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Orgasm Consistency in Mixed-Gender Couples: Actor, Partner, and Discrepancy Effects from Dyadic Response Surface Analysis

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ABSTRACT

The potential link between orgasm consistency (i.e., the percentage of time an individual experiences orgasm during sexual interactions with a partner) and sexual satisfaction in mixed-gender sexual relationships remains underexamined in the literature. We combined two dyadic samples (N = 725 couples) and utilized Dyadic Response Surface Analysis (DRSA) to examine how both partners' orgasm consistency and their discrepancy of orgasm consistency predict both partners' sexual satisfaction. We found that partners' discrepancy in orgasm consistency was not uniquely connected to higher sexual satisfaction for either women or men; rather, the overall consistency of orgasm was connected to better sexual satisfaction for both partners. In addition, there was some evidence tentatively suggesting that men were more likely than women to report lower sexual satisfaction if his partner was orgasming more consistently than he was, as opposed to her reporting lower sexual satisfaction from him orgasming more consistently than she was; though this appears to be a rare scenario as only 5.9% of couples had women who orgasmed more consistently than men. This study may assist educators and clinicians as they help couples consider the sexual scripts surrounding orgasm consistency, and how they can attend to each others' desires in a way that maximizes sexual satisfaction for both partners.

Orgasm is often considered a goal of sexual activity (Opperman et al., 2014), a source of pleasure and fulfillment (e.g., Fahs, 2014; Opperman et al., 2014; Salisbury & Fisher, 2014), and a key indicator of sexual satisfaction (e.g., Klapilová et al., 2015; Leavitt et al., 2021; Leonhardt et al., 2018). While both men and women report higher sexual satisfaction from experiencing consistent orgasm (i.e., the percent of time they orgasm during sexual interactions with their partner; e.g., Leavitt et al., 2021; Mahar et al., 2020a), typical sexual scripts (i.e., expectations of how sexual interactions will unfold) in mixed-gender relationships (i.e., relationships with a woman and a man) prioritize men's orgasm above women's orgasm (Mahar et al., 2020a). This prioritization can make it challenging for both partners to reap the benefits of sexual satisfaction that come from consistent orgasm, as women are less likely to consistently orgasm in relationships with men (Frederick et al., 2018). Considering that sexual satisfaction is closely tied to relationship satisfaction and stability (e.g., Fallis et al., 2016; Leonhardt et al., 2021; McNulty et al., 2016; Quinn-Nilas, 2020; Vowels & Mark, 2020; Yeh et al., 2006), it would be beneficial to better understand how orgasm consistency reported by both partners, as well as their discrepancy in reports, might be connected to sexual satisfaction. By understanding how these specific aspects of orgasm consistency are connected to sexual satisfaction, we can build understanding of factors that enable couples to maintain long-term satisfying relationships. In this paper, we examined whether both partners' reports of orgasm consistency as well as discrepancy in those reports were associated with sexual satisfaction, by combining two samples totaling 725 mixed-gender couples and utilizing Dyadic Response Surface Analysis (DRSA), a method that allows simultaneous evaluation of self-reported orgasm consistency, partner reported orgasm consistency, and possible discrepancies in the extent to which partners experience orgasm consistency in predicting both partners' sexual satisfaction, all mapped out into three-dimensional space.

Theoretical Background

The common sexual script surrounding orgasm has a clear gendered dynamic: a couple engages in foreplay, followed by intercourse in which the man orgasms, at which point sexual activity ends (Mahar et al., 2020a). This script does not take into consideration the benefits of clitoral stimulation for a woman's orgasm, despite research demonstrating that only 18% of women can orgasm from penetration alone and 36% reporting that they may be able to orgasm from intercourse, but their orgasms feel better if the clitoris is simulated (Herbenick et al., 2018). With subpar education on the sexual techniques that are most likely to lead women to experience orgasm in mixed-gender encounters, as well as several studies suggesting that men's orgasm is prioritized more than women's orgasm in mixed-gender relationships (Klein & Conley, 2022; Mark et al., 2014; McClelland, 2011, 2014), it is unsurprising that many studies have documented a large gender gap in orgasm consistency (see review by Mahar et al., 2020a). For

example, a nationally representative U.S. sample suggested that men orgasm approximately 95% of the time and women orgasm approximately 65% of the time in mixed-gender committed relationships (Frederick et al., 2018). Some see these numbers and appeal to arguments about biological differences between men and women making it harder for women to achieve orgasm (e.g., Emhardt et al., 2016; Frith, 2015). More recent research, however, suggests there is more to it than this, as studies have shown that women are more likely to orgasm when they masturbate, or have sex with a woman, than when they have sex with a man (Frederick et al., 2018; Peragine et al., 2022).

Empirical and Statistical Background

Altogether, heteronormative sexual scripts raise a series of questions for how orgasm consistency is connected to both one's own (e.g., women's orgasm consistency is associated with their own sexual satisfaction) and a partner's sexual satisfaction (e.g., women's orgasm consistency is associated with men's sexual satisfaction), as well as how the discrepancy between men and women's orgasm consistency is uniquely connected to sexual satisfaction. We propose that DRSA is an ideal method to build upon the limited empirical evidence on this subject and capture how orgasm consistency of both partners and their discrepancy is associated with sexual satisfaction. Researchers have begun to use response surface analysis (e.g., RSA, DRSA; Schönbrodt et al., 2018) to study sexual dynamics, including sexual desire (Kim et al., 2021; Muise et al., 2016), sexual advances (Dobson et al., 2018), sexual passion (Busby et al., 2022), and expectant couples' attitudes toward sex (Tavares et al., 2022), but it has not been used to examine orgasm consistency. The advantage of DRSA is the ability to simultaneously account for self-reported orgasm consistency, partner reported orgasm consistency, and possible discrepancies in the extent to which partners experience orgasm consistency in predicting both partners' sexual satisfaction.

