

Sexual Closeness Discrepancies: What They Are and Why They Matter for Sexual Well-Being in Romantic Relationships

David M. Frost¹ · Sara I. McClelland² · Miranda Dettmann³

Received: 1 December 2015 / Revised: 8 February 2017 / Accepted: 11 February 2017
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Abstract This study examined the impact of sexual closeness on sexual well-being. We developed a nuanced and multifaceted conceptualization of sexual closeness in the form of a constellation of ideal sexual closeness with a partner, actual sexual closeness, and the discrepancy between the two. Data were obtained from a diverse sample of $N = 619$ participants who took part in the Lives and Relationships Study: A longitudinal survey of men and women in relationships living in the U.S. and Canada. Increases in sexual closeness discrepancies over a period of 1 year predicted concomitant decreases in two indicators of sexual well-being: sexual satisfaction and orgasm frequency evaluations. Decreases in sexual closeness discrepancies resulted in improvement in sexual well-being. Individuals who reported no sexual closeness discrepancies and experienced no changes in sexual closeness discrepancies tended to have the highest levels of sexual well-being. Importantly, sexual closeness discrepancies were robust predictors of sexual well-being, above and beyond individuals' actual sexual closeness, general relationship closeness, and other demographic and relationship characteristics known to be associated with sexual well-being. The present findings demonstrate that how close people feel sexually to their relationship partners is part of a general constellation of factors related to relationship closeness that, only when considered together, sufficiently explain the ways in which

experiences of closeness impact sexual well-being in romantic relationships.

Keywords Sexual satisfaction · Orgasm · Closeness discrepancies · Self-expansion theory

Introduction

There has been growing interest in better understanding the role that sexual well-being plays in romantic relationships (Byers, 2005; Fisher et al., 2015; Sanchez, Moss-Racusin, Phelan, & Crocker, 2011). One potentially influential factor is the amount of sexual closeness experienced with a romantic partner. Sexual closeness can be conceived of as the degree to which people imagine the interconnectedness between themselves and their sexual partners. This is distinct from constructs such as emotional intimacy or sexual frequency; sexual closeness is a combination of affective, physical, and cognitive elements that are relevant to how sexually interconnected an individual feels to a partner.

The goal of the current study was to investigate how the discrepancy between ideal and actual sexual closeness influenced two indices of sexual well-being: sexual satisfaction and orgasm frequency evaluation. We adopt a broad notion of sexual well-being in this paper that is inclusive of satisfaction dimensions as well as subjective evaluations of orgasm, and importantly considers the relational contexts in which sexuality occurs (Impett, Muise, & Peragine, 2014). Researchers have regularly found that orgasm and orgasm frequency play an important role in individuals' sexual lives (Fisher et al., 2015; Frederick, Lever, Gillespie, & Garcia, 2017) and have also consistently found a reciprocal relationship between sexual and relationship satisfaction (Henderson-King & Veroff, 1994; Schoenfeld, Loving, Pope, Huston, & Štulhofer, 2017). In the current study, we focus

✉ David M. Frost
d.frost@surrey.ac.uk

¹ Department of Psychological Sciences, School of Psychology, University of Surrey, Guildford, Surrey GU2 7XH, UK

² Departments of Women's Studies and Psychology, University of Michigan, Ann Arbor, MI, USA

³ Department of Sociomedical Sciences, Mailman School of Public Health, Columbia University, New York, NY, USA

on the degree to which an individual feels they have their ideal level of sexual closeness with a sexual partner and the effect of this on their sexual well-being. This additional perspective on relationships contributes insights gained from sexuality research that are often considered separately from relationship research and imagines a bridge between these related bodies of work.

Relational Closeness

The need to connect with and feel understood by others is often conceptualized as a basic human need that is echoed in many theories of human motivation and development (Bowlby, 1979; McAdams, 1989; for review, see Reis & Patrick, 1996). This dimension of human connectedness has been extended to also include relational closeness to romantic partners (Hazan & Shaver, 1987; Reis & Patrick, 1996; van Anders, 2015). Closeness in romantic relationships has been defined and measured several ways, including the degree of interconnectedness between two partners (Agnew, Loving, Le, & Goodfriend, 2004; Aron, Mashek, & Aron, 2004a; Kelley et al., 1983) and the strength of one partner's influence over another (Berscheid, Snyder, & Omoto, 1989). Looking more closely at the meanings of relational closeness, Ben-Ari and Lavee (2007) found that closeness with a partner was perceived as a “total, complete, indivisible experience that captures both physical and emotional aspects of the relationship” (p. 637). Across several studies, feeling close to a romantic partner has been associated with positive relational outcomes such as higher ratings of intimacy, commitment, and relationship satisfaction (Brunell, Pilkington, & Webster, 2007; Hassebrauck & Fehr, 2002).

Closeness as including the other in self

Aron and Aron (1986) argued that these previous definitions of closeness omitted affective and cognitive elements of closeness. As a result, they developed self-expansion theory and the construct of inclusion of other in self (IOS) as a measure to combine the aspects of interconnectedness with affective elements to more accurately account for levels of relational closeness. Aron and colleagues (Aron & Aron, 1986; Aron, Aron, & Smollan, 1992; Aron, Aron, Tudor, & Nelson, 1991; Aron & Fraley, 1999; Aron et al., 2004b) have suggested that interpersonal closeness can be understood as overlapping selves, which is illustrated in the development of the graphic used to measure relational closeness, the IOS scale (Aron et al., 1991, 1992). Closeness in romantic relationships in this model can be represented by the degree to which people include aspects of their partner within their own self-concepts (Agnew et al., 2004; Aron et al., 1991, 1992). Including qualities of one's partner in one's self-concept (e.g., their identities, resources, experiences) is thought to produce beneficial outcomes at both the relational and individual levels (Aron, Norman, & Aron, 2001).

