 1 depicts correlations among all key variables in Study 1.

## Results

**Data analytic strategy.** We analyzed the data with multilevel modeling using mixed models in SPSS 20.0. We tested a two-level cross model with random intercepts where persons are nested within dyads, and person and days are 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 used techniques appropriate for a mul-

tilevel framework, partitioning all the Level-1 predictors (i.e., self-expansion) into their within- and between-variance components, which were person-mean centered and aggregated, respectively (Raudenbush, Bryk, Cheong, & Congdon, 2004; Zhang, Zyphur, & Preacher, 2009). As such our results represent within-person differences such that coefficients for the daily analyses represent changes in the dependent variable for every one-unit deviation from the person's own mean. For analyses with a dichotomous outcome (i.e., engaging in sex or not), we used the GENLINUXED models in SPSS 20.0. The analyses were guided by the APIM such that both a person's own score and their partner's score were entered simultaneously as predictors in the model (Kenny et al., 2006). All of our mediation analyses were conducted using multilevel modeling, which allowed us to parse out between-person variance and focus on daily variation within people. In our tests of mediation, we tested a 1-1-1 mediation model in which all of the variables were at the daily level. We used the Monte Carlo Method for Assessing Mediation (MCMAM; Selig & Preacher, 2008) with 20,000 resamples and 95% confidence intervals (CIs). A significant indirect effect was present if the CI did not contain zero.

**Sexual desire as a mediator of the daily associations between self-expansion, sexual activity and sexual and relationship satisfaction.** First, we tested the association between partners' daily reports of self-expansion. One partner's report of self-expansion was significantly associated with the other partner's self-expansion,  $r = .32$ ,  $p < .001$ , suggesting that partners tend to experience similar levels of self-expansion day-to-day. Next, we tested our key predictions that on days when people reported greater feelings of self-expansion with their romantic partner, both they and their partner would feel more sexual desire and in turn, would be more likely to engage in sex, would report being more satisfied with their relationship, and on days when they engaged in sex, would feel more satisfied with the sexual experience.

Consistent with our predictions, on days when a person reported higher levels of self-expansion with their partner (more than their own average over the course of the 21-day study), they reported higher sexual desire and their partner reported marginally higher sexual desire as well (see Table 2). Given that the association between a person's self-expansion and their partner's sexual desire is marginal, we only tested actor's sexual desire as a possible mediator between actor's self-expansion and their own outcomes, and actor's self-expansion and their partner's outcomes.

Next, consistent with our predictions, both a person's own feelings of self-expansion (odds ratio,  $OR = 1.25$ ,  $t = 5.87$ ,  $p < .001$ , 95% CI [1.16, 1.35]) and their partner's feelings of self-expansion ( $OR = 1.19$ ,  $t = 4.51$ ,  $p < .001$ , 95% CI [1.10, 1.28]) were associated with a greater likelihood that the couple engaged in sex on that day. More specifically, for every one-unit increase in a person's reported self-expansion, the couple was 1.25 times (or 25%) more likely to engage in sex on that day, and after accounting for their own self-expansion, for every one unit increase in their partner's self-expansion, they were 1.19 times (or 19%) more likely to engage in sex. Also, as predicted, the associations between a person's daily self-expansion and the couples' likelihood of engaging in sex were mediated by the person's feelings of daily sexual desire. When entered into the model with self-expansion, a person's own sexual desire ( $OR = 2.948$ ,  $t = 21.08$ ,  $p < .001$ , 95% CI [2.66, 3.26]) and their partner's sexual desire ( $OR = 1.87$ ,

Table 1  
Correlations Among All Key Variables in Study 1

Variables	1	2	3	4
1. Daily self-expansion	—	.46***	.34***	.20***
2. Daily sexual desire		—	.56***	.43***
3. Daily relationship satisfaction			—	.49***
4. Daily sexual satisfaction				—

Note. Correlations are between aggregates of the daily variables.  
\*\*\*  $p < .001$ .

Table 2

Total, Direct, and Indirect Effects for Models With Sexual Desire Mediating the Association Between Self-Expansion, Relationship Satisfaction, and Sexual Satisfaction in Study 2

Effects	Sexual desire	Actor's relationship satisfaction	Actor's sexual satisfaction	Partner's relationship satisfaction	Partner's sexual satisfaction
Daily self-expansion (effects mediated by actor's sexual desire)					
Total effect	.28*** (.02)	.18*** (.01)	.07** (.02)	.02 <sup>b</sup> (.01)	.05* (.02)
Direct effect	—	.15*** (.01)	.03 (.02)	.001 (.01)	.03 (.02)
Indirect effect	—	[.03, .05]	[.06, .09]	[.003, .02]	[.003, .03]
Daily self-expansion (effects mediated by partner's sexual desire)					
Total effect	.04 <sup>a</sup> (.02)	.18*** (.01)	.07** (.02)	.02 <sup>b</sup> (.01)	.05* (.02)
Direct effect	—	.15*** (.01)	.03 (.02)	.001 (.01)	.03 (.02)
Indirect effect	—	[−.05, .003]	[−.01, .02]	[−.002, .02]	[−.001, .004]

Note. Numbers outside parentheses are unstandardized coefficients; numbers inside parentheses are *SEs*; numbers inside brackets are upper and lower limits of 95% confidence intervals from Monte Carlo Method for Assessing Mediation (MCMAM) mediation analyses. Dyads in these analyses are indistinguishable and actor and partner effects are tested in the same model, therefore, the total and direct effects are the same for the actor and partner mediation models.

<sup>a</sup>  $p = .054$ . <sup>b</sup>  $p = .0974$ .

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

$t = 13.08$ ,  $p < .001$ , 95% CI [1.70, 2.05]) were significant predictors of engaging in sex that day, and the person's own (the actor's) desire (indirect effect: 95% CI [.25, .35]) significantly mediated the association between the actor's daily self-expansion and the couples' likelihood of engaging in sex that day. The association between the actor's self-expansion and the couples' likelihood of engaging in sex was reduced to nonsignificant ( $OR = 1.00$ ,  $t = .05$ ,  $p = .96$ , 95% CI [.91, 1.10]). In short, on days when a person reported enhanced feelings of self-expansion, they reported higher sexual desire and, in turn, were more likely to engage in sex on that day.

Next, on days when a person reported higher levels of self-expansion, they felt more satisfied with their relationship and their partner reported marginally higher relationship satisfaction. A person's higher sexual desire significantly mediated the association between their own self-expansion and both their own and their partner's relationship satisfaction. That is, on days when a person reported more self-expansion than their own average, they reported higher sexual desire for their partner, and in turn, both partners reported higher relationship satisfaction (see Table 2). Figure 1 depicts the full APIM mediation model for relationship satisfaction. Consistent with our predictions, when entered into the model with self-expansion, both the actor's sexual desire and their partner's desire were significant predictors of the actor's relationship satisfaction ( $b = .14$ ,  $SE = .01$ ,  $t(4395.47) = 13.71$ ,  $p < .001$ , 95% CI [.12, .16];  $b = .03$ ,  $SE = .01$ ,  $t(4421.62) = 2.96$ ,  $p = .003$ , 95% CI [.01, .05], respectively) and the actor's sexual desire significantly mediated the associations between daily self-expansion and both partners' relationship satisfaction (see Table 1). However, self-expansion remained a significant predictor of the actor's relationship satisfaction, although the effect was significantly reduced (see Figure 1; Table 2). In these analyses, the association between a person's daily self-expansion and their partner's relationship satisfaction was reduced to nonsignificant (see Table 2). These findings suggest that engaging in self-expanding activities was associated with the actor reporting higher sexual desire and, in turn, both partners felt more satisfied with their relationship.

As reported in Table 2, on days when a person reported higher self-expansion, both they and their partner reported higher sexual satisfaction. Consistent with our predictions, a person's own daily sexual desire significantly mediated the association between daily self-expansion and both partners' daily sexual satisfaction. When entered into the model with both partners' reports of self-expansion, a person's own sexual desire and their partner's sexual desire significant predicted their sexual satisfaction ( $b = .26$ ,  $SE = .02$ ,  $t(761.04) = 10.88$ ,  $p < .001$ , 95% CI [.21, .31];  $b = .05$ ,  $SE =$

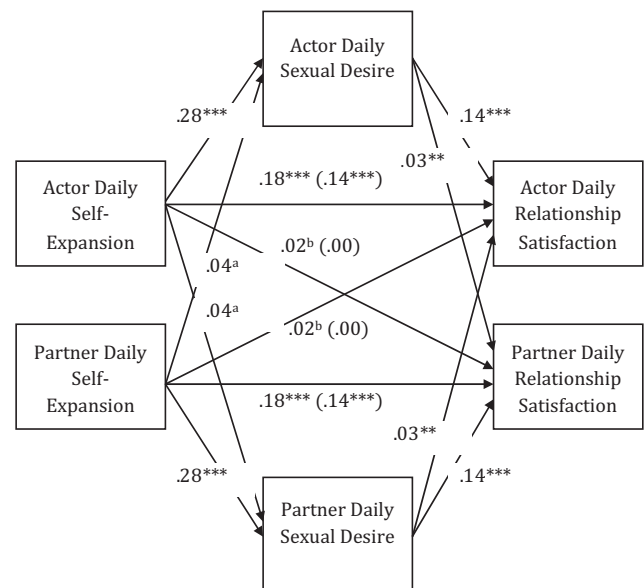


Figure 1. Actor Partner Interdependence Model (APIM) full mediation model in Study 1 where actor sexual desire mediates the association between actor self-expansion and both partners' relationship satisfaction. Values in parentheses illustrate the direct effect after controlling for the mediator. Values are unstandardized coefficients (\*\*  $p < .01$ . \*\*\*  $p < .001$ . <sup>a</sup>  $p = .056$ . <sup>b</sup>  $p = .097$ ). The model for sexual satisfaction and daily sexual activity follow a similar pattern (see Table 2).

.02,  $t(729.60) = 2.35$ ,  $p = .02$ , 95% CI  $[-.01, .09]$ , respectively). The effect of self-expansion on a person's own sexual satisfaction as well as their partner's sexual satisfaction was reduced to non-significant (see Table 2). In short, on days when a person self-expanded more with their partner, they reported higher sexual desire and, in turn, both partners felt more sexually satisfied.