The aspect of orgasm consistency that has received the most attention is self-reported orgasm consistency. Generally, research has highlighted that self-reported orgasm consistency is positively associated with sexual satisfaction (e.g., Klapilová et al., 2015; Leavitt et al., 2021; Leonhardt et al., 2018; Mahar et al., 2020a). Though more orgasm consistency has generally been connected to higher sexual satisfaction, one study found that men's report of orgasm consistency was not associated with their own sexual satisfaction when accounting for both partners' self-report of orgasm consistency and each partner's perception of how consistently the other orgasms (Leonhardt et al., 2018). Perhaps in some samples, orgasm happens so consistently for men that the association between orgasm consistency and sexual satisfaction is most acutely felt from failing to reach what is clearly an expected outcome of sexual interaction (Klein & Conley, 2022). Additionally, one study highlighted a curvilinear association between women's orgasm consistency and their sexual satisfaction (e.g., there was a big difference in sexual satisfaction for women who orgasmed 0–20% of the time compared to 21–40% of the time, but a small difference between those who orgasmed 61–80% of the time as opposed to 81–100% of

the time; Leavitt et al., 2021). Perhaps women's lower expectations surrounding orgasm consistency (e.g., Mark et al., 2014; McClelland, 2014) leave women feeling satisfied insofar as they orgasm with at least moderate consistency (Leavitt et al., 2021). Altogether, though orgasm consistency is generally tied to sexual satisfaction (e.g., Klapilová et al., 2015; Leavitt et al., 2021; Leonhardt et al., 2018; Mahar et al., 2020a), we may learn more about how orgasm consistency and sexual satisfaction are connected by evaluating the entire range of both scores. DRSA is uniquely suited to provide a more detailed assessment as it accounts for associations (including potential curvilinearity) in three-dimensional space, providing a comprehensive visual representation of how both partners' orgasm consistency scores map across any potential sexual satisfaction scores.

An additional factor to consider is how partners' orgasm consistency influences the other partner's sexual satisfaction. Both women and men in qualitative studies have highlighted that helping their partner reach orgasm is a fulfilling aspect of their relationship (Opperman et al., 2014), but there may still be gender differences in who benefits from their partner orgasming consistently. As mentioned previously, some studies on those in mixed-gender relationships highlight that men's orgasm is prioritized more than women's (Mark et al., 2014; McClelland, 2014) and women are more concerned than men with pleasuring their partner (McClelland, 2014), suggesting women may be particularly sexually satisfied from men orgasming consistently. Alternative research suggests that men actually reported a higher desire to please their partner than women suggesting that men may benefit from their partner orgasming consistently (Mark et al., 2014). Additionally, research has highlighted that men derive pleasure from helping a woman partner achieve orgasm as it acts as a masculinity achievement (Chadwick & van Anders, 2017); one study even suggested that women's orgasm consistency was a more consistent predictor of men's sexual satisfaction than his own orgasm consistency, though this could be partly due to lack of variability in men's self-report of orgasm consistency (Leonhardt et al., 2018). Considering limited empirical evidence concerning the extent to which men and women are more sexually satisfied from their partner consistently orgasming, it would be beneficial to add empirical evidence to potentially clarify these connections. DRSA has the advantage of taking into account actor effects (e.g., self-reported orgasm consistency predicting self-reported sexual satisfaction) and partner effects (e.g., partner orgasm consistency predicting self-reported sexual satisfaction), and also allows for testing possible curvilinear associations among these variables (Schönbrodt et al., 2018).

Finally, it would also be beneficial to consider possible discrepancies between two partners' reports of their own orgasm consistency. Although a substantive list of studies has highlighted that an orgasm discrepancy exists between men and women (see Mahar et al., 2020a for a review), almost no research to our knowledge has evaluated how discrepancy in orgasm consistency between two partners is associated with sexual satisfaction. Some qualitative evidence suggests the sexual experience is better when both partners experience orgasm (McClelland, 2011). Also, one study used difference scores to show that orgasm discrepancy predicted lower sexual

satisfaction, even above and beyond both partners' individual reports of orgasm consistency (Leonhardt et al., 2018). But difference scores are a limitation when understanding the unique influence of discrepancy of scores (see Edwards & Parry, 1993 for a more complete review). One limitation includes taking the absolute value of a difference between partners. In the context of examining orgasm consistency in mixed-gender relationships, this fails to distinguish whether men having orgasm more consistently than women, or the opposite, is more strongly associated with sexual satisfaction. Furthermore, difference scores cannot identify at what point on a metric the discrepancy is more relevant. For example, difference scores cannot reveal whether discrepancy at high versus low levels is connected with higher sexual satisfaction; discrepancy might be all right if both partners have relatively high orgasm consistency, but problematic if they have relatively lower orgasm consistency. In a similar line of work to orgasm consistency discrepancy, researchers have long used difference scores to show that sexual desire discrepancies between partners are associated with lower sexual satisfaction (e.g., Mark, 2012, 2014), albeit with some inconsistencies (e.g., Rosen et al., 2018; Willoughby & Vitas, 2012). Kim et al. (2021), however, compared DRSA to difference scores and the DRSA analyses, through polynomial coefficients and similarity effects, showed that discrepancy in sexual desire did not predict sexual satisfaction above and beyond the *overall* level of sexual desire in the relationship. Considering the only study to our knowledge to evaluate such discrepancies in orgasm consistency used difference scores (Leonhardt et al., 2018), it would be advantageous to assess whether the finding on discrepancy holds up to more a rigorous statistical method. It also may uncover a more specific understanding of how orgasm consistency discrepancy is connected to sexual satisfaction. For example, with a sexual script prioritizing men's orgasm so highly, particularly in comparison to women, we can test whether there are unique findings for couples that contradict the cultural script, such as relationships in which the woman orgasms more consistently than the man.

Current Study

In explaining the sexual scripts often adopted in mixed-gender relationships concerning orgasm consistency, and a number of seemingly connected findings, we have highlighted a variety of factors that may contribute to sexual satisfaction: namely, one's own orgasm consistency, a partner's orgasm consistency (particularly women's orgasm consistency contributing to men's sexual satisfaction), and orgasm discrepancy between partners (Klapilová et al., 2015; Leavitt et al., 2021; Leonhardt et al., 2018). By accounting for all three of these dynamics simultaneously, DRSA is an analytic method that is uniquely positioned to advance our understanding of how all of these dynamics might work together to shape sexual satisfaction for both partners.