In addition to theorizing the importance of relational closeness, others have theorized the role of “dyadic distance” as important. Ben-Ari (2012), for example, argued that some degree of autonomy is important for relational health, relational maintenance process, and should not be confused with merely relational disturbance, a cause or a sign of relationship distress and a reflection of separation. Rather, dyadic distance may be thought of as a maintenance process, aimed at achieving balance between closeness and distance (Ben-Ari, 2012). In a similar vein, self-determination theory (SDT) posits that autonomy, competence, and relatedness all work together to balance the need for human connection and relational distance (Deci & Ryan, 2014; Knee, Hadden, Porter, & Rodriguez, 2013; Ryan & Deci, 2000). Across several studies and using a variety of theoretical perspectives, feeling “too close” to one's partner and the corresponding perceived loss of self have been shown to have a detrimental effect on relational well-being and mental health (Aron et al., 2004a; Frost & Forrester, 2013; Mashek & Sherman, 2004; Patrick, Knee, Canevello, & Lonsbary, 2007).

Closeness Discrepancies in Relational Context

In addition to considering the delicate balance between closeness and distance in relationships, another dimension to be considered is the discrepancy between the level of closeness that one desires (i.e., ideal closeness) and the level of closeness that they are currently experiencing with a partner (i.e., actual closeness). Research has pointed to the high prevalence of differences between actual and ideal closeness in dating and committed relationships—as measured in the form of a discrepancy between actual and ideal ratings of IOS (see Aron et al., 2004a; Mashek & Sherman, 2004). While the majority of individuals with closeness discrepancies report experiencing negative closeness discrepancies (i.e., less than their ideal level of closeness in a relationship), a meaningful minority report experiencing positive closeness discrepancies (i.e., too much closeness; Frost & Eliason, 2014; Mashek, Le, Israel, & Aron, 2011; Mashek & Sherman, 2004).

The effect of closeness discrepancies on the quality of relationships and individuals' mental health has been the subject of recent research (Frost & Forrester, 2013; Kashdan, Volkman, Breen, & Han, 2007). A longitudinal study of the general adult population (Frost & Forrester, 2013) highlighted how higher levels of closeness is not always beneficial for relationships. In fact, experiencing a closeness discrepancy was a more robust predictor of relational well-being and mental health than actual closeness in and of itself. This remained true, regardless of the type of closeness discrepancies individuals experienced. Over a 2-year period, the exacerbation of closeness discrepancies was associated with concomitant decreases in relational well-being and mental health, while abatement of closeness discrepancies was linked to improvement in relational well-being and mental health.

Theoretical grounding for the closeness discrepancy effect has been drawn from self-discrepancy theory (Higgins, 1987). Specifically, discrepancy between *actual* and *ideal* aspects of the self—regardless of relational context—can have a negative effect on well-being, including “dejection-related emotions” such as disappointment and dissatisfaction (Higgins, 1987). When idealized standards for partners do not match perceived partner characteristics, individuals may become dissatisfied with their relationships (Fletcher, Simpson, & Thomas 2000; Frost & Forrester, 2013).

Extending Closeness Discrepancy Theory to the Sexual Domain

In the current study, we extend this previous research on the important role of closeness in relationships to the sexual domain and theorize the construct of *sexual closeness*. We define sexual closeness as the degree to which a person imagines the interconnectedness between themselves and their sexual partner. While there has been little work to date on sexual closeness specifically, there have been studies about the role of sexual intimacy, and several of these previous studies have included references to the larger construct of sexual closeness. For example, research has found that feelings of sexual closeness are an important contributor to couple satisfaction (Mirgain & Cordova, 2007; Patrick et al., 2007). Feelings of sexual closeness and intimacy have been found to contribute positively to relationship quality (Birbaum, 2010; Davis, Shaver, & Vernon, 2004; Schachner & Shaver, 2004). In a study that asked participants to rate concepts they saw as central to sexual intimacy, most associated sexual intimacy with feeling passionate, attraction, consensual, sexual contact, and closeness. It was argued these findings demonstrated that, “...sexual intimacy is more than just passion; in addition to sexual desire, attraction, and arousal...attributes such as closeness, having a connection, and togetherness... were also highly central” (Birnie-Porter & Lydon, 2013, p. 13).

Sanchez et al. (2011) examined the relationship between sexual autonomy and sexual satisfaction in a sample of 462 women in heterosexual and lesbian relationships. Using items such as, “In my sexual relationship with my partner, I feel free to be who I am” (Relationship Autonomy Scale; Kiefer & Sanchez, 2007; LaGuardia, Ryan, Couchman, & Deci, 2000), they found that sexual autonomy and sexual satisfaction were strongly associated, indicating a link between how an individual perceives the balance between autonomy and closeness in their sexual relationship, and that this balance plays a role in determining sexual satisfaction.

Similar to relational closeness, the balance of closeness and distance in sexual relationships has also been found to be important and influential. Some have argued that perceptions of “otherness” may be important to sexual relationships (Ferreira et al., 2014). This sense of otherness lends itself to creating an “optimal

balance” between fusion and autonomy in long-term relationships. Perel (2007), in particular, has noted the clinical relevance of distinguishing closeness from merging in romantic relationships: “many couples confuse love with merging. Eroticism thrives in the space between the self and the other” (p. xv; see also Schnarch, 1991). These findings in the sexual domain help to extend previous research in the relational domain from Mashek and Sherman (2004) and Frost and Forrester (2013). Both used an adapted form of the IOS to investigate the role of relational closeness and found that optimal relational well-being and mental health was found among people who were able to achieve a balance between their actual and ideal levels of closeness. Questions remain whether this same dynamic exists in the sexual domain, such as: Do individuals experience feelings of too much and too little sexual closeness and do these feelings impact sexual well-being outcomes?