We also tested for moderations between a person's own daily self-expansion and their partner's daily self-expansion for all outcomes (i.e., are the effects enhanced if *both* partners report high levels of self-expansion?) and found that the associations between a person's self-expansion are stronger on days when their partner's self-expansion is lower, compared with higher, however, for the most part, these associations remain significant regardless of a partner's level of self-expansion.<sup>1</sup>

**Directional associations between self-expansion and desire and satisfaction: Lagged day analyses.** Our theoretical model predicts that self-expansion leads to greater desire and relationship and sexual satisfaction, but it is also possible that on days when people felt more satisfied and had higher desire, they were more likely to pursue self-expanding activities with their partner. Therefore, we sought to provide additional support for our prediction that when couples pursue self-expanding activities together, this *leads* to higher sexual desire and relationship satisfaction. To do this, we conducted lagged day analyses, a statistical technique that examines the temporal sequences across days (West, Biesanz, & Pitts, 2000) and allowed us to compare our predicted direction of effects to the reverse direction. We tested our predicted direction of effects by conducting analyses in which self-expansion today predicts relationship satisfaction and sexual desire tomorrow, controlling for today's reports of relationship satisfaction and desire (i.e., does self-expansion predict *changes* in relationship satisfaction and desire from day to day?). We then compared these models to models with the reverse direction of effects in which today's satisfaction and desire predict tomorrow's self-expansion, controlling for self-expansion today.

The results of these lagged day analyses indicated that higher self-expansion today predicted greater relationship satisfaction tomorrow, controlling for relationship satisfaction today ( $b = .03$ ,  $SE = .01$ ,  $t(3873.74) = 2.08$ ,  $p = .04$ , 95% CI  $[.002, .05]$ ), providing support for our predicted direction of effects. We did not find support for the reverse direction of effects; relationship satisfaction today did not predict higher levels of self-expansion tomorrow, controlling for self-expansion today ( $b = -.02$ ,  $SE = .03$ ,  $t(3983.67) = -.93$ ,  $p = .35$ , 95% CI  $[-.07, .03]$ ). For sexual desire, we did not find clear support for either direction of effects. Self-expansion today was not significantly associated with sexual desire tomorrow, after controlling for sexual desire today ( $b = -.02$ ,  $SE = .02$ ,  $t(4061.26) = -1.17$ ,  $p = .24$ , 95% CI  $[-.06, .02]$ ), and sexual desire today was not significantly associated with self-expansion tomorrow, controlling for self-expansion today ( $b = .01$ ,  $SE = .02$ ,  $t(4044.94) = .91$ ,  $p = .37$ , 95% CI  $[-.02, .05]$ ). It was not possible to test lagged day analyses for sexual satisfaction because it was measured only on days when sex occurred. To properly test our predicted direction of effects, self-expansion today predicting sexual satisfaction tomorrow controlling for sexual satisfaction today, couples would have had to engage in sex 2 days in a row, and this was a rare occurrence, happening only on 4% of diary days. In short, the findings from the lagged day analyses suggest that engaging in

self-expanding activities can lead to increases in relationship satisfaction from one day to the next; however, they did not demonstrate a clear direction for the link between self-expansion and sexual desire.

**Ruling out alternative explanations and providing evidence for generalizability of the findings.** Next, we conducted additional analyses to rule out possible alternative explanations and provide evidence for the generalizability of our findings. First, our theoretical model predicts that activities that are self-expanding—not just positive or pleasant activities—lead to greater desire and satisfaction. Therefore, we wanted to rule out the possibility that engaging in self-expanding activities increases positive affect and this accounts for our effects. That is, we want to rule out the possibility that the effects are solely because of having positive experiences with a partner. If we can rule out this possibility, it increases our confidence that it is self-expansion specifically (i.e., novel, broadening activities) that are associated with desire and satisfaction and not simply positive or pleasant activities. We reran daily analyses controlling for daily positive affect, and with one exception, all of the significant effects reported above remained significant. The one exception is that the association between a person's daily self-expansion and their sexual satisfaction was reduced to nonsignificance once their daily positive affect was controlled ( $b = .002$ ,  $SE = .02$ ,  $t(740.02) = .10$ ,  $p = .92$ , 95% CI  $[-.04, .05]$ ). We also wanted to rule out the possibility that our effects could be attributed to time spent interacting with a partner and not to self-expansion per se. At background, we asked people how often they spent time engaging in outside interests together and tested this as a moderator of our effects. None of the daily associations were moderated by the amount of time people spend interacting with their partner, which gave us confidence that the effects are driven by self-expanding activities and not simply the amount of time partners spend interacting.

Finally, we also tested whether our effects were generalizable across gender, relationship length and age. Gender did not significantly moderate any of the effects, suggesting that in this study the associations between self-expansion and desire, satisfaction, and likelihood of having sex do not differ between men and women. Relationship length did significantly moderate the associations

<sup>1</sup> Analyses in Study 1 testing the moderation between a person's own self-expansion and their partner's self-expansion revealed that a partner's self-expansion significantly moderated the associations between a person's own self-expansion and their daily reports of sexual desire, relationship satisfaction, and sexual satisfaction ( $b = -.05$ ,  $SE = .02$ ,  $t(3071.58) = -3.02$ ,  $p = .003$ , 95% confidence interval, CI  $[-.08, -.02]$ ;  $b = -.02$ ,  $SE = .01$ ,  $t(2900.24) = -2.16$ ,  $p = .03$ , 95% CI  $[-.04, -.002]$ ;  $b = -.05$ ,  $SE = .02$ ,  $t(425.17) = -2.20$ ,  $p = .01$ , 95% CI  $[-.09, -.01]$ , respectively). We tested simple effects at 1 *SD* above and below the mean of partner's self-expansion. On days when a partner reported lower levels of self-expansion, there was a significant association between a person's own self-expansion and their reports of sexual desire, relationship satisfaction, and sexual satisfaction ( $b = .43$ ,  $SE = .05$ ,  $t(3346.96) = 8.07$ ,  $p < .001$ , 95% CI  $[.32, .53]$ ;  $b = .25$ ,  $SE = .03$ ,  $t(3224.47) = 7.57$ ,  $p < .001$ , 95% CI  $[.18, .31]$ ;  $b = .24$ ,  $SE = .08$ ,  $t(466.03) = 3.05$ ,  $p = .002$ , 95% CI  $[.09, .39]$ , respectively), and on days when a partner was higher in self-expansion, the associations between a person's own self-expansion and their desire and relationship satisfaction were attenuated, although still significant ( $b = .14$ ,  $SE = .05$ ,  $t(3348.18) = 3.01$ ,  $p = .003$ , 95% CI  $[.05, .24]$ ;  $b = .12$ ,  $SE = .03$ ,  $t(3205.06) = 4.15$ ,  $p < .001$ , 95% CI  $[.07, .18]$ , respectively), and reduced to nonsignificant for sexual satisfaction ( $b = -.06$ ,  $SE = .06$ ,  $t(461.12) = -.87$ ,  $p = .39$ , 95% CI  $[-.18, .08]$ ).



between self-expansion and sexual desire ( $b = .11$ ,  $SE = .00$ ,  $t(4334.12) = 2.78$ ,  $p = .01$ , 95% CI [.0002, .01]) and relationship satisfaction ( $b = .004$ ,  $SE = .00$ ,  $t(4367.88) = 2.56$ ,  $p = .01$ , 95% CI [.001, .01]). The simple effects revealed that self-expansion had a stronger effect on sexual desire and satisfaction for people in longer relationships ( $b = .33$ ,  $SE = .03$ ,  $t(4331.32) = 11.81$ ,  $p < .001$ , 95% CI [.28, .39];  $b = .22$ ,  $SE = .02$ ,  $t(4358.41) = 11.95$ ,  $p < .001$ , 95% CI [.18, .25], respectively) than those in shorter relationships ( $b = .22$ ,  $SE = .03$ ,  $t(4320.07) = 8.28$ ,  $p < .001$ , 95% CI [.17, .28];  $b = .15$ ,  $SE = .02$ ,  $t(4354.66) = 8.82$ ,  $p < .001$ , 95% CI [.12, .19], respectively), however, the associations were significant for both groups. Age did not significantly moderate any of the reported effects.

In summary, the results of Study 1 suggest that on days when a person reports more self-expansion in their relationship, they feel higher sexual desire for their partner and in turn, the couple is more likely to engage in sex and both partners feel more satisfied with their sex life and relationship. These results remained significant after accounting for daily positive affect, and were consistent for both men and women, for couples younger and older in age and for those who spent less versus more time together. However, some of the effects were stronger for people in longer versus shorter relationships.

## Study 2

In Study 1 we provided initial evidence that engaging in self-expanding activities in relationships is associated with higher sexual desire and in turn, higher relationship and sexual satisfaction for both partners and a greater likelihood that couples will engage in sex on that same day. In Study 2, we aimed to replicate these daily findings and we extended the previous study by following up with participants immediately after the 21-day daily experience study as well as 3 months later to test whether self-expansion over the course of the diary predicted changes in sexual desire, relationship satisfaction, and sexual satisfaction over time. The design of this study, therefore, allowed us to investigate whether daily feelings of self-expansion have longer lasting effects on couples' sex lives and relationships. We predicted that couples who report higher self-expansion over the course of the daily experience study would report greater sexual desire, and relationship and sexual satisfaction at the end of the study and 3 months later (controlling for their desire and satisfaction at the beginning of the study). As in Study 1, we also conducted lagged day analyses to determine the extent to which these associations remain significant controlling for the previous day's outcome (i.e., relationship satisfaction, sexual desire).

As in Study 1, we also attempted to rule out several alternative explanations for our predicted effects. In Study 2, we conduct subsequent analyses controlling for daily positive affect and the amount of time couples spent together each day to test the prediction that self-expansion will predict higher sexual desire, satisfaction, and sexual activity, above and beyond these factors, as we found in Study 1. We also assessed feelings of closeness during the activity—because closeness has been shown to mediate the association between relationship boredom (akin to low self-expansion) and relationship satisfaction over time (Tsapelas, Aron, & Orbach, 2009)—to test whether sexual desire mediates the effects above

and beyond participants' feelings of closeness during a self-expanding activity.

In addition, in Study 2, on days when participants reported self-expanding with their partner, we asked about the types of activities in which they engaged and coded these descriptions to determine if particular self-expanding activities tend to be more beneficial for sexual and relational outcomes. High arousal has been included in some definitions of self-expansion (for a review see Mattingly & Lewandowski, 2014), but it is not captured in the current measure of self-expansion. Therefore, each activity was also coded for arousal level to determine if high arousal activities are more beneficial for sexual and relational outcomes. Given that self-expansion has been demonstrated in the absence of heightened arousal (Mattingly & Lewandowski, 2013), we did not expect high arousal to be a necessity for self-expanding activities to be associated with relational and sexual benefits. Finally, as in Study 1, we tested whether our findings were generalizable across gender, age, and relationship length.

## Method

**Participants and procedure.** We recruited 118 mixed-sex couples through advertisements on the Web site Craigslist in 12 major U.S. cities. Interested participants emailed the researchers and if they met the inclusion criteria—in a relationship, living together, both partners interested in participating, and aged 18 or older—they were sent the link and information for completing the background and daily surveys online. As in Study 1, our sample size was determined following guidelines from Kenny et al. (2006) to recruit at least 100 couples. In addition, all predictions are at the daily level and there are 3,421 days in the current study.