Based on previous consistent empirical findings (e.g., Klapilová et al., 2015; Leavitt et al., 2021; Leonhardt et al., 2018; Mahar et al., 2020a), we hypothesized (H1) that women's orgasm consistency would predict her own sexual satisfaction. Based on some inconsistencies in connections between men's

orgasm consistency and his own sexual satisfaction (e.g., Leavitt et al., 2021; Leonhardt et al., 2018), we had an open question (RQ1) on whether men's orgasm consistency would predict his own sexual satisfaction. Consistent with previous evidence, we hypothesized (H2) that women's orgasm consistency would be associated with higher men's sexual satisfaction (Leonhardt et al., 2018). Alternatively, research suggesting women prioritize men's orgasm (e.g., McClelland, 2011, 2014) suggests women may be more sexually satisfied if her male partner orgasms more consistently, but null results in a study between men's orgasm consistency and women's sexual satisfaction (Leonhardt et al., 2018) resulted in an open question (RQ2) for whether men's orgasm consistency predicted women's sexual satisfaction. In these actor and partner associations, we also kept an open question (RQ3) for whether curvilinear effects would be found, as these have been detected between women's self-reported orgasm consistency and sexual satisfaction in one study (Leavitt et al., 2021) with over 3,000 participants. But we did not have confidence in specific hypotheses, as the phenomenon remains understudied, and it may be challenging to detect such an effect with less participants than the Leavitt et al. (2021) study. Finally, since almost no research has assessed whether orgasm consistency discrepancy is connected with sexual satisfaction, and those that have studied the matter were limited by qualitative data (McClelland, 2011), or their statistical approach of difference scores (Leonhardt et al., 2018), we had an open question (RQ4) had how potential orgasm consistency discrepancies were associated with sexual satisfaction.

Method

Participants

We used a combination of two samples for our analyses. The first sample included 481 couples recruited from Bovitz Inc. (http://bovitzinc.com/); the second sample included 244 couples from Amazon Mechanical Turk (MTurk) Web site (http://www.mturk.com). All dyads in the analyses were mixed-gender (dyads of men and women) due to the gendered focus of heteronormative dynamics surrounding orgasm discrepancy. We chose to combine the two samples due to the guideline of having 550 couples to detect small effects in DRSA (Barranti et al., 2017). When combining the samples, the mean relationship length was 136.9 months (SD = 121.2) and the average age was 38.8 years (SD = 12.0). Other demographics, including race, education, and income, are shown in Table 1. We have posted our output to the Open Science Framework (https://osf.io/byw84/?view_only=7cd8a4dbf9bf4d789b1fe9d950bf1af8), including output for the two samples evaluated separately, but we suggest caution in interpreting results of the separate dataset due to having less than the 550 couples recommended to detect small effects.

Procedure

For both samples, couples were required to be in a committed relationship for at least 2 years, based in the United States, and English speaking. We selected a time frame of 2 years, as it has

Table 1. Demographics for the combined sample.

	Women (%)	Men (%)
Race		
Caucasian (White)	76.2	74.1
Asian American	4.6	3.1
African American (Black)	9.0	10.1
Latino	6.8	8.7
Mixed/Biracial	2.8	2.5
Native American	.7	.8
Other	.6	.6
Sexual Orientation	80.0	89.7
Heterosexual	15.3	5.3
Bisexual	4.8	5.1
Homosexual		
Education		
Less than high school	1.5	4.5
High school or GED	17.7	28.8
Some college	26.9	22.6
2-year college degree	19.8	14.7
4-year college degree	24.7	19.6
Graduate degree	9.3	9.7
Income		
Less than $20,000	31.8	14.2
$20,000 to $39,999	25.1	28.1
$40,000 to $59,999	20.5	21.5
$60,000 to $79,999	9.8	13.7
$80,000 to $99,999	5.3	8.7
$100,000 to $119,999	2.2	4.3
$120,000 to $139,999	2.7	4.7
$140,000 to $159,999	1.0	1.1
$160,000 or more	1.3	3.6

Some percentages do not add up to 100% due to rounding.

been suggested as a rough estimate for when attachment bonds are formed and stabilized, resulting in more consistent couple dynamics in a relationship (Mikulincer & Shaver, 2016). Those who were interested were directed to a separate website (Qualtrics) to complete an online assessment. Before beginning the online survey, participants provided their informed consent and were informed about their rights as a research participant. Bovitz Inc. is a research firm with a panel of participants ready to participate in studies (https://www.bovitzinc.com/). Amazon's Mechanical Turk (http://www.mturk.com) is a website dedicated to online labor and is used to employ "workers" from around the world to complete specific tasks. These data were collected several years ago, MTurk in 2017 and Bovitz Inc. in 2018. They were not collected with the direct purpose of this research question. Rather, the research team came up with the research question and found data that had previously been collected with the necessary measures. We deemed it appropriate to combine the two datasets as they had some similar characteristics, being couples in the United States who had been together at least 2 years.

For Bovitz Inc. we originally targeted a sample of 500 couples from Bovitz Inc. For Bovitz Inc., 975 individuals attempted to sign up, but 406 had unusable couple data due to at least one member of the dyad not consenting, or the second partner dropping out of the survey. An additional 54 observations were dropped from failing an attention check or completing less than 80% of the survey. These conditions for dropping observations were determined a priori. Finally, 34 couples not in mixed-gender relationships were not included for this study, due to the focus of our research question being specifically on mixed-gender couples. Each dyad was compensated with an $8 gift card and 67 cents of Bovitz loyalty credit.

For MTurk, of the 250 MTurk couples, six were dropped due to at least one partner failing an attention check. Considering recent concerns about bots from MTurk, we also ensured that there were no bots or duplicate data by checking for patterns in IP addresses and GPS coordinates (Bai, 2018). Each member of the dyad was compensated with a $5 gift card. We were also able to increase confidence of the participants being in dyads by each couple participating through separate e-mail addresses.[1]

Measures

Orgasm Consistency
Across both samples, each member of the dyad was asked "Over the past year, when you are sexual with your partner, about how often do you experience an orgasm." Responses ranged on a 5-point scale (-2 = *1–20% of the time*; -1 = *21–40% of the time*; 0 = *41–60% of the time*; 1 = *61–80% of the time*; 2 = *81–100% of the time*).

Sexual Satisfaction
For the Bovitz sample, the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1995) was used to measure sexual satisfaction. The GMSEX has a root question of "In general, how would you describe your sexual relationship with your partner?" The participants then responded to five separate items, each on a 7-point scale, reporting their sexual satisfaction: 1) *Good-Bad*, 2) *Pleasant-Unpleasant*, 3) *Positive-Negative*, 4) *Satisfying-Unsatisfying*, and 5) *Valuable-Worthless*. Higher values indicated higher levels of sexual satisfaction. The Cronbach's alpha was .92 for women and .90 for men.

For the MTurk sample, sexual satisfaction was measured using a single, face valid item from the Golombok Rust Inventory of Sexual Satisfaction (GRISS; Rust & Golombok, 1986). The item was "Do you find the sexual relationship with your partner satisfactory?"