A body of relevant research on discrepancies in romantic relationships has included studies concerning sexual desire discrepancies (Bridges & Horne, 2007; Mark, 2012; Willoughby & Vitas, 2012). While there have been several studies that assess couple-level discrepancies between desired and actual sexual activity (Bridges & Horne, 2007; Davies, Katz, & Jackson, 1999), there are fewer studies that examine desire discrepancies within individuals, focusing on how individual-level discrepancies affect relational outcomes (Willoughby & Vitas, 2012). In this research, sexual desire discrepancy has been defined as the difference between one’s desired sexual frequency and the actual sexual frequency experienced with a given partner. Individual-level discrepancies have been shown to be negatively related to relationship satisfaction and other measures of relational well-being (Santtila et al., 2007; Willoughby & Vitas, 2012). This previous research highlights how individuals’ imagined ideals play a powerful role in romantic relationships and has remained less explored with regard to implications for sexual well-being.

The Current Study

In the current study, we sought to extend previous research on the role of closeness and closeness discrepancies in determining relational well-being (e.g., Frost & Forrester, 2013; Mashek & Sherman, 2004) into the sexual domain. In doing so, we integrated closeness discrepancy theory and the IOS construct in order to examine the role that sexual closeness played in determining key indicators of sexual well-being in romantic relationships. We hypothesized that discrepancies between individuals’ actual experiences of sexual closeness and their ideal sexual closeness (i.e., sexual closeness discrepancies) would be robust predictors of sexual well-being. Specifically, we hypothesized that larger sexual closeness discrepancies would be associated with lower levels of sexual satisfaction and less positive subjective evaluations of orgasm frequency. Similarly, we hypothesized that increases in sexual closeness discrep-

ancies over the period of 1 year would be associated with decreases in sexual satisfaction and more negative orgasm frequency evaluations. Conversely, we hypothesized that decreases in sexual closeness discrepancies over the period of 1 year would be associated with increases in sexual satisfaction and more positive orgasm frequency evaluations. Finally, we hypothesized that sexual closeness discrepancies would remain robust predictors of these outcomes (in both cross-sectional and longitudinal analyses), above and beyond the influence of actual sexual closeness, actual general relationship closeness, and general closeness discrepancies.

Method

Participants

To test these hypotheses, we analyzed data from the Lives and Relationships Study that assessed predictors of relational well-being and health through an Internet-based longitudinal survey (Frost & Forrester, 2013). The sample was comprised of individuals living in the U.S. and Canada. Data were collected in four waves conducted approximately 1 year apart ($M = 370$ days, $SD = 13$) intervals. Data for the present study were collected during the final two waves—waves three and four—and are hereafter referred to as Time 1 and Time 2 to simplify the presentation of findings.

The sample analyzed for the current study consisted of $N = 619$ participants who were in relationships at Time 1 and their follow-up data from Time 2. The sample was diverse in terms of age ($M = 36.78$ years, $SD = 10$), race/ethnicity (22% non-Caucasian ethnic/racial minority), sexual orientation (18% non-heterosexual), and educational attainment (60% having a 4-year college degree or greater). The sample was primarily female (78% female). Participants reported involvement in a diversity of relationships in terms of relationship length ($M = 10.42$ years, $SD = 9.11$), marital status (61% married or domestic partners), and cohabitation (79% lived with their partners). Participants reported being in heterosexual relationships (88.7%) and same-sex relationships (11.3%). There were no significant demographic trends in attrition from one wave to the next, with the exception of sexual orientation in that lesbian, gay, and bisexual individuals were less likely to be lost to follow-up than heterosexuals, $\chi^2(2) = 16.08, p < .001$. Missing data were handled by pairwise deletion of cases and the effective sample sizes are noted for each analysis.

Procedure

Three recruitment strategies were used to initially recruit participants into the study including; active strategies (i.e., emails and listserv postings that reached participants directly through their personal email accounts); passive strategies (i.e., posting an

announcement on discussion forums or classified websites); and snowball strategies (i.e., participants were provided with a link to the study that they were encouraged to share with their friends, family, and co-workers). To avoid bias, recruitment announcements were not posted on listservs or discussion forums that specifically focused on dating, relationships, sex, or relationship problems. Participants' data were linked from wave to wave by their email addresses and a unique password that they provided during the first wave of data collection. For the following three waves, participants received an email directly from the first author alerting them to the beginning of a new study wave, which also included a link to the survey website and reminder of their username and password. Incentive for participation provided at each wave was the opportunity to enter a lottery drawing for one of 20 \$100 dollar (US) gift cards to a popular online retailer. Ethical approval for was obtained from the Institutional Review Boards at the institutions where research activities took place over the course of the four waves of the study (i.e., City University of New York, San Francisco State University, and Columbia University Medical Center).

Measures

Inclusion of Other in Self (IOS)

The IOS scale was developed by Aron et al. (1992) to measure a participant's experience of relational closeness with a partner. The scale is pictorial, depicting six sets of two circles: one circle represents the participant's *self* and the other circle represents the participant's *partner*. Each set of circles is shown with varying degrees of overlap, ranging from completely separate to almost completely overlapping. The IOS validity and reliability have been empirically established (Aron et al., 1992), with particularly robust correlations with other multi-item scales measuring closeness within relationships, such as the Subjective Closeness Index and the Relationship Closeness Inventory.

To assess general relational IOS, a two-item approach where one version of the scale assessed participants' actual (i.e., "current") levels of IOS and a second version assessed participants' ideal (i.e., "ideal") levels of IOS (Aron, Melinat, Aron, Vallone, & Bator, 1997; Mashek & Sherman, 2004). General relationship closeness discrepancies were determined by subtracting a participant's ideal IOS score from his/her actual IOS score. Negative closeness discrepancy scores indicated feeling "not close enough" to one's partner, while positive numbers indicated feeling "too close" to one's partner, and scores of 0 indicated no general relationship closeness discrepancy between actual and ideal experiences of IOS.