Participants ranged in age from 19 to 74 ( $M = 31.5$ ,  $SD = 10.4$ ) and had been in their current relationship from 4 months to 30 years ( $M = 4.9$  years,  $SD = 5.3$  years). All the couples were living together; 37% were married and 19% were engaged. About a third of the couples had children (31%), and of these, couples had two children on average ( $M = 2.2$ ,  $SD = 1.1$ ). Participants comprised a diverse range of ethnic backgrounds; 55% were White/European, 14% were African American, 8% were Asian, 5% were Latino, 3% were Native American, 1% were Indian, and 14% self-identified as other.

Once couples agreed to participate, each partner was e-mailed a unique link. On the first day of the study, each partner completed a 30-min background survey and then for the next 21 consecutive days, they completed a brief survey (5–10 min) each night before bed. The day after completing the final daily survey, participants completed a 10-min follow-up survey. Participants were instructed to begin the study on the same day as their partner and not to discuss their responses with one another. Each partner was paid up to US\$50 for participating; payment was prorated depending on the number of daily surveys completed. Participants completed 3,421 diary entries for an average of 18.2 (out of 21) entries per person.

**Person-level measures.** In both the background and follow-up surveys, participants completed measures of sexual desire, sexual satisfaction, and relationship satisfaction. To assess sexual desire, participants completed the 25-item Hurlbert Index of Sexual Desire (Apt & Hurlbert, 1992). Items were rated on a 7-point scale from 1 = *never* to 7 = *all the time* and included such items as “My

desire for sex with my partner is strong” (background:  $M = 5.27$ ,  $SD = 1.09$ ,  $\alpha = .94$ ; follow-up 1:  $M = 5.10$ ,  $SD = 1.27$ ,  $\alpha = .93$ ; follow-up 2:  $M = 4.97$ ,  $SD = 1.13$ ,  $\alpha = .94$ ). To assess sexual satisfaction, participants completed the 25-item Index of Sexual Satisfaction (Hudson, Harrison, & Crosscup, 1981). Items were rated on a 7-point scale from 1 = *never* to 7 = *all the time* and included items such as “I feel our sex life really adds a lot to our relationship” (background:  $M = 5.52$ ,  $SD = 1.02$ ,  $\alpha = .93$ ; follow-up 1:  $M = 5.44$ ,  $SD = 1.23$ ,  $\alpha = .93$ ; follow-up 2:  $M = 5.41$ ,  $SD = 1.07$ ,  $\alpha = .95$ ). To assess relationship satisfaction participants completed three items from the Perceived Relationship Quality Component (PRQC) inventory (Fletcher et al., 2000). Items were rated on a 7-point scale from 1 = *not at all* to 7 = *extremely* and included items such as “How satisfied are you with your relationship?” (background:  $M = 5.88$ ,  $SD = 1.13$ ,  $\alpha = .94$ ; follow-up 1:  $M = 6.17$ ,  $SD = 1.13$ ,  $\alpha = .96$ ; follow-up 2:  $M = 5.93$ ,  $SD = 1.25$ ,  $\alpha = .96$ ).

**Daily level measures.** On each diary day, participants completed measures of self-expansion, sexual desire, and relationship satisfaction, and on days when participants reported engaging in sex with their partner, they reported on their sexual satisfaction. As in Study 1, we used outcome measures with only a few items or a single item in the diary study to increase efficiency and minimize participant attrition (Bolger et al., 2003). All daily measures were assessed on 7-point scales. As in Study 1, to assess self-expansion, participants completed six items from the Self-Expansion Questionnaire (SEQ; Lewandowski & Aron, 2002) adapted to be about the daily context ( $M = 3.86$ ,  $SD = 1.93$ ,  $\alpha = .96$ ). After responding to these items, participants were asked: “Thinking about your responses to the questions above, can you think of something specific that you did with YOUR ROMANTIC PARTNER TODAY that resulted in you feeling a sense of excitement, a greater awareness of things around you, an expansion of your sense of self, and/or an increased knowledge of yourself and the world around you?” Participants who answered “yes” to this question ( $N = 1543$  days; 45% of days) were asked to provide a brief description of the specific activity. On days when participants reported an activity, they also rated their feelings of closeness during the activity using an adapted version of the Inclusion of Other in the Self measure ( $M = 5.55$ ,  $SD = 1.49$ ; Aron, Aron, & Smollan, 1992).

Each day participants also responded to one item about their daily sexual desire for their partner, “I felt a great deal of sexual desire for my partner today” ( $M = 5.05$ ,  $SD = 1.82$ ; Impett et al., 2008; Muise et al., 2013) and one item about their daily relationship satisfaction, “I felt satisfied with my relationship with my partner” ( $M = 5.85$ ,  $SD = 1.40$ ; Fletcher et al., 2000), which as in Study 1, they completed regardless of whether or not they engaged in sexual activity with their partner that day. Participants were also asked each day if they engaged in sex with their partner (yes/no); participants reported engaging in sex, on average, five times over the course of the 21-day study (range = 1–13,  $M = 4.98$ ,  $SD = 3.38$ ). On days when they reported engaging in sex, they responded to three items about their sexual satisfaction, including “I enjoyed the sexual experience” ( $M = 6.45$ ,  $SD = .99$ ,  $\alpha = .96$ ; adapted from Birnbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006). To rule out alternative explanations for our effects, we asked participants each day to report on their positive affect with three items: “Happy, pleased, joyful,” “Interested, attentive,” and “Amused,

having fun” (adapted from Impett et al., 2010) rated on a 7-point scale from 1 (*not at all*) to 7 (*very much*) and the amount of time they spent with their partner: “Approximately, how much time did you spend with your partner today (*hours, minutes*)?” Table 3 presents correlations among all key variables in Study 2.

## Results

**Open-ended responses about self-expanding activities.** One of the unique design features of our study is that on days when participants endorsed experiencing some level of self-expansion, we asked them an open-ended question about the type of activity that lead to their feelings of self-expansion. Their response to this question provided insight into what couples actually did each day to self-expand. To analyze the open-ended responses that participants provided about the specific activity that resulted in their feelings of self-expansion, we used thematic analysis where the first author coded participants’ open-ended responses for themes that represented the specific activities in which feelings of self-expansion occurred. The coding was data driven, such that themes emerged from comments provided by participants (e.g., Braun & Clarke, 2006). Two independent coders then coded the open-ended responses using these themes. Each response received as many codes as were applicable, with coding indicating either the presence or the absence of a theme. Both coders also rated the level of arousal for each activity (discussed below). Cohen’s  $\kappa$  agreement between raters ranged between .74 and .95 across themes indicating high agreement between coders (e.g., Landis & Koch, 1977). Disagreements were resolved by the first author reviewing responses with discrepant codes and determining the appropriate theme.

Thirteen types of self-expanding activities were identified in participants’ open-ended responses about their daily self-expansion activities. These activities are summarized in Table 4 from most commonly identified self-expanding activities to the least commonly identified activities. For each activity, we include a brief description, the percentage of days on which participants reported engaging in this type of self-expanding activity, an example of a response coded as each type of activity, and the mean score (from 1–7) for how self-expanding the activity was rated. Open-ended responses could be coded more than once; therefore, the percentage of activities reported exceeds 100%. The most common self-expanding activities were going on outings with one’s partner (27%), engaging in household activities with the partner (20%), and engaging in leisure activities (17%). The least common activities included shared humor (1%), religious/spiritual experiences (2%), and interactions that were negative but still enabled partners

Table 3  
Correlations Among All Key Variables in Study 2

Variable	1	2	3	4
1. Daily self-expansion	—	.57***	.27***	.42***
2. Daily sexual desire		—	.42***	.51***
3. Daily relationship satisfaction			—	.41***
4. Daily sexual satisfaction				—

Note. Correlations are between aggregates of the daily variables.  
\*\*\*  $p < .001$ .

Table 4  
*Summary of Themes from Participants' Open-Ended Responses (Study 2)*

Theme	Description	Percent reported	Example	Mean self-expansion
Outings	Attending a special event or having a date night with a partner	27%	"My fiancé and I went on a date tonight to dinner."	5.48
Household activities	Completing household or maintenance tasks with a partner	20%	"We painted our apartment together."	5.31
Leisure	Spending time with a partner that did not include a special event or outing; relaxing together or passive activities such as watching television	17%	"We had pizza and watched Mythbusters together." "We rented and watched a movie together."	5.41
Disclosure	Disclosing thoughts and feelings to a partner; having an in-depth conversation	10%	"We both were able to really talk and share our feelings today." "My partner has a job interview tomorrow and today we talked about the changes that would happen if/when he gets the new job."	5.35
Future	Planning or discussing future events relevant to the relationship; planning a wedding, shopping for a new house, discussing future life events (i.e., children, honeymoon)	8%	"We picked songs for our wedding." "Today we talked about moving together to Canada and finding a place to live."	5.69
Sex	Engaging in sexual activity with one's partner	8%	"Fantastic sex!" "Experimented with new sexual positions."	6.08
Care	Giving or receiving care or support from a partner. Included practical or emotional support and general kindness towards a partner	7%	"I gave her praise for the work she did to host a large party at our home." "My wife was sick today and I spent much time comforting her."	5.38
Physical activity	Doing something active with a partner such as exercising, playing a sport, or participating in outdoor physical activities	5%	"We played kickball together today as subs for another team." "We went bike riding on a new trail."	5.43
Affection	Cuddling or being intimate with a partner that is not directly associated with sex	4%	"My beloved gave me an oil massage." "We took a break and got in bed and cuddled, it was nice and relaxing."	6.00
Learning	Learning something new with a partner, teaching a partner something, or being taught something by a partner	3%	"[My partner] taught me how to skateboard today! He was a very understanding teacher and was there to make sure I would not fall and gave lots of positive encouragement."	4.94
Negative	Having an argument or disagreement with a partner or expressing negative emotions to a partner	3%	"We had a huge fight today but at the end of the day we were able to sit down and work it out and that was very eye opening."	5.18
Religious/spiritual	Attending a religious service or engaging in spiritual activities with a partner such as praying or meditating	2%	"We explored a cultural festival today and visited a Greek Orthodox Church. My partner has a stronger religious background than I do, and he was able to explain some fascinating things about the structure and customs of the church."	5.28
Humor	Laughing or sharing a funny experience with a partner	1%	"We made funny videos together today and laughed really hard."	5.90

*Note.* Mean self-expansion values represent the mean level of self-expansion reported by participants on days when the type of activity was reported.

to self-expand (3%). Other activities included: disclosing thoughts and feelings to a partner (10%), planning for the future (8%), engaging in sexual activities (8%), giving or receiving care (7%), engaging in physical activity with a partner (5%), being affectionate (4%), and learning something new with a partner (3%).