To combine these scales, we took the average, standardized the scales, and then combined the two samples. This approach, however, comes with an assumption that each scale is assessing

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[1]Something that may increase confidence in the validity of the dyadic data is the percentages of orgasm consistency being similar to a representative study of couples in the United States, with a more thorough vetting of recruiting couples through phone calls (Leonhardt et al., 2018). If the data for men or women orgasm consistency differed substantially from a nationally representative sample, it may be suspect. Fortunately, the relative consistency with a gold standard dataset suggests that there may be validity to these numbers. Additionally, there is also some evidence with some basic data checks. For example, the correlation between partners for orgasm consistency was only r = .14, p = .02 in MTurk and r = .31, p < .001 in Bovitz, which makes sense considering the differences between men's and women's orgasm consistency. If there was no correlation between partners for orgasm consistency, we might suspect that someone could be completing the survey for a partner at random. If there was an unusually high correlation for orgasm consistency between partners, than we might suspect that someone was copying their answers into information for a partner. The small to moderate correlations are fairly consistent with other datasets. On a similar note, sexual satisfaction between the two partners was correlated at .44, p < .001 in MTurk, and .64, p <.001 in Bovitz. These correlations being higher between partners than the orgasm consistency correlations between partners also speaks to the validity of the data. These constructs would be expected to have a moderate to high correlation due to the interdependence of sexual satisfaction being great in a relationship, even more so than orgasm consistency because of the complicated dynamics we have highlighted throughout this article.

the same underlying construct. To increase our confidence in standardizing and combining two different scales for the same underlying construct (see Jolink et al., 2022; McNulty et al., 2021, or Overall, 2020 for a similar approach) we conducted a validation analysis using a separate sample that included both scales. The sample included 1,785 individuals in committed relationships collected from Amazon's Mechanical Turk. In a confirmatory factor analysis, we loaded the six items onto a single factor and found that the model had good fit, $\chi2$ (9) = 74.05, CFI = .99, RMSEA = .06, CI 95% [.05, .08], SRMR = .01.[2]

Data Analysis

To test the association between the magnitude and direction of orgasm consistency actor effects, partner effects, and discrepancy effects, we conducted multilevel polynomial regression with Dyadic Response Surface Analyses (DRSA: Schönbrodt et al., 2018) following the guidelines of Shanock et al. (2010) and Schönbrodt et al. (2018). We conducted the polynomial regression analyses using multilevel modeling with mixed models in Mplus 8.6 (see Schönbrodt et al., 2018 for an in-depth example) to account for interdependence and following the suggestions of Schönbrodt et al. (2018). These analyses allowed us to simultaneously account for how men's report of orgasm consistency is associated with both partners' sexual satisfaction, how women's report of orgasm consistency is associated with both partners' sexual satisfaction, and also test how the degree of correspondence and/or discrepancy between both partners' orgasm consistency was associated with their own and their partner's sexual satisfaction. Additionally, these analyses allowed us to examine how the direction of discrepancies (i.e., whether women or men reported higher levels of orgasm consistency than the other) were associated with sexual satisfaction, as well as possible curvilinearity of any effects. The paths are shown in Figure 1.

To account for these interdependencies, we created squared versions of these variables and a product or interaction term (i.e., women's report of orgasm consistency x men's reports of orgasm consistency) and then entered all five variables (i.e., women's orgasm consistency, men's orgasm consistency, women's orgasm consistency X women's orgasm consistency, men's orgasm consistency X men's orgasm consistency, women's orgasm consistency X men's orgasm consistency) as predictors of women's and men's sexual satisfaction. We examined the results with regard to the five surface test values for women's and men's sexual satisfaction (a1-a5, described in greater detail below). We calculated the surface test values in Mplus 8.6 (see Schönbrodt et al., 2018). These surface test values allowed us to test how the degree of correspondence and/or discrepancy between an individual's orgasm

consistency and their partner's orgasm consistency was associated with their own and their partner's sexual satisfaction.

To aid in interpretation of the results, we then created three-dimensional response surface (RS) plots using the coefficients from the multilevel polynomial regressions. The RS plots have a line of congruence (LOC; i.e., reflecting when individuals perceive they and their partner are correspondent at all levels of orgasm consistency) and a line of incongruence (LOIC; i.e., the extent to which participants report orgasm consistency at opposite levels). These two lines are best illustrated in plots of these response surfaces such as those visible in Figures 2 and 3. The LOC is the line that goes from the front left corner where the value is at −3 and −3 for each variable and stretches to the back right corner where the values are +3 and +3 for each variable (Figures 2 and 3). In contrast, the LOIC is the line that goes from the front right corner where the value is at +3 for one variable and −3 for the other and stretches to the back left corner (Figures 2 and 3). The surface values a1 and a2 are used to describe the response surface along the LOC (a1 describes the slope and a2 describes the curvature of the LOC). The surface values describing the LOIC are the a3 and a4 (a3 measures the slope and a4 measures the curvature of the LOIC). The a5 surface value is relevant for evaluating whether the response surface has a congruence effect (i.e., if corresponding on orgasm consistency is better than discrepancies; see Humberg et al., 2019). Following the suggestions of Shanock et al. (2010) and Schönbrodt et al. (2018), the surface test values are shown in surface plots (see Figures 2 and 3). We used the R package RSAplots to create the surface plots.

Interpreting values a1-a5 requires a holistic understanding of all the values together; however, we attempt to provide a brief explanation of how these individual surface test values can be conceptualized in isolation. A significant and positive a1 value (i.e., a positive linear LOC) would indicate that when participants (i.e., women and men) report they and their partner correspond at higher levels of orgasm consistency, they report greater sexual satisfaction than when they correspond at lower levels. The a2 surface tests whether the association in a1 is a curvilinear association. The a3 indicates the effect of the direction of incongruence between participants' (i.e., women's and men's) reports of their own and their partner's orgasm consistency on sexual satisfaction. In evaluating discrepancies, a positive significant a3 value (i.e., a positive linear LOIC effect) typically means that the participant reports higher sexual satisfaction when their own orgasm consistency is higher than their partner's orgasm consistency (illustrated by the back left corner of Figures 2 and 3) compared to when their partner reports their orgasm consistency as higher than their own (illustrated by the front right corner of Figures 2 and 3). A significant negative a3 value (i.e., a negative linear LOIC) would indicate an opposite effect (i.e., the individual will report lower sexual satisfaction when their own orgasm consistency is higher than their partner's orgasm consistency compared to when their partner's orgasm consistency is higher than their own). The surface value a4 is particularly relevant for evaluating