Sexual Inclusion of Other in Self (sexual IOS)

The IOS scale was also modified to assess participants' feelings of sexual closeness to their partners. Similar to the presentation of the

original IOS scale, the sexual IOS measures were pictorially depicted in six sets of two circles in which one circle represented the participant's "self" and the other represented the participant's "partner." The same two-item approach was repeated, this time asking participants to "select the set of circles that best represents your [current/ideal] sexual relationship with your relationship partner." Sexual closeness discrepancy scores were calculated for the sexual IOS, with a negative sexual closeness discrepancy score indicating feelings of being sexually "not close enough" to one's partner, while positive sexual closeness discrepancy scores indicated feelings of being sexually "too close" to one's partner, and scores of 0 indicated no discrepancy. Figure 1 depicts the calculation of sexual IOS discrepancies, including the illustration of example positive and negative sexual IOS discrepancies.

Sexual Satisfaction

Sexual satisfaction was measured with a subscale of the modified Extended Satisfaction with Life Scale (ESWLS) developed by Alfonso, Allison, Rader, and Gorman (1996). The ESWLS was developed as an efficient single instrument to evaluate multiple domains of life satisfaction including general life, social life, relationship, self, physical appearance, family life, school life, and job. The sexual satisfaction subscale is a five-item assessment that includes the following items: "In most ways my sex life is close to my ideal," "The conditions of my sex life are excellent," "I am satisfied with my sex life," "So far I have gotten the important things I want from my sex life," and "I am generally pleased with the quality of my sex life" with a seven-point Likert scale response rating ranging from *strongly disagree* to *strongly agree*. Respondents in the current study were prompted to record their evaluations pertaining to the previous year interval because the survey was completed on an annual basis. Scores on the sexual satisfaction measure in the current study demonstrated internal consistency with a Cronbach's alpha of .97 at both Time 1 and Time 2.

Orgasm Frequency Evaluation

While orgasm frequency has been found to be correlated with sexual satisfaction (Edwards & Booth, 1994; Haavio-Mannila & Kontula, 1997; Sprecher & McKinney, 1993; Waite & Joyner, 2001), research has shown that these are interdependent but not identical (McClelland, 2014, Philippsohn & Hartmann, 2009). Rather than assuming that all individuals regard orgasm frequency with equal importance, we measured individuals' evaluation of the frequency of their orgasms separately from their reported orgasm frequency. This information offers insight into how individuals evaluate their sexual experiences and moves further toward measures that enable greater subjective evaluation of sexual experiences. This was measured in a two-staged approach. Participants were first asked: "How often do you

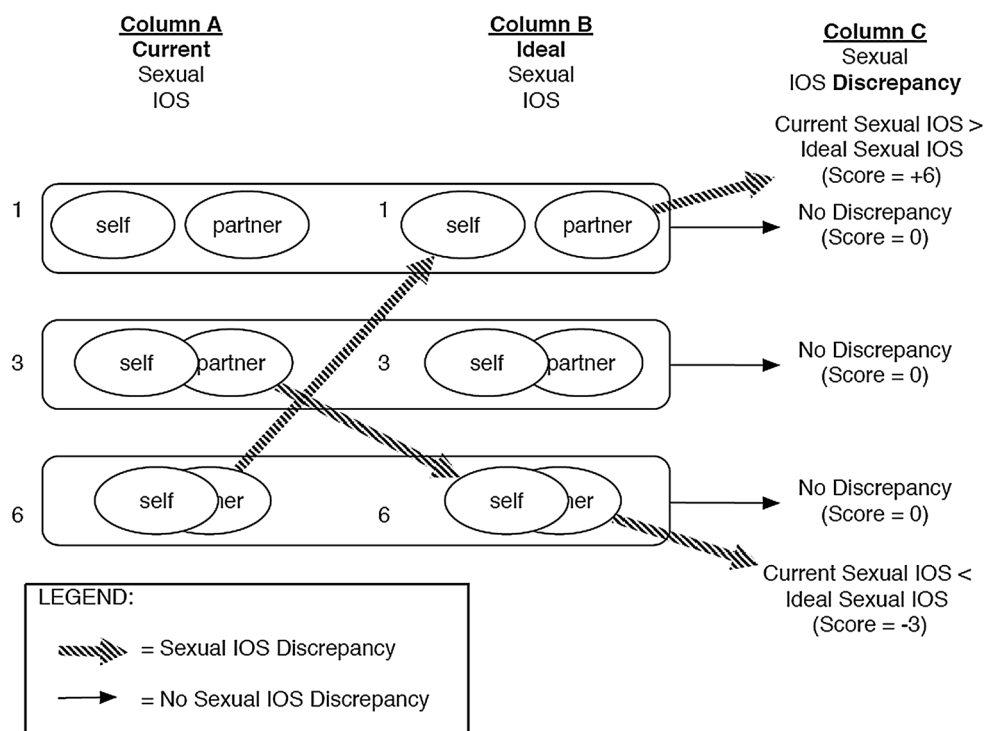
experience orgasm alone or with a partner?" and indicated their frequency of orgasm on a four-point response item options of "Every day/several times a day," "A few times a week," "A few times a month," "Less than once a month," and "Never." Following this frequency reporting, participants were presented the prompt: "The frequency of orgasm is..." and given response options to subjectively evaluate the frequency at which they experienced orgasm as reported in the first step. The response options were: "Less often than you would like," "About as often as you would like," and "More often than you would like." This assessment strategy was developed to bolster the subjectivity of orgasm frequency evaluations. Responses were coded such that scores of 0 indicated participants were experiencing orgasm as often as they would like, thus demonstrating a positive orgasm frequency evaluation, while deviations from zero indicated more negative orgasm frequency evaluations.