Coders also rated the level of arousal for each activity, as this has been discussed as one aspect of self-expansion (Aron et al.,

2000). Specifically, coders rated each activity using the following item: "How arousing (i.e., exciting, stimulating, thrilling) would you say this activity is?" rated on a 5-point scale (1 = *not at all arousing*, 2 = *a little arousing*, 3 = *moderately arousing*, 4 = *arousing*, 5 = *very arousing*). Coders ratings were highly correlated ( $r = .89, p < .001$ ). When coders disagreed, the mean of their two ratings was used. On average, activities were rated as moder-

ately arousing ( $M = 3.40, SD = 1.07$ ): 3% of the activities were rated as not at all arousing, 18% as a little arousing, 34% as moderately arousing, 27% as arousing, and 19% as very arousing. Activities rated as less arousing included watching a documentary together or spending quiet time at home, and activities rating as more arousing included physical activities such as playing sports together or working out. Later, we use the codes for both type of activity and arousal level to test whether any of the associations between self-expansion and sexual and relational outcomes are moderated by the type or arousal level of the activity.

**Sexual desire as a mediator of the daily associations between self-expansion, sexual activity and sexual and relationship satisfaction.** In the next set of analyses, we tested our key predictions that on days when people reported greater feelings of self-expansion with their romantic partner, both they and their partner would feel more sexual desire and in turn, would be more likely to engage in sex, would report being more satisfied with their relationship, and on days when they engaged in sex, would feel more satisfied with the sexual experience. To analyze the data, we conducted multilevel modeling analyses using MIXED models in SPSS 20.0 as described in Study 1.

First, we tested the association between partners' daily reports of self-expansion. One partner's report of self-expansion was significantly associated with the other partner's self-expansion,  $r = .57, p < .001$ , suggesting that partners experienced similar levels of self-expansion day-to day. Next, as predicted and consistent with the results of Study 1, on days when a person reported higher levels of self-expansion with their partner (more than their own average over the course of the 21-day study), both they and their partner reported higher sexual desire (see Table 5).

Next, consistent with our predictions, both a person's own feelings of self-expansion ( $OR = 1.34, t = 8.05, p < .001, 95\% CI [1.25, 1.44]$ ) and their partner's feelings of self-expansion ( $OR = 1.27, t = 6.62, p < .001, 95\% CI [1.18, 1.36]$ ) were associated with a greater likelihood that the couple engaged in sex. More

specifically, for every one-unit increase in a person's reported self-expansion, the couple was 1.34 times (or 34%) more likely to engage in sex on that day, and after accounting for their own self-expansion, for every one unit increase in their partner's self-expansion, they were 1.27 times (or 27%) more likely to engage in sex. Also as predicted, the associations between partners' feelings of self-expansion and their likelihood of engaging in sex were mediated by both partners' feelings of sexual desire. When entered into the model with self-expansion, a person's own sexual desire ( $OR = 1.87, t = 14.80, p < .001, 95\% CI [1.71, 2.04]$ ) and their partner's sexual desire ( $OR = 1.72, t = 14.80, p < .001, 95\% CI [1.59, 1.88]$ ) were significant predictors of engaging in sex that day. Both the person's own (the actor's) desire (indirect effect:  $95\% CI [.23, .31]$ ) and their partner's desire (indirect effect:  $95\% CI [.01, .05]$ ) significantly mediated the association between the actor's daily self-expansion and the couples' likelihood of engaging in sex that day. The effect of the actor's self-expansion on engaging in sex was reduced, but remained significant ( $OR = 1.10, t = 2.29, p = .02, 95\% CI [1.02, 1.20]$ ). Both partners' sexual desire also significantly mediated the association between the partner's daily self-expansion and the couples' likelihood of engaging in sex (indirect effect of actor's sexual desire:  $95\% CI [.01, .05]$ ; indirect effect of partner's own sexual desire:  $95\% CI [.23, .31]$ ), and the association between a partner's self-expansion and the couples' likelihood of engaging in sex was reduced to nonsignificant ( $OR = 1.07, t = 1.53, p = .13, 95\% CI [.98, 1.15]$ ). In short, on days when a person and their partner reported enhanced feelings of self-expansion, they both reported higher sexual desire and, in turn, were more likely to engage in sex on that day.

Next, on days when a person reported higher levels of self-expansion, both partners felt more satisfied with their relationship, and these associations were mediated by sexual desire (see Table 2). Figure 2 depicts the full APIM mediation model for relationship satisfaction. Consistent with our predictions, when entered into the model with self-expansion, both the actor's sexual desire

Table 5  
Total, Direct, and Indirect Effects for Models With Sexual Desire Mediating the Association Between Self-Expansion, Relationship Satisfaction, and Sexual Satisfaction in Study 2

Effects	Daily outcomes					
	Actor's sexual desire	Actor's relationship satisfaction	Actor's sexual satisfaction	Partner's sexual desire	Partner's relationship satisfaction	Partner's sexual satisfaction
Daily self-expansion (effects mediated by actor's sexual desire)						
Total effect	.42*** (.02)	.27*** (.01)	.19*** (.02)	.05** (.02)	.07*** (.02)	.01 (.02)
Direct effect	—	.15*** (.02)	.10*** (.02)	—	.02 (.02)	-.01 (.02)
Indirect effect	—	[.10, .13]	[.11, .15]	—	[.03, .04]	[-.01, .02]
Daily self-expansion (effects mediated by partner's sexual desire)						
Total effect	.42** (.02)	.27*** (.07)	.19*** (.02)	.05** (.02)	.07*** (.02)	.01 (.02)
Direct effect	—	.15*** (.02)	.10*** (.02)	—	.02 (.02)	-.01 (.02)
Indirect effect	—	[.03, .04]	[-.01, .02]	—	[.10, .13]	[.11, .15]

Note. Numbers outside parentheses are unstandardized coefficients; numbers inside parentheses are standard errors; numbers inside brackets are upper and lower limits of 95% confidence intervals from Monte Carlo Method for Assessing Mediation (MCMAM) mediation analyses. Dyads in this analysis are indistinguishable and actor and partner effects are tested in the same model, therefore, the total and direct effects are the same for the actor and partner mediation model.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .



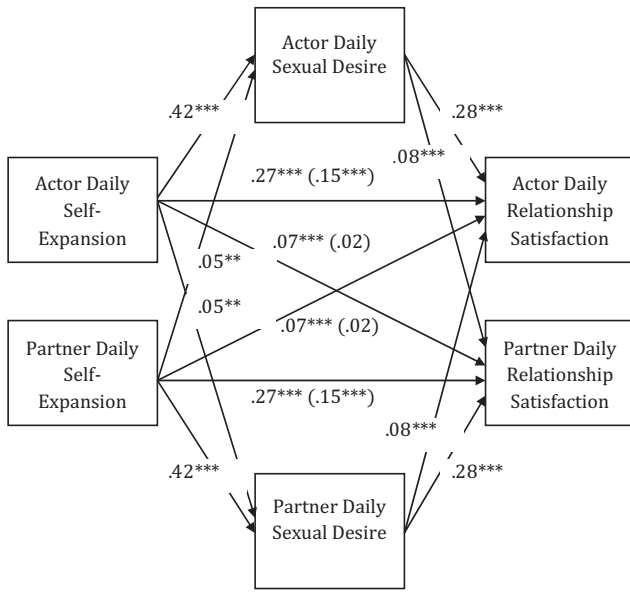


Figure 2. Actor Partner Interdependence Model (APIM) full mediation model in Study 2 where sexual desire mediates the association between self-expansion and relationship satisfaction. Values in parentheses illustrate the direct effect after controlling for the mediator. Values are unstandardized coefficients (\*\*  $p < .01$ . \*\*\*  $p < .001$ ). The model for sexual satisfaction and daily sexual activity follow a similar pattern (see Table 2).

and their partner's desire were significant predictors of the actor's relationship satisfaction ( $b = .28$ ,  $SE = .01$ ,  $t(3214.77) = 20.83$ ,  $p < .001$ , 95% CI [.25, .31];  $b = .08$ ,  $SE = .01$ ,  $t(3213.04) = 5.89$ ,  $p < .001$ , 95% CI [.05, .11], respectively) and both significantly mediated the associations between daily self-expansion and both partner's relationship satisfaction (see Table 5). However, self-expansion remained a significant predictor of the actor's relationship satisfaction, although the effect was significantly reduced (see Figure 2; Table 5). In these analyses, the association between a person's daily self-expansion and their partner's relationship satisfaction was reduced to nonsignificance (see Table 5). These findings suggest that engaging in self-expanding activities was associated with higher desire for both partners and, in turn, both partners felt more satisfied with their relationship.

As reported in Table 5, on days when a person reported higher self-expansion, they also reported higher sexual satisfaction. However, a person's feelings of self-expansion did not significantly predict their partner's sexual satisfaction. In addition, a person's own sexual desire, but not their partner's sexual desire, was a significant predictor of their sexual satisfaction ( $b = .30$ ,  $SE = .02$ ,  $t(838.78) = 13.67$ ,  $p < .001$ , 95% CI [.26, .34];  $b = .01$ ,  $SE = .02$ ,  $t(814.03) = .15$ ,  $p = .88$ , 95% CI [-.04, .04], respectively). Consistent with our predictions, a person's own daily sexual desire significantly mediated the association between daily self-expansion and their daily feelings of sexual satisfaction. The effect of self-expansion on sexual satisfaction was reduced but remained significant (see Table 5). In short, on days when a person self-expanded more with their partner, they reported feeling more satisfied with the sexual experience when they engaged in sex, and this was partially accounted for by their feelings of higher sexual

desire. As in Study 1, we also tested for moderations between actor and partner self-expansion and found there was a stronger association between a partner's self-expansion and a person's relationship satisfaction on days when their own self-expansion was low compared to high.<sup>2</sup>

**Directional associations between self-expansion and desire and satisfaction: Lagged day analyses.** As in Study 1, we conducted lagged day analyses (West et al., 2000) to provide evidence for our predicted direction of effects. More specifically, we conducted analyses in which self-expansion today predicts relationship satisfaction and sexual desire tomorrow, controlling for today's reports of relationship satisfaction and desire (i.e., does self-expansion predict changes in relationship satisfaction and desire from day to day?). We then compared these models to models with the reverse the direction of effects in which today's satisfaction and desire predict tomorrow's self-expansion, controlling for self-expansion today.

The results of these lagged day analyses indicated that higher self-expansion today predicted greater relationship satisfaction tomorrow, controlling for relationship satisfaction today ( $b = .03$ ,  $SE = .02$ ,  $t(2729.49) = 2.02$ ,  $p = .04$ , 95% CI [.01, .07]), providing support for our predicted direction of effects. We did not find support for the reverse direction of effects; relationship satisfaction today did not predict higher levels of self-expansion tomorrow, controlling for self-expansion today ( $b = -.001$ ,  $SE = .03$ ,  $t(2711.45) = -.04$ ,  $p = .97$ , 95% CI [-.05, .05]). In addition, higher self-expansion today also marginally predicted higher sexual desire tomorrow, controlling for sexual desire today ( $b = .05$ ,  $SE = .03$ ,  $t(1890.45) = 1.80$ ,  $p = .07$ , 95% CI [-.004, .10]), again providing support for our predicted direction of effects. However, for sexual desire, we did find support for the reverse direction of effects; higher sexual desire today predicted greater self-expansion tomorrow, controlling for self-expansion today ( $b = .05$ ,  $SE = .02$ ,  $t(1875.65) = 2.33$ ,  $p = .02$ , 95% CI [.008, .09]). As in Study 1, it was not possible to test lagged day analyses for sexual satisfaction because it was measured only on days when sex occurred. In short, the findings from the lagged day analyses suggest that engaging in self-expanding activities can lead to increases in desire and satisfaction from one day to the next; however, feelings of desire may also lead to increases in self-expansion.