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[2]We originally used six items from the GRISS subscale that have been validated as a subscale (Busby et al., 2001). In order to obtain adequate fit in combining the GMSEX and GRISS, however, it required correlating some of the error terms. Upon a closer statistical and conceptual evaluation, we determined that it made more sense to just retain the one face valid item from the GRISS that best combined with the GMSEX.
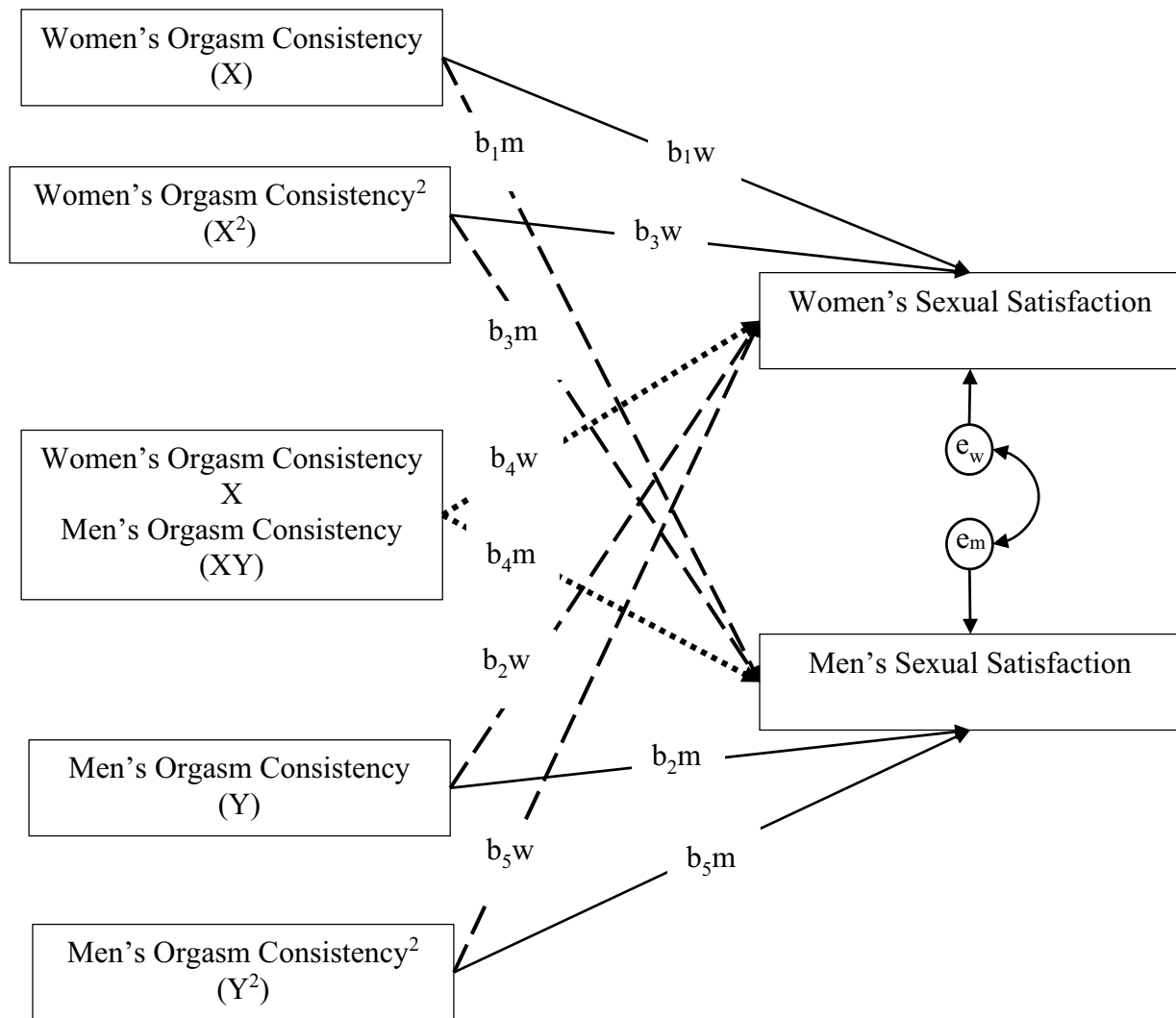
Figure 1. Dyadic polynomial regression model testing for similarity effects between orgasm consistency and both partners' sexual satisfaction.
Note. Solid lines represent actor effects, dashed lines represent partner effects, and dotted lines represent statistical partner interactions.

whether correspondence in orgasm consistency predicts greater sexual satisfaction than discrepancies in orgasm consistency (Nestler et al., 2019). A significant and positive $a4$ would indicate sexual satisfaction is higher when partners are more similar – versus discrepant – in their orgasm consistency, while accounting for the overall level of orgasm consistency; a significant and negative $a4$ indicates sexual satisfaction is lower when correspondence is lower than discrepancy. The surface value $a5$ assists in evaluating congruence effects and is relevant when it is nonsignificant (Nestler et al., 2019).

Evidence of Congruence Effects

We followed the guidelines of Humberg et al. (2019) to evaluate evidence for a congruence effect on the response surfaces (i.e., correspondence on orgasm consistency variables between partners is associated with higher sexual satisfaction than discrepancies). For a response surface to have a congruence effect, one of the necessary but not sufficient conditions is that $a4$ needs to be significant.

Results

Preliminary Analyses

Table 2 displays means and standard deviations for orgasm consistency and sexual satisfaction by sample. Table 3 shows the specific percentages of orgasm consistency for both samples. In the combined sample, men's orgasm consistency was significantly higher ($M = 1.65$, $SD = 0.82$) than women's orgasm consistency ($M = 0.67$, $SD = 1.41$, $t(723) = -18.25$, $p < .001$) There was no gender difference for sexual satisfaction ($t(680) = 0.31$, $p = .75$). Across datasets, there were no differences for women's sexual satisfaction ($t(697) = -0.08$, $p = .93$), men's sexual satisfaction ($t(695) = -0.18$, $p = .85$), or women's orgasm consistency ($t(722) = .97$, $p = .33$). There was, however, a difference for men's orgasm consistency, with men from the MTurk dataset ($M = 1.84$, $SD = .47$) reporting higher orgasm consistency than the men from the Bovitz dataset ($M = 1.54$, $SD = .94$, $t(724) = -4.57$, $p < .001$).