Results

Preliminary and Descriptive Analyses

Means, standard deviations, and bivariate Pearson correlations are presented in Table 1 for sexual IOS-derived variables and sexual well-being outcomes across the two time points in the study. As indicated by the mean levels of actual and ideal sexual IOS, participants' actual experiences of sexual closeness were on average less than their ideal levels of sexual closeness, resulting in negative mean sexual closeness discrepancies at each time point. Types of actual-ideal IOS discrepancies at initial participation were not evenly distributed in the sample: 63.7% of the sample reported negative sexual closeness discrepancies (i.e., actual sexual IOS < ideal sexual IOS); 33.3% reported no sexual closeness discrepancies (i.e., actual IOS = ideal IOS); and 2.6% reported positive sexual closeness discrepancies (i.e., actual sexual IOS > ideal sexual IOS). As a result of this uneven distribution—as well as previous research indicating no difference between positive and negative general relationship closeness discrepancies on well-being outcomes (Frost & Forrester, 2013)—absolute values for all closeness discrepancy scores were created and used in subsequent analyses. Thus, all sexual IOS discrepancy scores reflect the number of units of distance between actual and ideal ratings of sexual IOS.

Prior to examining the associations between sexual IOS discrepancies and sexual well-being outcomes, we examined whether differences existed in sexual IOS discrepancies across demographic factors in the sample. There were no significant differences between women and men in their reported levels of actual sexual IOS ($t[612] = -.59, p = .55$), ideal sexual IOS ($t[612] = .19, p = .85$), or sexual IOS discrepancies ($t[612] = .92, p = .36$). There were also no differences between heterosexual and lesbian, gay, or bisexual individuals in their reported levels of actual sexual IOS ($t[596] = .74, p = .46$), ideal sexual IOS ($t[596] =$

Fig. 1 Illustration of sexual inclusion of other in self (IOS) discrepancy calculation**Table 1** Descriptive statistics and correlations between sexual IOS and sexual well-being outcomes ($N = 619$)

	Bivariate correlations						<i>M</i>	<i>SD</i>
	Actual sexual IOS		Ideal sexual IOS		Sexual IOS discrepancy			
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2		
Actual IOS								
Time 1	0.56***	0.35***	0.26***	0.19***	-0.43***	-0.26***	4.40	1.26
Time 2	0.34***	0.46***	0.17***	0.24***	-0.25***	-0.37***	4.43	1.28
Ideal IOS								
Time 1	0.17***	0.10***	0.58***	0.33***	0.04	0.04	5.21	0.90
Time 2	0.10	0.20***	0.24***	0.48***	0.02	-0.01	5.27	0.83
IOS discrepancy								
Time 1	-0.15***	-0.06	0.03	0.04	0.20***	0.10*	1.23	3.55
Time 2	-0.31***	-0.40***	-0.01	0.01	0.30***	0.45***	0.98	1.09
Sexual satisfaction								
Time 1	0.76***	0.54***	0.12**	0.11	-0.75***	-0.53***	4.21	1.92
Time 2	0.54***	0.74***	0.13**	0.16***	-0.49***	-0.72***	4.26	1.91
Orgasm frequency evaluations								
Time 1	0.32***	0.25***	-0.09	-0.04	-0.43***	-0.31***	-0.39	0.53
Time 2	0.27***	0.38***	0.01	-0.05	-0.27***	-0.39***	-0.38	0.54
<i>M</i>	3.84	3.80	5.31	5.27	1.58	1.57		
<i>SD</i>	1.61	1.58	1.06	0.99	1.53	1.46		

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

-.08, $p = .94$), or sexual IOS discrepancies ($t[596] = -1.45, p = .15$). Even further, no differences were found based on marital status in actual sexual IOS ($t[609] = .66, p = .51$), ideal sexual IOS ($t[609] = .78, p = .44$), or sexual IOS discrepancies ($t[609] =$

-.57, $p = .57$). Actual experiences of sexual IOS were not associated with relationship length ($r[615] = -.02, p = .66$), although a small but statistically significant association was observed between ideal sexual IOS and relationship length ($r[615] = -.09,$

$p = .02$). The size of sexual IOS discrepancies was not associated with the length of participants' relationships ($r[619] = -.02, p = .64$).

Bivariate correlations (Table 1) demonstrated robust and statistically significant associations between actual sexual IOS and all study outcomes, such that greater sexual closeness was associated with higher levels of sexual satisfaction and more positive orgasm frequency evaluations. Associations between ideal sexual IOS and sexual well-being outcomes—although statistically significant at times due to the large sample size—were not robust in any instance given their corresponding effect sizes were uniformly small (i.e., Pearson $r_s < .20$; Cohen, 1992). Sexual closeness discrepancies demonstrated robust and statistically significant bivariate associations with sexual well-being outcomes, such that the greater the discrepancy between participants' actual and ideal sexual IOS, the lower their sexual satisfaction and orgasm frequency evaluation tended to be. Also of note is that participants' scores on the newly developed sexual IOS items were correlated with their corresponding scores on the general IOS items. However, it should be noted that the magnitude of these correlations was in the medium size range indicate that IOS and sexual IOS constructs are related, but statistically distinguishable from one another.