**The effects of self-expanding activities over time: Follow-up analyses.** In the next set of analyses, we tested whether couples' reports of self-expansion over the course of the 21-day daily experience study predicted changes in their sexual desire and sexual and relationship satisfaction over time. These analyses

<sup>2</sup> In Study 2 we tested for moderations between a person's own daily self-expansion and their partner's daily self-expansion for all outcomes and one significant moderation emerged. As in Study 1, the association between a person's self-expansion and their relationship satisfaction was significantly moderated by their partner's self-expansion ( $b = -.03$ ,  $SE = .01$ ,  $t(1655.40) = -2.48$ ,  $p = .01$ , 95% confidence interval, CI [-.05, -.01]). We tested simple effects at 1 SD above and below the mean of self-expansion. On days when people were lower in self-expansion, their partner's self-expansion was significantly associated with their relationship satisfaction ( $b = .10$ ,  $SE = .02$ ,  $t(2957.12) = 5.23$ ,  $p < .001$ , 95% CI [.06, .14]), and on days when a people were higher in self-expansion, their partner's self-expansion was marginally associated with their relationship satisfaction ( $b = .04$ ,  $SE = .02$ ,  $t(2817.03) = 13.67$ ,  $p = .09$ , 95% CI [-.01, .08]).

allow us to demonstrate that in addition to the daily effects of engaging in self-expanding activities with a partner, self-expansion can also have longer lasting effects over time. To test these longitudinal effects, we created two aggregate variables—one for each partner's feelings of self-expansion over the course of the 21-day study—and entered them as simultaneous predictors of participants' relationship satisfaction, sexual satisfaction and sexual desire measured immediately after they completed the diary study as well as 3 months later, controlling for these same variables at background. Consistent with our predictions, people who reported greater self-expansion over the course of the diary study felt more satisfied with their relationship at the first follow-up (immediately after the diary study), controlling for their relationship satisfaction at background ( $b = .12$ ,  $SE = .05$ ,  $t(162.86) = 2.64$ ,  $p = .01$ , 95% CI [.03, .22]), but this effect did not last until the second follow-up (3 months after the diary study;  $b = .02$ ,  $SE = .07$ ,  $t(113.45) = .30$ ,  $p = .77$ , 95% CI [−.12, .16]). In addition, after controlling for the person's own self-expansion, their partner's feelings of self-expansion over the course of the diary predicted feeling more satisfied with their relationship at the first follow-up ( $b = .11$ ,  $SE = .05$ ,  $t(163.13) = 2.31$ ,  $p = .02$ , 95% CI [.02, .20]), and 3 months later ( $b = .14$ ,  $SE = .07$ ,  $t(115.32) = 2.07$ ,  $p = .04$ , 95% CI [.01, .28]), controlling for their relationship satisfaction at background. Once controlling for sexual satisfaction and sexual desire at background, however, neither partner's self-expansion over the course of the diary predicted sexual satisfaction or sexual desire at the first follow-up ( $ps > .10$ ) or 3 months later ( $ps > .31$ ). In short, reporting greater self-expansion over the course of the 21-day daily experience study was associated with increases in relationship satisfaction for both partners directly after the diary, which was sustained 3 months later for the partner, but we did not observe any changes in sexual desire or satisfaction for either partner from background to follow-up.

**Ruling out alternative explanations and providing evidence for generalizability of the findings.** As in Study 1, we conducted additional analyses to rule out possible alternative explanations and provide evidence for the generalizability of our findings. First, we wanted to rule out the possibility that the effects are solely because of having positive experiences with a partner to increase our confidence that it is self-expansion specifically (i.e., novel, broadening activities) that are associated with desire and satisfaction. We did this in two ways. We reran daily analyses controlling for daily positive affect and all of our effects remained significant, suggesting that self-expansion enhances sexual desire and sexual and relationship satisfaction and these effects are not simply because of self-expansion increasing positive affect. We also reran the analyses controlling for feelings of closeness with a partner during a self-expanding activity. All of the effects remained significant with one exception. The association between self-expansion and a partner's sexual desire was reduced to non-significant ( $b = .01$ ,  $SE = .03$ ,  $t(1413.98) = .35$ ,  $p = .73$ , 95% CI [−.04, .06]; but the association between self-expansion and their own sexual desire remained significant). In fact, feeling a higher degree of closeness for a partner is one reason why people reported higher sexual desire when they reported more self-expansion during the activity (95% CI [.04, .08]). We also wanted to rule out the possibility that our effects could be attributed to simply spending time with the partner and not to self-expansion per se. We reran the daily analyses controlling for time spent with a partner each day

and all of the effects remain significant, suggesting that our findings are not accounted for solely by spending time with a partner.

In addition, because some participants reported in the open-ended responses that their daily self-expanding activity was a sexual activity, we sought to ensure that self-expanding activities in general—and not just sexual ones—were associated with enhanced sexual and relationship outcomes for both members of the couple. To test this possibility, we conducted a subsequent set of analyses removing days on which partners reported that sex was their self-expanding activity (8% of self-expanding activities reported). All of the reported daily effects remained significant. Also, given that some types of activities were rated as more self-expanding than others (i.e., sex, affection, and humor were rated by participants as the most self-expanding), we wanted to test whether certain activities were more strongly associated with sexual and relationship outcomes than others. To do this, we tested moderations by each code (0 = *not present*, 1 = *present*), to determine if any of the daily associations held only when a certain type of activity was reported. However, the type of activity did not moderate any of our effects, suggesting that it is feelings of self-expansion and not the type of activity per se that promote relationship satisfaction, sexual desire, sexual activity, and sexual satisfaction in daily life. One important point to note is that some types of daily activities were reported infrequently so we may have been underpowered to detect differences, particularly with the lower frequency categories. With this caveat in mind, this finding indicates that it is not what couples do to self-expand that is important—a range of activities can be self-expanding and there is not a one-size-fits all self-expanding activity.

In addition, we tested whether any of our effects were moderated by how arousing the activity was rated by outside coders. Arousal has been linked to novelty (Aron et al., 2000) and has been assessed as an element of self-expansion (Graham, 2008); however, self-expansion has been demonstrated in the absence of heightened arousal (Mattingly & Lewandowski, 2013). In the current study, none of the associations between daily self-expansion and desire or sexual and relationship satisfaction were significantly moderated by how arousing the activities were rated by coders, a finding that is consistent with previous research demonstrating that arousal is not necessary for self-expansion (for a review see Mattingly & Lewandowski, 2014).

Finally, we also tested whether our effects were generalizable across gender, relationship length and age. In this study, gender did significantly moderate one of the associations. The association between self-expansion and relationship satisfaction was significantly moderated by gender ( $b = .04$ ,  $SE = .02$ ,  $t(2808.61) = 2.51$ ,  $p = .01$ , 95% CI [.01, .07]), where this effect was stronger for women ( $b = .31$ ,  $SE = .02$ ,  $t(2957.89) = 14.71$ ,  $p < .001$ , 95% CI [.27, .35]) than for men ( $b = .23$ ,  $SE = .02$ ,  $t(2903.21) = 10.97$ ,  $p < .001$ , 95% CI [.19, .28]), but the link between self-expansion and relationship satisfaction was significant for both men and women. As in Study 1, relationship length also significantly moderated the associations between self-expansion and sexual desire ( $b = .001$ ,  $SE = .00$ ,  $t(3163.17) = 2.87$ ,  $p = .004$ , 95% CI [.0002, .01]) and sexual satisfaction ( $b = .001$ ,  $SE = .00$ ,  $t(721.55) = 2.73$ ,  $p = .01$ , 95% CI [.0002, .01]). Self-expansion had a stronger effect on sexual desire and satisfaction for people in longer relationships ( $b = .42$ ,  $SE = .02$ ,  $t(3062.56) = 21.35$ ,  $p < .001$ , 95% CI [.39, .45];  $b = .19$ ,  $SE = .02$ ,  $t(819.33) = 8.61$ ,  $p < .001$ , 95%

CI [.15, .24], respectively) than those in shorter relationships ( $b = .31$ ,  $SE = .04$ ,  $t(3132.27) = 7.17$ ,  $p < .001$ , 95% CI [.22, .39];  $b = .08$ ,  $SE = .05$ ,  $t(795.07) = 1.68$ ,  $p = .09$ , 95% CI [−.01, .16], respectively). As in Study 1, age did not significantly moderate any of the reported effects.

In summary, the results of Study 1 suggest that on days when a person reports more self-expansion in their relationship, both they and their partner report higher sexual desire, and in turn, the couple is more likely to engage in sex, they feel more sexually satisfied and both partners report greater relationship satisfaction. Largely, these results remained significant after accounting for daily positive affect, feelings of closeness during the activity, and how much time partners spent together that day. The results were also consistent for couples younger and older in age and for different types of activities. However, the association between self-expansion and relationship satisfaction was stronger for women than for men, and the associations between self-expansion and sexual desire and satisfaction were stronger for people in longer versus shorter relationships.

### Study 3

In Studies 1 and 2 we demonstrated dyadic associations between self-expansion and sexual desire, activity, and satisfaction, and overall relationship satisfaction. On days when a person reported more self-expansion than they typically felt, both partners reported higher sexual desire (in Study 1 the association between a person's self-expansion and their partner's sexual desire was marginal) and, in turn, both partners reported higher sexual and relationship satisfaction, and couples were more likely to engage in sex. Although the lagged-day and longitudinal analyses we conducted in Studies 1 and 2 allowed us to pursue some tests of directionality, both of our previous studies were correlational and do not allow us to make definitive causal claims. In Study 3, our main goals were to test whether we could increase people's participation in self-expanding activities with their partner and whether engaging in self-expanding activities would lead to increases in sexual desire, sexual activity, and sexual and relationship satisfaction compared with a control group. In addition, as with Studies 1 and 2, we wanted to address positive affect associated with shared activities as an alternative explanation for our findings, so we also included a familiar and comfortable condition (in addition to a baseline control group).

In Study 3, we recruited people in romantic relationships and randomly assigned them to one of three conditions: a self-expanding activity condition, a familiar and comfortable activity condition, or a control condition where participants were not instructed to engage in any activities. Participants in the first condition were told about the benefits of self-expansion for romantic relationships and were instructed to engage in novel and exciting activities with their partner over the next 72 h. Participants in the second condition were told about the benefits of comfort and stability for romantic relationships and were instructed to engage in familiar activities over the next 72 h. Participants in the third condition were not given any information or instructions.