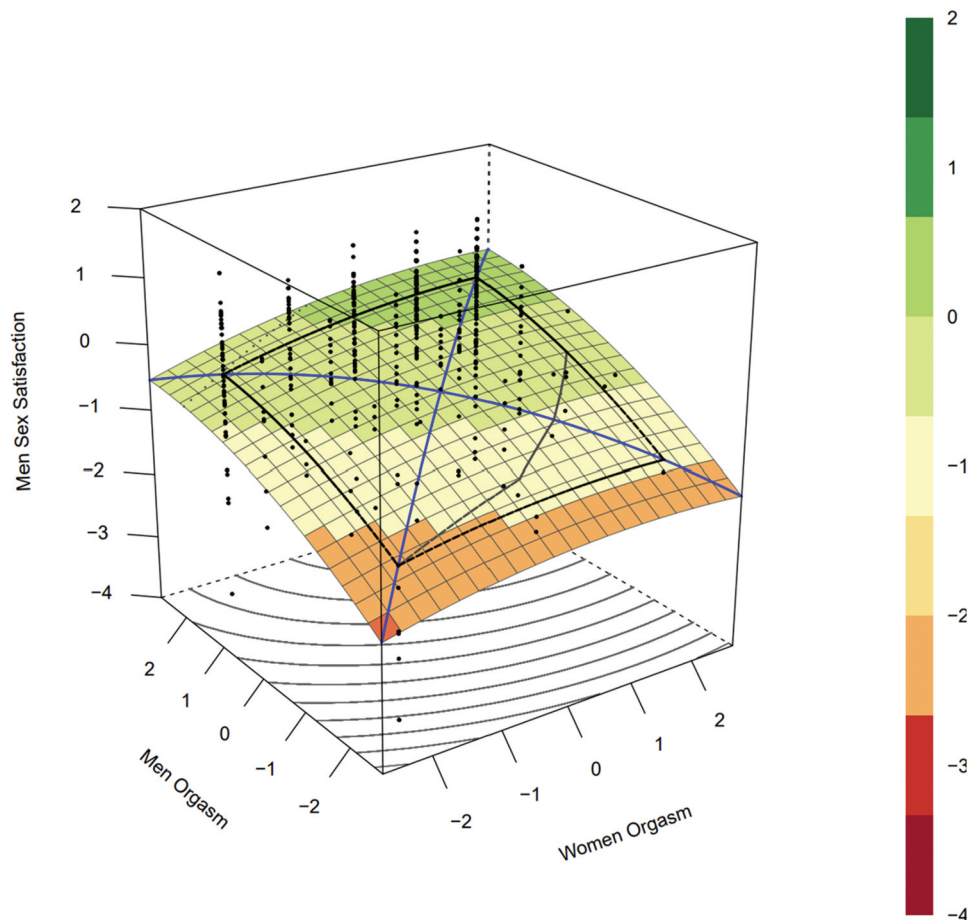More than half of the couples included men who orgasmed more consistently than women (50.3%; n = 364; i.e., men scored

Figure 2. DRSA for men's sexual satisfaction.

higher on the five-point scale than women), 43.8% of couples (N = 317) experienced similar orgasm consistency (i.e., both members of the dyad reported the exact same value on a five-point scale), and only 5.9% (N = 43) were couples in which women orgasmed more consistently than men (i.e., women scored higher on the five-point scale than their partner).

Given the dyadic nature of our data and the fact that dyads can be distinguished by gender, we used DRSA (Schönbrodt et al., 2018) to help ascertain whether the response surface effects differ for men's satisfaction and women's satisfaction, or whether the effects can be treated as equivalent across men and women. We tested path models with polynomial regressions implementing full-information maximum likelihood estimation for missing data. As outlined by Schönbrodt et al. (2018), given the complexity of a fully specified DRSA model as it estimates a large number of path coefficients and covariances, constraints can be applied to simplify the full model for parsimony and increase statistical power. We therefore applied parameter constraints to reduce model complexity according to current recommendations (Schönbrodt et al., 2018). Specifically, we constrained all actor and partner effects to be equal across gender. We then conducted nested model comparisons using a $w2$ likelihood ratio test, meaning we tested whether the results for men and women were distinguishable. We found that the model fit was not significantly worse when paths were constrained χ^2 (5) = 7.86, p = .16. With these constraints, we could justifiably elect to conduct our

analyses with the dyads as indistinguishable in order to provide a simpler model. We conducted said analyses and posted the output on OSF.

Due to our theoretical focus on differences between men and women due to gendered sexual scripts surrounding orgasm, as well as preliminary analyses highlighting clear gender differences, we decided to delve deeper into potential differences to determine whether the distinguishability of women and men deserved further investigation. There were no differences between women and men for the $a2$, χ^2 (1) = 2.47, p = .11, $a4$, χ^2 (1) = 0.25, p = .62, or $a5$, χ^2 (1) = 0.44, p = .51. There were, however, gender differences for the $a1$ parameter, χ^2 (1) = 7.43, p < .01 and the $a3$ parameter, χ^2 (1) = 12.15, p < .001. The $a1$ and $a3$ were even significant when using a Bonferroni adjustment to account for multiple comparisons of the five extra tests, with a p-value significance of .01. For this reason, we decided to retain distinguishability between men and women, and detail the findings below.