Cross-Sectional Hypothesis Tests

We computed a series of multivariate linear regression models in order to examine the extent to which sexual closeness discrepancies were associated with the sexual well-being outcomes of sexual satisfaction and orgasm frequency evaluations. In addition to including the absolute value of participants' sexual closeness discrepancies, we also included actual sexual IOS, actual general relationship IOS, and general relationship closeness discrepancies as control variables. This allowed for the test of the hypothesis that sexual closeness discrepancies would be associated with sexual well-being above and beyond the influence of actual sexual

IOS and actual general relationship IOS. Gender, sexual orientation, marital status, and relationship length were also included in the models to account for differences in the sexual well-being outcomes based on these demographic factors. Additionally, we examined interactions between gender and sexual orientation and sexual IOS discrepancies to test whether the hypothesized associations between sexual IOS discrepancies and sexual well-being differed between men and women and/or between heterosexual and lesbian, gay, and bisexual individuals. Ideal IOS scores were not included in any models because the sexual closeness discrepancy score is a result of subtracting ideal sexual IOS from actual sexual IOS scores, and thus including sexual actual IOS sexual ideal IOS, and sexual closeness discrepancy scores in the same equation creates a linear dependency rendering the models unable to be estimated.

Table 2 presents the results of the tests of our cross-sectional hypotheses. Individuals with no sexual closeness discrepancy demonstrated the highest levels of sexual satisfaction. Increases in the size of sexual closeness discrepancies were associated with concomitant decreases in sexual satisfaction. The association between sexual closeness discrepancies persisted above and beyond actual sexual IOS, and general relationship closeness discrepancies, all of which were also significant, though smaller in magnitude than the association between sexual closeness discrepancies and sexual satisfaction. Tests of interactions indicated that the association between sexual IOS discrepancies and sexual satisfaction did not differ depending on gender ($b = -.08, \beta = -.07, 95\% \text{ CI } -.24, .07, p = .30$) or sexual orientation ($b = .04, \beta = .02, 95\% \text{ CI } -.12, .21, p = .61$).

A similar pattern was observed regarding orgasm frequency evaluations. Individuals with no sexual closeness discrepancy demonstrated more positive evaluations of their frequency of orgasm. Increases in the size of sexual closeness discrepancies were associated with concomitant decreases in (i.e., more negative) orgasm frequency evaluation. Actual sexual IOS,

Table 2 Associations between sexual closeness discrepancies and sexual well-being outcomes in romantic relationships

	Sexual well-being outcomes							
	Sexual satisfaction ($n = 540$)				Orgasm frequency evaluation ($n = 572$)			
	<i>B</i>	95% CI	β	<i>p</i>	<i>B</i>	95% CI	β	<i>p</i>
Intercept	3.07	2.439, 3.696		.01	0.14	-.118, .406		.28
Relationship length	-0.01	-.023, .003	-0.05	.13	0.00	-.006, .004	-0.02	.69
Married	-0.15	-.385, .095	-0.04	.24	0.01	-.092, .107	0.01	.89
Female	0.13	-.108, .37	0.03	.28	-0.14	-.241, -.044	-0.11	.01
Lesbian, gay, or bisexual	-0.02	-.279, .243	0.00	.90	0.05	-.063, .154	0.03	.41
Actual IOS	0.16	.06, .25	0.11	.01	-0.03	-.064, .015	-0.06	.22
Actual sexual IOS	0.42	.312, .523	0.37	.01	-0.01	-.053, .036	-0.03	.71
General closeness discrepancy	-0.03	-.073, .01	-0.04	.13	0.00	-.015, .02	0.01	.76
Sexual closeness discrepancy	-0.47	-.577, -.369	-0.39	.01	-0.17	-.209, -.122	-0.48	.01
<i>F</i>		117.83				17.34		
<i>R</i> ²		0.64				0.20		

actual IOS, and general relationship closeness discrepancies were not associated with orgasm frequency evaluations. Tests of interactions indicated that the association between sexual IOS discrepancies and evaluations of orgasm frequency did not differ depending on gender ($b = .03, \beta = .08, 95\% \text{ CI } -.04, .09, p = .39$) or sexual orientation ($b = .01, \beta = .02, 95\% \text{ CI } -.06, .08, p = .73$).

Longitudinal Hypothesis Tests

Following Frost and Forrester's (2013) approach to studying changes over time in general relationship closeness discrepancies, change scores were computed reflecting the change in participants' sexual closeness discrepancies between Time 1 and 2. Participants were classified into three groups for comparison based on whether the absolute value of their sexual closeness discrepancies (1) diminished over time, (2) increased over time, or (3) remained the same over time. This between-subjects factor was examined within repeated measures mixed general linear models, which examined whether changes in the sexual well-being outcomes over time were dependent on the type of change in participants' sexual closeness discrepancies. Average levels of actual sexual IOS and actual general relationship IOS across the two time points were included as covariates given covariates in repeated measured mixed general linear models are required to be time invariant. These models were also controlled for gender, marital status, and length of relationship. Only participants who participated in both waves and reported being with the same relationship partner at each wave were included in longitudinal analyses.

Consistent patterns emerged across both outcomes in longitudinal models, which are reported in Table 3. Figure 2 presents the interactions between time and change in sexual closeness discrepancies in predicting sexual satisfaction and orgasm frequency evaluations. The attenuation of sexual closeness discrepancies over the period of 1 year was accompanied by significant increases in sexual satisfaction and positivity of orgasm frequency evaluations. The exacerbation of sexual closeness discrepancies were accompanied by significant decreases in

sexual satisfaction and more negative orgasm frequency evaluations. Finally, those individuals who experienced no change in their sexual closeness discrepancies over the period of 1 year experienced no meaningful changes in their sexual satisfaction or orgasm frequency evaluations.