We then followed up with participants 3 days later and assessed their feelings of sexual desire, sexual satisfaction, and relationship satisfaction. Given the role of novelty in promoting sexual desire in previous work (Ferreira et al., 2014), we predicted that partic-

ipants in the self-expanding activities condition—but not those in the familiar and comfortable condition—would experience a boost in sexual desire compared with those in the control group. Previous research, however, has been mixed in terms of whether shared activities have to be self-expanding to boost relationship satisfaction. In in-lab experiment and “homework” style studies, self-expanding activities have boosted relationship satisfaction above and beyond pleasant or mundane activities that partners engage in together (Aron et al., 2000; Reissman et al., 1993). However, in other studies about couples' shared activities in their daily lives, positive activities were associated with greater relationship satisfaction and closeness regardless of how self-expanding the activities were rated by outside coders (Girme et al., 2013). Because we found in our previous two studies, however, that self-expansion in daily life was associated with greater satisfaction, in Study 3 we predicted that people assigned to engage in self-expanding activities would report higher relationship and sexual satisfaction compared with those in the control group. We also expected that engaging in familiar and comfortable activities with a partner would still boost relationship satisfaction beyond the control group since research has demonstrated the benefits of shared activities in relationships (Girme et al., 2013). In addition, as in Studies 1 and 2, we expected that sexual desire would mediate the link between engaging in self-expanding activities with a partner and higher sexual and relationship satisfaction.

### Method

**Participants and procedure.** We recruited 291 participants from Amazon's Mechanical Turk for a two-part, online experimental study (data available at [osf.io/u5w4d/](https://osf.io/u5w4d/)). To be eligible to participate in the study, participants had to be 18 years of age or older, residents of the United States, in a sexually active romantic relationship, agree to complete both parts of the study, and pass an attention check about the instructions they were given between Time 1 and Time 2. Of the 291 participants recruited, 230 completed both parts of the study. However, 32 participants failed the attention check at Time 2. The attention check was an open-ended question asking participants to report what they were instructed to do over the previous 72 h. The responses were coded and only participants whose responses aligned with what they were asked to do at Time 1 were included in the analyses. The final sample included 198 participants (69 men, 127 women and 2 transgendered individuals) ranging in age from 19 to 67 years ( $M = 33.21$ ,  $SD = 10.70$ ). This sample size gives us approximately 90% power to detect an effect size of  $f^2 = .05$  in a MANOVA with three groups and four outcomes of interest. All of the participants were currently in a romantic relationship ranging from 2 months to 35 years ( $M = 7$  years,  $SD = 7$  years). The majority of the participants (74%) were currently living with their romantic partner, and 49% were married. The majority of participants (93%) were in a mixed-sex relationship at the time of the survey and the remaining participants were in a same-sex relationship. Participants comprised a diverse range of ethnic backgrounds: 68% were European, 10% were African American, 7% were Asian, 6% were Native American 4% were Latino or Mexican, 1% were Middle Eastern, and 13% self-identified as other.

In Part 1 of the study, participants were randomly assigned to receive information about the benefits of self-expanding activities



( $n = 51$ ), the benefits of familiar and comfortable activities ( $n = 65$ ), or to receive no information ( $n = 82$ ). The different group sizes are because of the attention check applying only to participants in the former two groups (because they were asked to report what they were asked to do in Part 1, and participants who did not answer correctly were removed;  $n = 13$  were removed from the familiar and comfortable group and  $n = 19$  were removed from the self-expansion group). Analyses were conducted following the exclusions.

Those who were assigned to one of the first two conditions read a fabricated article in the University of Toronto magazine about ostensibly new research showing the benefits of engaging in either novel and exciting (self-expanding) or familiar and comfortable activities in their romantic relationship (see online supplementary materials for full articles). After reading the article, they were asked to try to engage in novel and exciting activities or familiar and comfortable activities over the next 72 h. Participants in the control condition did not receive any information or instructions but were told they would receive the link to complete another brief survey in 72 h. Participants were recruited over the course of three consecutive weekends; Part 1 of the study always took place on a Friday to allow the participants the weekend to follow the study instructions about engaging in activities with their partner and the survey for Part 2 of the study was sent out on Monday. Participants had until Tuesday night to complete Part 2.

For Part 2 of the study, participants received an e-mail with the link to the second part of the survey 72 h after Part 1. After responding to the attention check asking them what they were instructed to do over the previous 72 h, they were asked a series of questions about the activities in which they engaged with their partner and their feelings about their relationship and sex life.

**Measures.** Participants responded to items about their relationship with their partner over the past 72 h, with all items rated on a scale from 1 = *not at all* to 7 = *very much*. To ensure that the participants in the self-expansion condition actually engaged in more self-expanding activities than participants in the other two conditions, all participants were asked “Over the past 72 hours, how much did being with your partner provide you with new experiences?” ( $M = 4.18$ ,  $SD = 1.80$ ). Participants were also asked two items about their sexual desire (“Over the past 72 hours, how much sexual desire did you feel for your romantic partner?” and “Over the past 72 hours, how passionate was your relationship with your partner?”;  $M = 5.36$ ,  $SD = 1.43$ ,  $r = .69$ ,  $p < .001$ ). Participants were also asked one item about their sexual satisfaction (“Over the past 72 hours, how satisfied did you feel with your sexual relationship?”;  $M = 5.26$ ,  $SD = 1.80$ ), and two items about their relationship satisfaction (“Over the past 72 hours, how close and connected did you feel to your romantic partner?” and “Over the past 72 hours, how satisfied did you feel with your romantic relationship overall?”;  $M = 5.90$ ,  $SD = 1.17$ ;  $r = .81$ ,  $p < .001$ ). Participants were also asked one item about their sexual activity: “Did you and your partner engage in sex in the past 72 hours?” and could respond with yes or no (64% of participants reported engaging in sex).

**Does self-expansion promote desire and satisfaction?** First, we conducted a manipulation check to test whether participants assigned to the self-expansion condition did, in fact, report having more novel experiences with their romantic partner than did those in the familiar and comfortable condition or those in the control

condition. The results of an analysis of variance (ANOVA) revealed that there were significant differences in the degree to which being with their partners provided participants with novel experiences across the three groups,  $F(1, 194) = 11.54$ ,  $p < .001$ . Specifically, post hoc tests revealed that participants in the self-expansion group were significantly more likely to report that being with their partner provided them with novel experiences ( $M = 5.12$ ,  $SE = .24$ ) than those in the familiar and comfortable group ( $M = 4.09$ ,  $SE = .21$ ,  $p = .005$ ) or those in the control group ( $M = 3.65$ ,  $SE = .19$ ;  $p < .001$ ). There was not a significant difference in novel experiences between participants in the familiar and comfortable group and those in the control group ( $p = .38$ ).

Next, we tested our predictions about differences between participants in the self-expansion condition compared with those in the control condition and the familiar and comfortable condition on sexual desire, sexual satisfaction, and relationship quality. First, we conducted a multivariate analysis of variance (MANOVA) where condition (self-expansion vs. familiar/comfortable vs. control) was the independent variable and sexual desire, sexual satisfaction, and relationship quality were the dependent variables. The results indicated a significant difference across conditions in sexual desire,  $F(2, 196) = 4.63$ ,  $p = .01$  and relationship satisfaction,  $F(2, 196) = 3.85$ ,  $p = .02$ , but not a significant difference in sexual satisfaction,  $F(2, 196) = 2.13$ ,  $p = .12$ . Specifically, and as depicted in Figure 3, post hoc tests revealed that participants in the self-expansion condition reported significantly higher sexual desire ( $M = 5.80$ ,  $SE = .19$ ) than those in the control condition ( $M = 5.11$ ,  $SE = .16$ ;  $p = .02$ ). There were no significant differences in sexual desire between participants in the familiar and comfortable condition ( $M = 5.34$ ,  $SE = .17$ ) and those in either the control condition ( $p = .96$ ) or the self-expansion condition ( $p = .24$ ). Participants in the self-expansion condition ( $M = 6.18$ ,  $SE = .16$ ) reported significantly higher relationship satisfaction than those in the control condition ( $M = 5.61$ ,  $SE = .13$ ;  $p = .02$ ). Participants in the familiar and comfortable condition ( $M = 6.05$ ,  $SE = .14$ ), however, reported marginally higher relationship satisfaction compared with participants in the control condition ( $p = .065$ ), but did

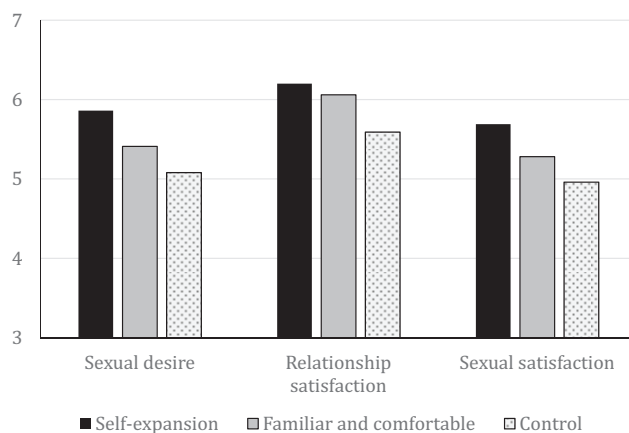


Figure 3. Bar graph comparing the means across conditions for sexual desire, relationship satisfaction and sexual satisfaction in Study 3. Significant differences reported in text.



not differ from those in the self-expansion condition. Participants in the self-expansion condition ( $M = 5.65$ ,  $SE = .25$ ) did not significantly differ in sexual satisfaction from participants in the control condition ( $M = 4.99$ ,  $SE = .20$ ;  $p = .12$ ) or those in familiar and comfortable condition ( $M = 5.29$ ,  $SE = .22$ ;  $p = .88$ ).

Next, given that sexual activity is a categorical variable (response options: *yes* or *no*), we conducted a  $\chi^2$  analysis to test whether participants in the self-expansion condition were more likely to report engaging in sex with their partner compared with those in the other two conditions. Although participants in the self-expansion condition were more likely to report engaging in sex (75% reported engaging in sex) than those in the familiar and comfortable condition (63%) or the control condition (58%), overall, there was not a significant difference between groups ( $\chi^2 = 3.72$ ,  $p = .16$ ). However, if we compare participants in the self-expansion condition only to those in the control condition, participants in the self-expansion condition were marginally more likely to report engaging in sex ( $\chi^2 = 3.71$ ,  $p = .054$ ).

Finally, we tested whether gender or relationship duration moderated the effects. None of the interactions between condition and gender or condition and relationship duration were significant (all  $ps > .12$ ), suggesting that the findings in this study were consistent for men and women and people in longer and shorter relationships.