DRSA

First off, the polynomial coefficients bring insight into the actor and partner effects. For women's sexual satisfaction, her own orgasm consistency predicted her own sexual satisfaction (b1x), but there was no curvilinearity (b3x²). Additionally, men's orgasm consistency (b2y), did not predict her sexual satisfaction,
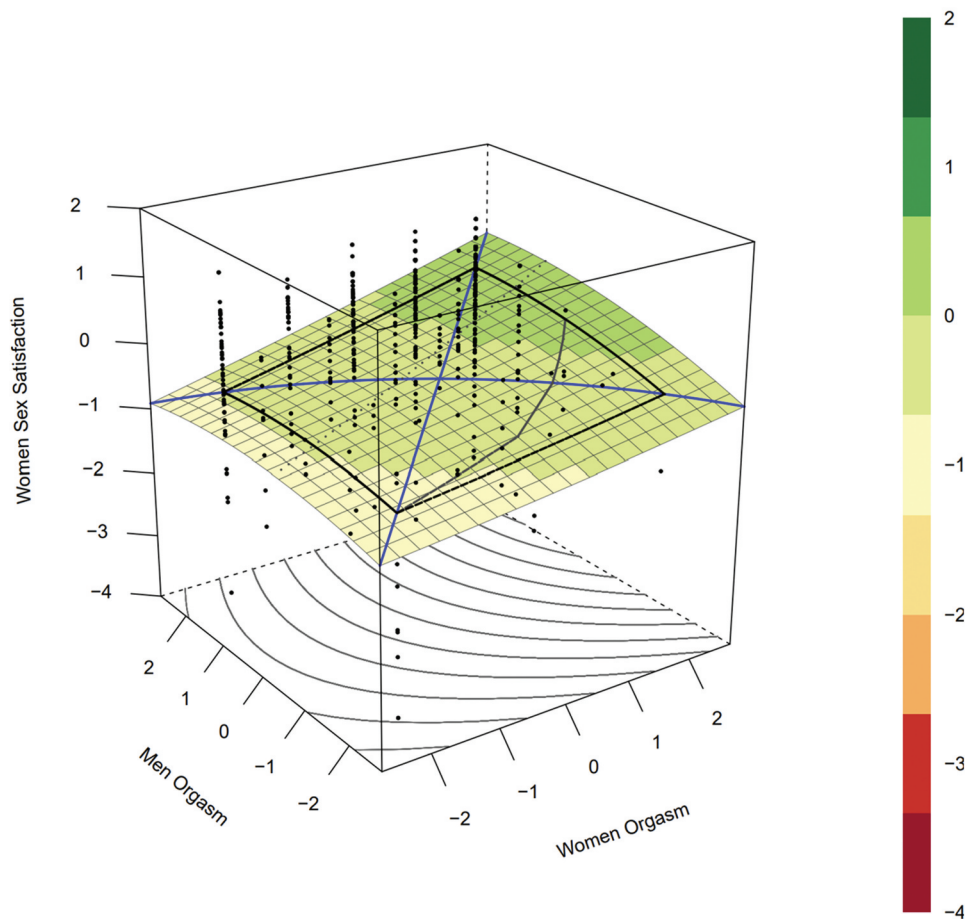
Figure 3. DRSA for women's sexual satisfaction.

Table 2. Descriptive statistics for variables of interest across samples.

	Orgasm Consistency		Sexual Satisfaction	
	M (SD) [range]		M (SD) [range]	
Sample	Women	Men	Women	Men
1 Bovitz Inc.	0.71 (1.39) [−2–2]	1.54 (.94) [−2–2]	5.91 (1.28) [1–7]	6.06 (1.18) [1–7]
2 MTurk	0.60 (1.46) [−2–2]	1.84 (.47) [−2–2]	3.99 (.99) [1–5]	4.11 (.95) [1–5]

Table 3. Orgasm consistency across samples.

	Bovitz Inc.		MTurk	
Orgasm Consistency %	Women	Men	Women	Men
0–20%	12.7%	3.5%	15.6%	0.4%
21–40%	8.1%	1.9%	8.2%	0.0%
41–60%	15.2%	5.2%	16.4%	1.6%
61–80%	23.8%	15.4%	20.5%	11.4%
81–100%	40.2%	74.0%	39.3%	86.5%

even when considering curvilinearity ($b5y^2$). Finally, there was no significant interaction between women's and men's orgasm consistency (b4xy). For men's sexual satisfaction, the story was similar, with one important difference. Both his own orgasm consistency (b2y) and the woman's orgasm consistency (b1x) predicted his sexual satisfaction. There were no significant curvilinear results ($b3x^2$ and $b5y^2$) or an interaction between both partners' orgasm consistency (b4xy).

Additional nuance was shown with the response surface slopes. Women's and men's sexual satisfaction both had

a significant positive *a1* coefficient (see Table 4). Considering the significant positive a1 effect for both partners, this suggests the straightforward message that couples with higher orgasm consistency are more sexually satisfied than couples with lower orgasm consistency (without the nuance of curvilinearity due to the nonsignificant a2), though this was more strongly the case for men, as their a1 coefficient was significantly higher than women's. The results suggest that there is no added benefit to matching on orgasm consistency between partners above and beyond simply having

Table 4. Response surface slopes and polynomial coefficients for sexual satisfaction.

	Women			Men		
	b	SE	p	b	SE	p
Response surface slopes						
a1	.33	.08	<.001	.48	.09	<.001
a2	−.00	.04	.98	−.06	.05	.24
a3	.15	.11	.17	−.20	.11	.06
a4	−.06	.06	.37	−.09	.06	.16
a5	.03	.05	.59	−.00	.05	.96
Polynomial coefficients						
b0 (intercept)	−.26	.05	.02	−.40	.12	<.01
b1 (X)	.24	.06	<.001	.14	.06	.02
b2 (Y)	.09	.07	.22	.34	.08	<.001
b3 (X^2)	−.00	.02	.96	−.04	.02	.07
b4 (XY)	.03	.03	.39	.01	.03	.68
b5 (Y^2)	−.03	.04	.50	−.04	.04	.40
Control variable						
Dataset	.01	.07	.86	−.05	.07	.44

X Coefficients are for Women's Orgasm Consistency. Y Coefficients are for Men's Orgasm Consistency.

high orgasm consistency (Humberg et al., 2019, see Figures 2 and 3). For example, both partners matching on moderate orgasm consistency has no added benefit than if one partner had moderate orgasm consistency and the other partner had high orgasm consistency. There is, however, an additional finding for the difference between men and women on sexual satisfaction: a significant difference for the *a3* coefficient. As mentioned earlier, the interpretation for the RSA can change when more than one coefficient is significant (Humberg et al., 2019). Considering how gender was coded in our model, a negative *a3* value would suggest that men's sexual satisfaction is higher when men's orgasm consistency is higher than their partners, compared to when the women's orgasm consistency is higher than the men's. More plainly, men would tend to be less sexually satisfied if their partner is having orgasm more consistently than they are. However, despite a significant difference between men and women on the *a3* coefficient, the *a3* coefficient was ultimately nonsignificant for both women and men. As our descriptive statistics show, however, this is a relatively infrequent occurrence as this only was found in 5.9% of couples. There was no curvilinearity on this point, as the *a4* was nonsignificant. The nonsignificant *a5* in conjunction with other response surface slopes supports the point that there were was no added benefit to matching in orgasm consistency scores.

Discussion

With pervasive, gendered sexual scripts surrounding orgasm in sexual relationships (Mahar et al., 2020a), it is important to evaluate how specific aspects of orgasm consistency might be connected with sexual satisfaction in mixed-gender sexual relationships. By combining two samples into a larger sample of 725 mixed-gender couples, we dove deeper into how self-reported orgasm consistency, partners' orgasm consistency, as well as their discrepancy in orgasm consistency were associated with both partners' sexual satisfaction, using DRSA.