Discussion

We hypothesized that discrepancies between individuals' actual experience of sexual closeness and their ideal levels of sexual closeness (i.e., sexual closeness discrepancies) would be robust predictors of sexual well-being. The present findings support this hypothesis. First, we found that higher levels of sexual closeness discrepancies were associated with lower levels of sexual satisfaction and orgasm frequency evaluations—above and beyond the contribution of actual sexual closeness and general relationship closeness. Second, we found that increases in sexual closeness discrepancies over the period of 1 year predicted decreases in sexual satisfaction and more negative orgasm frequency evaluations. Third, decreases in sexual closeness discrepancies demonstrated the reverse pattern: improvement in sexual well-being outcomes. Individuals who reported no sexual closeness discrepancies and experienced no changes in sexual closeness discrepancies tended to have the highest levels of sexual well-being. This is likely indicative of the possibility that such individuals had achieved their desired levels of sexual closeness and managed to maintain their desired levels of sexual closeness over the course of the study. Importantly, the observed associations between sexual closeness discrepancies and sexual well-being did not differ by gender or sexual orientation, indicating the applicability of the present findings to a diverse array of individuals and relationship types.

These findings indicate that the balance between sexual closeness and distance—in the context of an internally set ideal—is an important factor in individuals' experiences of sexual well-being. When one's experience of sexual closeness with a partner is not aligned with one's own idealized level of sexual closeness (i.e.,

Table 3 Change in sexual well-being outcomes over time as a function of type of change in sexual closeness discrepancies

Within-subject effects	<i>F</i>	<i>df</i>	η_p^2	<i>F</i>	<i>df</i>	η_p^2
Time	13.64***	1	0.03	1.12	1	0.00
Time X change in sexual closeness discrepancy	49.09***	2	0.17	13.18***	2	0.05
Time X actual IOS	2.99	1	0.01	0.80	1	0.00
Time X actual sex IOS	3.47	1	0.01	0.00	1	0.00
Time X female	0.24	1	0.00	1.90	1	0.00
Time X lesbian, gay, or bisexual	2.34	1	0.01	0.03	1	0.00
Time X married	0.00	1	0.00	0.03	1	0.00
Time X relationship length	0.18	1	0.00	0.45	1	0.00

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

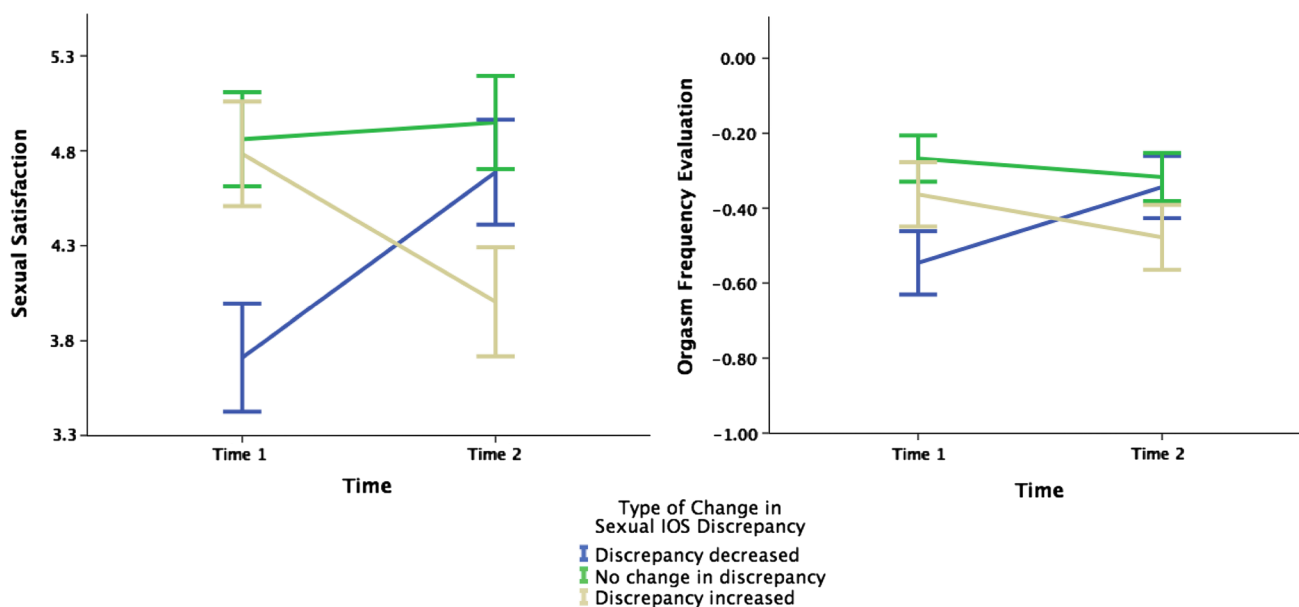


Fig. 2 Change in sexual well-being outcomes as a function of change in sexual closeness discrepancies over a period of 1 year. *Note:* Orgasm frequency evaluation scores of 0 indicate subjective evaluations of

orgasm frequency as ideal, whereas scores less than 0 indicate frequency of orgasm is less frequent than ideal

they experience a sexual closeness discrepancy), they are likely to experience costs to their sexual well-being. Such costs may occur as a result of getting less sexual closeness than someone desires with a partner. Sexual well-being costs may also occur when someone is experiencing too much sexual closeness (i.e., more than ideal) with a partner, suggesting a problematic level of sexual dependency, a threat to one's sexual autonomy, and/or a need for "dyadic distance" (e.g., Ben-Ari, 2012; Sanchez et al., 2011).

It should be noted that sexual closeness discrepancies were associated with sexual well-being outcomes, *above and beyond* actual sexual closeness, actual general relationship closeness, and general relationship closeness discrepancies. This finding has important implications for existing research on the connections between sexual well-being and general experiences of intimacy and closeness in relationships (Rosen & Bachmann, 2008). For example, researchers have sought to identify factors that influence sexual satisfaction. Feeling generally close to a partner has often been found to be associated with sexual satisfaction (Birnie-Porter & Lydon, 2013; Pascoal, Narciso, & Pereira, 2012). In their sample of male and female adults, Birnie-Porter and Lydon (2013) found that sexual intimacy predicted variance in sexual satisfaction *above and beyond* more general feelings of intimacy. The researchers concluded that, "experiencing sexual intimacy in one's relationship likely adds something unique to sexual satisfaction, perhaps taking it to 'another level'" (p. 19). Our findings parallel these conclusions, but extend this previous work by positioning experiences of momentary sexual closeness in relation to an imagined and desired ideal. Indeed, the *discrepancy*

reflected in how a given experience of sexual closeness matches or deviates from an individual's desired level of sexual closeness actually matters more for sexual well-being than actual experiences of closeness—in all forms—in and of themselves.