**Does sexual desire mediate the link between self-expansion and satisfaction?** In the final set of analyses, we tested our predictions that increased sexual desire as a result of engaging in self-expanding activities would account for the associations between self-expansion and greater relationship and sexual satisfaction. In these tests of mediation, we focused on the self-expansion group and the control group since earlier analyses established that it is between these two groups that there are significant differences in sexual desire and sexual and relationship satisfaction. To test sexual desire as a mediator of the effects, we used the INDIRECT SPSS macro (Preacher & Hayes, 2008) to construct a 95% CI for each indirect effect using bootstrapping techniques with 5,000 resamples. Significant mediation is indicated when the interval does *not* include zero. In these analyses, the independent variable is condition (self-expansion = 1 vs. control = 0). Participants' reports of sexual desire significantly predicted their relationship satisfaction ( $b = .66$ ,  $SE = .05$ ,  $p < .001$ ) and sexual satisfaction ( $b = .91$ ,  $SE = .08$ ,  $p < .001$ ), and sexual desire significantly mediated the association between condition and relationship satisfaction (95% CI [.17, .77]) as well as the association between condition and sexual satisfaction (95% CI [.25, 1.07]; see Figure 4). When sexual desire was entered into the model, the direct effects between condition and relationship satisfaction ( $b = .11$ ,  $SE = .13$ ,  $p = .41$ ) and condition and sexual satisfaction ( $b = .08$ ,  $SE = .23$ ,  $p = .74$ ) were nonsignificant. Therefore, there was a significant indirect effect between condition (self-expansion vs. control) and sexual and relationship satisfaction via sexual desire. It is important to note, however, that there were not significant differences in desire between people in the self-expansion and those in the familiar and comfortable condition (only the control condition). Participations in the self-expansion condition compared with those in the control condition reported higher sexual desire and in turn, felt more satisfied with the sex lives and relationships.

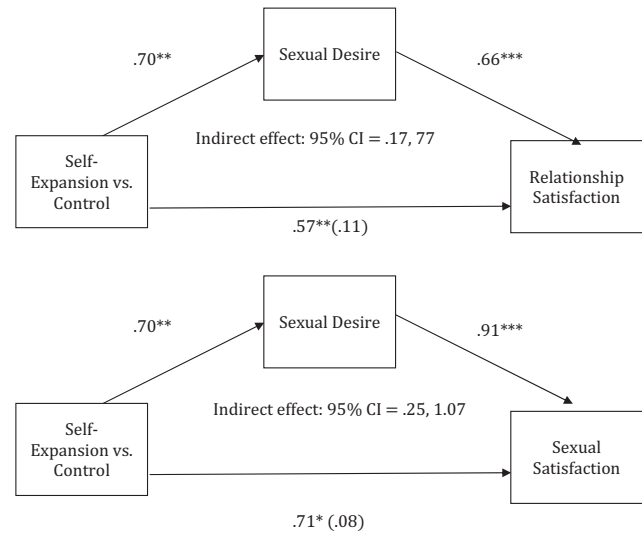


Figure 4. Mediational models in Study 3 testing sexual desire as a mediator of the associations between condition (self-expansion vs. control) and relationship satisfaction and sexual satisfaction. Values in parentheses illustrate the direct effect after controlling for the mediator (\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ ).

## General Discussion

Maintaining high sexual desire over the course of a romantic relationship is challenging. Many couples report experiencing declines in desire over time (Klusmann, 2002; McNulty et al., 2016; Sprecher, 2002), and low desire has implications for relationship dissatisfaction and dissolution (Breznsnyak & Whisman, 2004; Regan, 2000). The paradox in romantic relationships is that stability and predictability often increase over time, increasing closeness and security, but at the same time this comfort can detract from sexual desire (Sims & Meana, 2010). Despite this, declines in sexual desire are not inevitable, as some couples are able to maintain desire over relatively long periods of time in their relationship (Acevedo & Aron, 2009). The findings from the current set of studies indicate that one key way couples can promote desire in their relationship, and in turn, their relationship satisfaction and sexual connection, is by engaging in self-expanding activities together. Across studies we found that when couples pursued self-expanding activities in the context of their daily lives (Studies 1 and 2) as well as when they were instructed to engage in these activities (Study 3), they reported higher sexual desire, and in turn higher sexual and relationship satisfaction. In Studies 1 and 2, through their enhanced desire, couples were also more likely to report engaging in sex on days when they reported higher levels of self-expansion. In Study 3, although people in the self-expansion group were more likely to report engaging in sex than those in the other two conditions, the differences were not significant. However, people in the self-expansion condition were more likely to have sex compared with those in the control condition, although this comparison was marginally significant. It is possible that we did not detect larger differences because the majority of participants in all groups reported engaging in sex over the course of the

study, perhaps the study took place over the weekend and research has shown that people report being more likely to engage in sex on the weekend than on weekdays (Bodenmann, Atkins, Schär, & Poffet, 2010).

### Extending Self-Expansion Theory

Self-expansion theory posits that people have a need to acquire new perspectives, experiences, and characteristics (i.e., broaden their sense of self) and that involvement in a romantic relationship is one key way people seek opportunities for self-expansion (see Aron et al., 2013 and Mattingly & Lewandowski, 2014 for reviews). The current findings extend research on self-expansion in several important ways: by extending self-expansion theory to understand the maintenance of sexual desire, activity and satisfaction and testing sexual desire as a key mechanism for the association between self-expansion and sexual and relationship quality; by assessing naturally occurring self-expanding activities in couples' daily lives; and by including both partners' reports of self-expansion and testing dyadic associations between self-expansion and relationship and sexual outcomes.

**Self-expansion theory informs sexuality in relationships.** In the current studies, for the first time, we find evidence for the role of self-expansion in promoting sexual activity, sexual desire, and sexual satisfaction in relationships. In fact, we demonstrate that sexual desire is a key mechanism that accounts for the link between self-expansion and relationship satisfaction, and find that self-expansion, through desire, also has implications for sexual activity and sexual satisfaction. Self-expansion theory indicates that expanding one's sense of self in a romantic relationship tends to be associated with feelings of passionate love (of which one component is high sexual desire) as well as intense longing for closeness with the partner (Aron et al., 2005; Bartels & Zeki, 2000; Hatfield & Rapson, 1993; Hatfield & Sprecher, 1986; Jankowiak & Fischer, 1992; Rubin, 1970). In line with the current findings, there is some limited empirical evidence for the association between self-expansion and passionate love. Previous research has demonstrated that engaging in self-expanding activities is associated with greater relationship quality, and in at least two sets of studies, passionate love was one component of relationship quality (Aron et al., 2000; Graham & Harf, 2015). In addition, in one study, couples who engaged in self-expanding activities in the lab, including couples who were assigned to a high disclosure double date style interaction with another couple (Welker et al., 2014), reported more passionate love for their partner compared with couples in a low self-expansion condition.

However, no previous research has empirically linked self-expansion to sexuality in relationships (although Aron & Aron, 1986 mentioned that sexual experiences are relevant to self-expansion theory). Drawing on theories about sexual desire maintenance in romantic relationships (e.g., Baumeister & Bratslavsky, 1999; Ferreira et al., 2012, 2014), there are several reasons why a person's self-expansion might enhance their own desire. One possibility is that self-expansion boosts sexual desire because couples are experiencing increases in intimacy during self-expanding activities, which in turn promotes desire (see Rubin & Campbell, 2012). In fact, in Study 2, including closeness during the activity in the model reduced the association between self-expansion and a partner's sexual desire to nonsignificant (and partially mediated

the association between self-expansion and one's own desire). This suggests that increased closeness during a self-expanding activity is one reason why self-expansion is associated with sexual desire. As well, in Study 3, participants in the self-expansion condition only reported higher sexual desire compared participants in the control condition (and not the familiar and comfortable condition), suggesting that increases in intimacy and closeness cannot be ruled out as alternative explanation for our findings. Future experimental work could manipulate self-expanding and familiar and comfortable activities by encouraging couples to engage in these activities without touting the benefits of the activity. In Study 3, participants were told that the type of activity in which they were asked to engage has benefits for relationships, which may have boosted relationship satisfaction in both groups.

Another possible explanation for the association between self-expansion and desire is that partners are seeing each other more autonomously (i.e., differentiated from the self) during novel activities—that is, seeing a new side of their partner or learning something about their partner of which they were not previously aware—that can ignite intrigue and desire from the early stages of the relationship (Ferreira et al., 2012, 2014; Perel, 2007). Future research would benefit from exploring potential mechanisms for these associations, including changes in intimacy and differentiation.

Importantly for our theoretical model, we were able to rule out the possibility that our effects could be attributed to positive affect or to the amount of time spent with a partner, providing support for the role of sexual desire in the benefits of self-expansion for relationships above and beyond these factors. Previous research has demonstrated that one reason self-expansion is associated with higher relationship satisfaction is because it increases positive affect; that is, the rewarding feelings from engaging in shared self-expanding activities become associated with the partner and the relationship more broadly (Slatcher, 2010; see Strong & Aron, 2006 for a theoretical discussion). In the current study, after accounting for positive affect and time spent interacting with a partner, all of the associations between self-expansion and sexual and relationship outcomes remained significant (see also Aron & Henkemeyer (1995) who ruled out the role of positive affect). This suggests that, consistent with our theoretical model, it is the features of the self-expanding activity (i.e., novelty, a broadening of one's sense of self, excitement, and challenge) that promote sexual desire and, in turn, satisfaction in the relationship, and not just spending time engaging in a positive activity with a romantic partner. In Study 3, although both engaging in self-expanding activities and familiar and comfortable activities boosted relationship satisfaction above and beyond the control group, only self-expansion activities provided a significant boost in sexual desire (as well as a marginal boost in sexual satisfaction). The findings have important implications for how couples should plan their time together—novel, exciting activities provide benefits for a couple's sex life that are not present for familiar and comfortable activities.

**Broadening our understanding of self-expansion in daily life.** The current research is one of the only sets of studies to investigate couples' self-expanding activities in the context of their daily lives and over time in their relationships (see Graham, 2008 for a 7-day daily experience study). In two ecologically valid dyadic daily experience studies, we demonstrated that on days when people reported higher levels of self-expansion than they

typically did, they felt more sexual desire for their partner, and in turn, they were more likely to engage in sex, more likely to enjoy the sexual experience, and felt more satisfied with their relationship as a whole. Previous research has demonstrated the causal association between engaging in self-expanding activities and relationship satisfaction in experimental studies in which couples were assigned to engage in experimenter-prescribed activities (e.g., Aron et al., 2000; Coulter & Malouff, 2013; Graham & Harf, 2015; Reissman et al., 1993), and the current findings extend this work to demonstrate that self-expanding activities are also associated with relationship satisfaction (and sexual desire, activity, and satisfaction) in daily life.