Our first key finding was fairly straightforward: higher overall orgasm consistency between the two partners was linked to higher sexual satisfaction for both men and women. A more novel finding from DRSA is that there was no added benefit

when partners matched in orgasm consistency. This is a similar finding to a previous study that showed there was no benefit to sexual satisfaction from matching on sexual desire (Kim et al., 2021). The *overall level* of orgasm consistency in a sexual relationship was more important than specifically matching in orgasm consistency, a finding consistent with a large body of evidence suggesting that more orgasm consistency is better for sexual satisfaction (e.g., Klapilová et al., 2015; Leavitt et al., 2021; Leonhardt et al., 2018; Mahar et al., 2020a). Considering that women reach orgasm less consistently than men in mixed-gender relationships, and that her own orgasm consistency is linked to higher sexual satisfaction, it may help some women to achieve higher sexual satisfaction through more consistent orgasms. This might be accomplished by educators and clinicians teaching couples about the importance of clitoral stimulation for women's sexual pleasure. In addition, educators and clinicians might specifically point out socialization surrounding centrality of men's orgasm during the sexual experience. Scripted pressures surrounding men's orgasm and penetrative sex could have women and men thinking that penetrative sex should be sufficient for women to orgasm. One specific example of how this can be countered is with a turn-taking script focused on taking turns between clitoral stimulation for women and intercourse for men (Mahar et al., 2020a). This specific example might also be abstracted to the principle of both partners openly and honestly communicating what they find sexually pleasurable and both working to meet each others' desires (Leonhardt et al., 2018). We should, however, state the caveat that couples should be cautious about becoming too preoccupied with orgasm. Paradoxically, avoiding preoccupation with sexual goals through mindfulness can increase the likelihood of orgasm (Adam et al., 2015); it is important to ensure that any educational efforts to improve orgasm experiences are in the context of emotional closeness and healthy sexual dynamics as a whole (Blumenstock, 2022).

We also found that women's orgasm consistency was associated with men reporting higher sexual satisfaction, a finding consistent with previous research (Leonhardt et al., 2018) that seems to align with the finding that men in committed relationships tend to highly value pleasing their partner (Mark et al., 2014). When educators and clinicians are teaching about a turn-taking script and responsiveness in a sexual

relationship, it may be useful to tentatively highlight that women experiencing orgasm seems to be good for both the woman and the man in mixed-gender relationships. Somewhat surprisingly, considering some research has suggested how highly women value pleasing their partner (e.g., McClelland, 2011, 2014), men's orgasm consistency did not uniquely predict women's sexual satisfaction. Perhaps men's orgasm is such a ubiquitous expectation and event in sexual interactions (Frederick et al., 2018; Klein & Conley, 2022) that the lack of variability makes it challenging to detect an association (see Leonhardt et al., 2018 for a similar example). In highlighting that women's orgasm consistency is associated with higher sexual satisfaction for men, we should also highlight a specific caution from the literature. Pressuring or coercive attempts to get a partner to orgasm are not healthy dynamics in a sexual relationship (Chadwick & van Anders, 2022). Any attempts to increase orgasm consistency should be based on mutual desire, free of pressure.

Similar to previous DRSA results on sexual desire (Kim et al., 2021), there were no clear effects when it came to matching versus discrepancy. DRSA analyses were able to highlight that there was no added benefit to couples matching their orgasm consistency above and beyond simply reporting higher orgasm consistency. There was one gender difference that should be considered cautiously: men tended to be less sexually satisfied if their partner was orgasming more consistently than they were, relative to if they were orgasming more consistently than their partner. We should highlight that despite the clear gender difference in the $a3$, the coefficient for men was nonsignificant (likely due in part to only 5.9% of couples having men who orgasmed less consistently than their partner, making it challenging to detect such an effect). We believe it is worth at least mentioning this result as being worthy of additional study. It could speak to scenarios that contradict the societal message about how sexual interactions should proceed (Mahar et al., 2020a). Men may buy into the sexual script about how men should always have an orgasm during sexual activity, and how women struggle to orgasm consistently (e.g., Klein & Conley, 2022; Mahar et al., 2020a). Men who see their partner orgasming more consistently than they are could potentially feel self-conscious about deviating from scripted expectations. Again, this should be contextualized with the reminder that this is a relatively infrequent scenario, as we found that only 5.9% of couples included women who orgasm more consistently than their partner. It may be informative to assess whether this pattern of results persists in older populations; considering that erectile dysfunction is more common for older men (Wagle et al., 2012), perhaps studying this dynamic of women orgasming more consistently than men in the relationship could be better understood by focusing on older couples. It could also be beneficial to specifically recruit couples where men are orgasming less than their woman partner and ask them open questions about their experience.

Limitations and Future Directions

This study had several unique strengths, including a large sample and novel data analysis approach, but it also comes with several limitations. The sample was cross-sectional, correlational, and convenient, meaning that we cannot confirm a causal direction nor consider these results representative. As what often happens with convenient couple samples, these couples tended to be generally happy with their relationships (Barton et al., 2020), as many reported moderately high to high sexual satisfaction. It would be beneficial to test how these dynamics play out in a clinical sample that could have more distressing patterns surrounding orgasm consistency, as well as in a more representative sample of couples.

Another limitation is focusing solely on self-reports of orgasm consistency. Considering misperceptions that occur when estimating a partner's orgasm consistency, particularly men commonly overestimating their partner's orgasm consistency (Herbenick et al., 2010; Leonhardt et al., 2018), DRSA could be tool to examine matches and mismatches in partners' perceptions of one another's orgasm consistency. Perhaps with this approach we would be more likely to identify added benefits from matching in orgasm consistency. Some studies have even suggested that perceptions matter more than actuality (e.g., Mahar et al., 2020b; Montoya et al., 2008; Selfhout et al., 2009). It also may be helpful for future researchers to ask participants about orgasm the last time they had sexual activity rather than in the last year in order to have a more recent and potentially accurate recall.

Conclusion

Orgasm consistency is associated with higher sexual satisfaction for mixed-gender couples. There are, however, a number of scripts surrounding orgasm that might make it challenging for both women and men to make the most of their sexual experiences, as women tend to orgasm less consistently than men. Furthermore, it appears some men may be less satisfied if their partner is orgasming more consistently than them (though this finding deserves some follow up research). By helping couples carefully deconstruct some of the scripts surrounding orgasm and become responsively attentive to what each other desires in the sexual relationship, we hope that they can address the nuances of orgasm consistency in maximizing the possibilities of a satisfying sex life.

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