In fact, although general relationship closeness discrepancies have been shown to be robust predictors of relational well-being (e.g., relationship satisfaction, commitment, dissolution thoughts; Frost & Forrester, 2013) they were not associated with sexual well-being in the current study when the role of sexual closeness discrepancies was statistically controlled. This finding suggests that general relationship closeness discrepancies and sexual closeness discrepancies are domain specific in their impact on indicators of relational well-being and sexual well-being, respectively. Although relational well-being and sexual well-being are overlapping domains when considered from the perspective of both the research literature (Rosen & Bachmann, 2008) and lived experience, it appears closeness discrepancies experienced in the broader relational sense matter less for sexual well-being than closeness discrepancies in the sexual domain. Thus, the present findings argue for increased attention to multiple domains in research on the experience of closeness in romantic relationships.

Further to this point, sexual closeness, as conceptualized and measured in the current study as sexual IOS appears to be a unique and useful construct to consider in sexuality and relationship research. We found that the previously unexplored construct of sexual IOS offered additional information not captured in the general relationship IOS measure (Aron et al., 1991), indicating that sexual closeness is a distinct dimension

of a broader closeness construct and therefore represents a phenomenon worthy of further investigation. In other words, sexual IOS indicators correlate with general IOS indicators, but do not completely overlap with them, providing evidence for a related but distinct element of closeness that needs to be accounted for/distinguished in attempts to measure and explain the effects of closeness broadly considered on indicators of relationship quality and sexual well-being.

In addition to measuring sexual closeness and the innovation that the sexual IOS offers to researchers, we also highlight the important role that sexual ideals and deviations from these ideals can play in a person's sexual life. Given the findings from this study, we argue that when evaluating sexual outcomes, researchers are encouraged to assess what individuals experience in their relationships, as well as how this experience compares to what they imagined as their ideal. There is an emergent body of relevant literature concerning partners' discrepancies concerning sexual frequency (Smith et al., 2011) and desire (Mark, 2012; Muise, Impett, Kogan, & Desmarais, 2013; Willoughby & Vitas, 2012). While relevant, we want to emphasize a different aspect of discrepancy in sexual well-being; specifically, how individuals imagine and manage the discrepancy between what they idealize in their sexual relationships and what they experience. In the current study, we found that analyzing the discrepancies between ideals and experience using the sexual IOS (Fig. 1) offered unique insight into the psychological construct of sexual expectations (McClelland, 2010, 2011, 2014). Thus, the current approach stands to offer important conceptual and methodological insight to those studying sexual well-being more broadly.

Study Limitations and Future Directions

The findings of the present study should be considered in light of the following limitations. First, the study sample was constituted with purposive sampling techniques rather than probability based techniques and is therefore not representative of the population from which it is drawn. Second, although the present study included a 1-year follow-up, two time points are not statistically sufficient to address questions about causality that would fully allow for a conclusion that changes in sexual closeness discrepancies cause changes in sexual well-being. Third, this was the first study that we are aware of to adapt the classic IOS measure (Aron et al., 1991) to the sexual domain, and the psychometric properties of the sexual IOS measure have not been subjected to systematic evaluation as has been the case with the original IOS measure. Future research is needed to expand on our use of the sexual IOS measure and establish its reliability and validity as a tool to measure sexual closeness. Fourth, although the study did include two indicators of sexual well-being, the outcomes used did not fully represent the universe of the construct and did not include other critical ele-

ments of the broad domain of sexual health and well-being (Robinson, Bockting, Rosser, Miner, & Coleman, 2002). Future research is needed to determine the relevance of sexual closeness discrepancies across other indicators of sexual well-being; especially in the domain of sexual function given, we were only able to account for subjective orgasm frequency evaluations in the present study. Future research should also attempt to include additional relational variables, such as adult attachment (Schachner & Shaver, 2004) in order to further assess the unique contribution that sexual closeness plays in explaining variance in sexual well-being. Finally, although the lack of dyadic data is not a limitation of the present study per se, future research should attempt to collect data from both partners in order to understand the dyadic experience of sexual closeness discrepancies and how their effects on sexual well-being might manifest at the couple level.

Conclusion

Our findings indicate that how close people feel sexually to their relationship partners is part of a general constellation of factors related to relationship closeness that, only when considered together, sufficiently explain the ways in which experiences of closeness are associated with sexual well-being in romantic relationships. Indeed, feeling sexually close to a partner matters for people's sexual well-being, but what seems to matter more for sexual well-being is the degree to which feelings of sexual closeness match a given individual's desired levels of sexual closeness. Given closeness—in all its many forms—is a subjective dimension among which individuals vary widely (Aron et al., 2004a; Frost & Forrester, 2013), an understanding the role of sexual closeness discrepancies will likely prove invaluable in future attempts to research or intervene in the domain of sexual well-being. As the present study's findings demonstrate, improvements in sexual well-being over time have a robust and persistent association with decreases in sexual closeness discrepancies. Thus, sexual closeness discrepancies should play a prominent role in future research and interventions focused on improving sexual well-being in romantic relationships.

Compliance with Ethical Standards

Conflict of interest David Frost declares that he has no conflict of interest. Sara McClelland declares that she has no conflict of interest. Miranda Dettmann declares that she has no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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