In Study 2, we also investigated the *types* of self-expanding activities that couples pursue in the context of their daily lives. Previous research has differed to some extent in how self-expansion has been assessed. Novelty and excitement are considered core features of self-expansion (i.e., Coulter & Malouff, 2013; Mattingly & Lewandowski, 2014; also see Aron et al., 2013 for a discussion), but in some research, self-expansion has been assessed in terms of arousal. For example, Graham (2008) operationally defined self-expansion in terms of activation, that is, how alert, involved, activated, and excited a person reported being in the moment. However, Mattingly and Lewandowski (2013) found that arousal (i.e., activation) was not a necessary component of self-expanding experiences. More specifically, they found that self-expansion, as measured by a multi-item scale designed to assess the extent to which a partner adds new experiences, knowledge, perspectives, and characteristics (Lewandowski & Aron, 2002), increased regardless of whether the lab activity involved a physically arousing activity or not (i.e., engaging in a chopstick carrying game vs. learning new and interesting facts). Thus, they concluded that although variables like arousal might play a role in self-expanding experiences, novelty, excitement, and a broadening of one's sense of self and perspective on the world are key aspects of self-expansion (Mattingly & Lewandowski, 2014; also see Aron et al., 2013 for a discussion). More recently, challenge has been examined as a key feature of self-expanding experiences. For instance, Graham and Harf (2015) found that shared challenging activities increased relationship quality but only if it fell within the couple's skill set (i.e., moderate challenge was most beneficial). The current research demonstrates that a broad range of activities are considered self-expanding in relationships, and consistent with this previous work, self-expanding activities could be physiologically arousing (i.e., playing kickball, learning how to skateboard), but low arousal activities (i.e., having an interesting conversation) were also considered self-expanding. An interesting find was that the type of activity or how arousing the activity was rated by outside coders did not have an impact on the results, suggesting that the important component is the level of self-expansion and not the specific type of activity that are associated with sexual desire, activity, and satisfaction, as well as relationship satisfaction.

**Self-expansion as a dyadic relationship process.** Another key theoretical contribution of the current research is that we included both couple members in Studies 1 and 2 and tested dyadic associations between self-expansion and relationship and sexuality outcomes. In the only other dyadic daily experience study on self-expansion of which we are aware, Graham (2008) tracked 20 long-term couples over a 7-day period, signaled them at quasi-random intervals, asked them to report on their self-expanding

experiences, and, if the experiences included their partner, to report on their relationship quality. In this snapshot of people's daily lives over a 7-day period, Graham (2008) found that people who reported higher levels of self-expansion when signaled with their partner, reported increased relationship quality in that moment. However, although both members were included in Graham's (2008) study, he did not assess how one partner's self-expansion was linked to the other partner's relationship satisfaction. Given the interdependent nature of romantic relationships and previous theoretical assertion that one partner's self-expansion may influence the other partner's growth and satisfaction (Aron & Aron, 1986), a novel question answered by the current research was whether one partner's feelings of self-expansion are associated with the other partner's satisfaction, above and beyond the partner's own self-expansion. Although partners' reports of daily self-expansion were significantly correlated (suggesting that, in general, partners tend to be similar in their experiences of self-expansion), there are times when one partner reports high self-expansion, but the other partner does not. In Studies 1 and 2, we demonstrated that a person's ratings of the extent to which they are broadening their sense of self with new perspectives and ideas not only shapes their own perceptions of relationship satisfaction, it also shapes the partner's relationship satisfaction (above and beyond the partner's own ratings of self-expansion). This suggests that involving a partner in a self-expanding activity can have benefits for the relationship, even if the activity is not highly self-expanding for the partner.

Previous research and anecdotal accounts from clinicians support the dyadic associations between self-expansion and desire and satisfaction. In her book *Mating in Captivity*, Esther Perel (2007) discusses clients' descriptions of feeling higher sexual desire for their partner when they see their partner in novel settings or engaging in activities in which the partner expands their sense of self (i.e., giving a work presentation or learning a new activity). It is possible, then, that being witness to a partner's self-expansion can promote desire and connection in the relationship. In an empirical study in which couples had double date style interactions with another couple, when these interactions were self-expanding (involved high disclosure), people felt closer to their partner (Slatcher, 2010). It is possible that people felt closer to their partner in this study because they saw their partner in a novel situation (i.e., interacting with a couple with whom they were previously unacquainted).

An interesting avenue for future research is to explore the reasons why one partner's self-expansion is associated with the other partner's sexual desire. One possibility is that seeing a partner expand their sense of self makes the partner seem less familiar and more mysterious or intriguing (indeed research has shown that overfamiliarity is a factor that tends to squash feelings of desire; Sims & Meana, 2010). For example, if a person expands their self-concept or gains a novel perspective and their partner is a witness to their self-expansion, the partner may see a new side of them or see them in a different light, which could translate to relationship and sexual benefits, regardless of how self-expanding the experience was for the partner themselves. In addition, a partner's self-expansion could indicate future opportunities for growth in the relationship (Aron & Aron, 1986). For example, if a partner gains new skills or insights that help them keep the relationship fun and spontaneous, this might be associated with higher relationship satisfaction and

desire for the other partner. Future research could also investigate perceptions of a partner's self-expansion. That is, how accurately people detect when their partner is self-expanding and the cues (e.g., partner's emotional expressions) that promote accurate detection.

### Implications, Limitations, and Future Directions

Given the benefits of self-expansion for sexuality in romantic relationships, an important future research direction is to investigate who is more likely to pursue self-expanding activities in their relationship and if some people are more likely to benefit from engaging in self-expanding activities than others. Across studies, gender only moderated one of the associations—in Study 2 the link between self-expansion and relationship satisfaction was stronger for women compared to men, although the association was significant for both men and women. Overall, this suggests that the associations between self-expansion and sexual and relational outcomes in romantic relationships are largely similar for men and women. Previous work has not demonstrated consistent gender differences in the associations between self-expansion and relationship satisfaction (see Aron et al., 2000), however, beyond Graham (2008), our studies are among the only studies to investigate daily associations with naturally occurring self-expanding activities.

An interesting find, in both Studies 1 and 2, the associations between self-expansion and sexual desire (both studies), relationship satisfaction (Study 1), and sexual satisfaction (Study 2) were strongest for people in longer compared with shorter relationships; however, the associations were significant for both people in longer and shorter relationships. These findings are consistent with past research that has demonstrated that partners in longer-term relationships felt closer to each other when they participated in a self-expanding interaction with another couple compared with couples in shorter relationships (Slatcher, 2010). It is possible that for couples in longer relationships, it is even more important that they maximize their time together by engaging in self-expanding activities and when they do self-expand together, they reap more benefits than couples in shorter relationships. Other work has shown that couples who spend less time together benefit even more from relationship-promoting activities. For example, new parent couples who had less time for intimacy in their relationship reported a stronger association between after-sex affectionate activities and sexual and relationship satisfaction compared with couples who were not parents (and overall spent more time engaging in affectionate behaviors; Muise, Giang, & Impett, 2014). Having new experiences with a long-term partner may be more important to spark some of the feelings of desire and excitement from the early stages of relationships, feelings that may be harder to recall for couples who are in a longer compared with shorter relationships. It is possible that in longer relationships in which people are likely more familiar with their partners than those in shorter relationships, novel experiences may provide even more intrigue or differentiation because many aspects of the relationship are likely predictable.

Future research would benefit from investigating the individual difference factors that are associated with self-expansion. For example, theories of social motivation have identified individual differences in people's motivation to seek out rewards and to avoid

threats in their social relationships (for a review, see Gable & Impett, 2012). Specifically, people high in approach relationships goals (i.e., goals focused on achieving positive outcomes such as intimacy and growth) tend to be attuned to positive cues and events (Derryberry & Reed, 1994; Strachman & Gable, 2006), and may be more likely to notice and pursue opportunities for self-expansion in relationships. Research with undergraduate students has shown that people high in approach goals report greater self-expansion in their current relationship (Mattingly, McIntyre, & Lewandowski, 2012), and other research has linked approach motivation to higher sexual desire, sexual satisfaction, and relationship satisfaction in daily life (Impett, Gable, & Peplau, 2005; Impett et al., 2008; Muise et al., 2013) as well as the maintenance of higher desire over time (Impett et al., 2008). Future work may explore the role of individual differences, such as approach motivation, in self-expansion—nor only whether approach motivated people person self-expanding activities more frequently in their relationship, but also if they tend to report more benefits from self-expanding with their partner. Although in the current research we followed couples over time, our studies investigated a relatively short period of time in their relationships, and all of the couples who participated were in established relationships. One direction for future research is to follow couples over several years in their relationships and to recruit couples earlier on in their relationship as they transition to a more established relationship. Previous research on sexual desire suggests that couples experience normative declines in desire over time (e.g., Klusmann, 2002), and theorizing on self-expansion suggests that self-expansion may also decline at a similar rate (Aron & Aron, 1986, 1996), but to our knowledge no previous work has mapped the trajectories of self-expansion over time in relationships with trajectories of sexual desire and satisfaction. It is possible that declines in sexual desire over time can be attributed to declines in self-expansion. Future longitudinal research would allow tests of whether declines in sexual desire and satisfaction can be, at least partially, attributed to declines in self-expansion. An interesting find in Studies 1 and 2, self-expansion during the diary studies promoted relationship satisfaction over time, but associations with sexual desire and sexual satisfaction were not sustained over time. It is possible that the consequences of self-expanding activities for sexual outcomes are relatively short-lived, meaning that couples have to continue to engage in novel activities on a regular basis to continue to reap sexual benefits. Also, research has shown that sexual satisfaction tends to be more stable than relationship satisfaction (Fallis, Rehman, Woody, & Purdon, 2016), making it more challenging to demonstrate effects over time. Future work may investigate ways to sustain the benefits of self-expanding activities for sexuality over time, such as savoring novel activities in the relationship.

Finally, the current work has important implications for couples' relationships. Low sexual desire and a lack of sexual connection between romantic partners are common issues in relationships—sexual disconnection is one of the most common reasons why couples seek marital therapy (Rosen, 2000) and sexual issues are among the most difficult types of conflict to successfully resolve (Sanford, 2003). The current research indicates that self-expansion in relationships has the potential to enhance sexual desire and satisfaction. The importance of self-expansion for promoting sexual connection in relationships is underscored by the current find-



ings that self-expansion is associated with a greater likelihood of having sex (Studies 1 and 2, and marginally in Study 3). Not only are self-expanding activities associated with higher desire for both partners (this association was significant in Study 2 and marginally significant in Study 1), in turn, couples were between 25 and 34% more likely to engage in sex on days when self-expansion was high. Future research should explore how couples can enhance self-expansion to the ultimate benefit of their sex lives and relationships.

## Conclusions

Maintaining the desire and excitement that are typical of the early stages of romantic relationships can be challenging for many couples. The current findings demonstrate that engaging in self-expanding activities with a romantic partner is key for couples to spark their sexual desire, and ultimately their sexual and relationship satisfaction. The findings advance theory in the study of close relationships and sexual desire maintenance by demonstrating that self-expanding activities with a partner can enhance satisfaction and reignite the passion from the early stages of the relationship.

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