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## Sexual Growth Mindsets and Rejection Sensitivity in Sexual Satisfaction

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*Key words:* sexuality, romantic relationships, growth mindset, rejection sensitivity

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## Abstract

Research suggests that having a sexual growth mindset (SGM), or believing that a person can become a better sexual partner over time, may improve sexual relationships. The present research investigated the impact of SGMs on a new sexual outcome: sexual rejection sensitivity. In Study 1, adults in romantic relationships completed measures of SGM and sexual rejection sensitivity from their own and from their partner's perspective ( $N = 377$ ; 49.9% women;  $M_{age} = 29.1$  years,  $SD_{age} = 12.2$  years). Findings show that perceived partner, but not own, SGM is associated with lower sexual rejection sensitivity, and sexual rejection sensitivity mediated the link between perceived partner SGM and own sexual satisfaction. In Study 2, we replaced *perceived* partner SGM with *actual* partner SGM by recruiting both members of 104 different-sex romantic couples ( $M_{age} = 43.9$  years,  $SD_{age} = 14.5$  years). Study 2 finds that partner, but not own, SGM was negatively associated with sexual rejection sensitivity. Further, sexual rejection sensitivity was negatively associated with sexual satisfaction in Study 1 and for women in Study 2. This work demonstrates the importance of sexual partners' implicit beliefs about sexuality (perceived or reported) in understanding sexual outcomes.

*Key words:* sexuality, romantic relationships, growth mindset, rejection sensitivity

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### **Sexual Growth Mindsets and Rejection Sensitivity in Sexual Satisfaction**

Greater sexual satisfaction among couples has long been linked to better relationship outcomes. For example, greater sexual satisfaction is associated with increased emotional intimacy (Štulhofer et al., 2014; Yoo et al., 2014), greater relationship satisfaction (McNulty et al., 2016; Sprecher, 2002; for a review, see Christopher & Sprecher, 2000), greater fidelity and commitment (Sprecher, 2002; Yucel & Gassanov, 2010), and greater physical and psychological health (e.g., Holmberg et al., 2010). Moreover, it is widely documented that sexual satisfaction ebbs and flows in relationships, with sexual satisfaction shifting across the duration of relationships (e.g., Heiman et al., 2011; Schmiedeberg & Schröder, 2015). Yet, people vary in their underlying belief that they can learn to be better sexual partners, or the extent to which they hold a *sexual growth mindset* (Böthe et al., 2017; Maxwell et al., 2017). These mindsets may even influence how people react to sexual feedback. In the present research, we explore, for the first time, the role of sexual growth mindset and sexual rejection sensitivity in sexual satisfaction, and test sexual rejection sensitivity as a potential mediator of the association between sexual growth mindset and sexual satisfaction. Moreover, we examine the role of perception of one's partner's mindset (Study 1) and the actual mindset reported by partners (Study 2).

### **Sexual Growth Mindsets**

Growth mindsets, also referred to as incremental mindsets, are lay theories that influence perceptions of the self and others in a variety of performance domains (Dweck et al., 1995). While entity theorists perceive traits as fixed and rooted in personality, growth theorists attribute traits to situational influence, perceive traits to be malleable, and are more likely to adopt a mastery-oriented (as opposed to a helpless-oriented) approach to problem solving (Dweck et al.,

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1995; Robins & Pals, 2002). Growth mindsets have largely been studied in the domain of intelligence. Findings suggest that adopting a growth mindset of intelligence predicts higher mathematics scores in adolescents (Blackwell et al., 2007), increased self-esteem in undergraduate students (Robins & Pals, 2002), and may be particularly beneficial to the performance of academically underserved students (Sisk et al., 2018; see meta-analysis by Costa & Faria, 2018). While most of this initial work on intelligence mindsets focused on how possessing growth mindsets improved individual performance, more recent work has shown that the mindsets of important others (e.g., teachers) can influence the performance of their students (Rattan et al., 2018; Smith et al., 2018). For example, students who *perceived* their STEM instructor as having a growth mindset increased their interest in STEM (Fuesting et al., 2019). This body of work suggests growth mindsets held by the self and others may facilitate better performance and less avoidance in intellectually-relevant domains.

Researchers have also examined growth mindsets in the contexts of romantic relationships and sexuality. People who hold romantic destiny beliefs (an entity theory) believe relationships simply are or are not meant to be (i.e., soulmate theories; Franiuk et al., 2002). In contrast, romantic growth beliefs (an incremental theory) recognize that successful relationships require effort (for a review, see Knee & Canevello, 2006). This work finds that endorsing a relationship growth mindset predicts increased positivity and relationship maintenance (Weigel et al., 2016), higher tolerance for partner's shortcomings (e.g., Knee et al., 2001), lower levels of relationship violence (Cobb et al., 2013), and an increased likelihood to engage in constructive disagreements (Kammrath & Dweck, 2006). After the discussion of relationship problems, those with relationship growth mindset felt more positivity towards their partners while those with destiny beliefs felt more hostility towards their partners (Knee et al., 2001). Indeed, growth

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mindsets are believed to be associated with less negative reactions to relationship conflict and feedback (see Knee et al., 2003 for review).

In the context of sexual relationships, research has also found that compared to sexual destiny beliefs, sexual growth beliefs about relationships are better predictors of higher sexual and relationship satisfaction and lower attachment avoidance (Böthe et al., 2017; Maxwell et al., 2017). Growth beliefs about sexual desire, specifically the belief that sexual desire is malleable over the life course rather than fixed, reduced women's likelihood of engaging in negative coping when faced with a problem related to sexual desire (Sutherland & Rehman, 2018).

Given the research suggesting that growth mindsets are beneficial to relationships and facilitate positive reactions to feedback, the present research explores the relationship between sexual growth mindsets and sexual satisfaction by considering the influence of one such reaction to feedback: sexual rejection sensitivity, or the inclination to anxiously anticipate and react to perceived interpersonal rejection. Because our research investigates sexual growth mindsets in the specific context of a relationship, we have adapted the original, one-dimensional mindset scale (Dweck et al., 1995) in a way that assesses beliefs about the stability of a person's quality as a sexual partner (e.g., "Everyone is a certain kind of sexual partner and there is not much that they can do to really change that"). Other researchers have taken a similar but different approach by developing measures assessing the quality of a person's sexual life more broadly (e.g., "You have a certain type of sexual life and you can't do much to change it," Böthe et al., 2017) or referencing a couple's sexual and romantic relationship beliefs (e.g., "An unsatisfying sex life suggests that the relationship was never meant to be," Maxwell et al., 2017). In the present research, we are interested specifically in perceptions of the malleability of a person's quality as a sexual partner, and how that may be associated with a person's sensitivity to sexual rejection.

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### **Sexual Rejection Sensitivity**

A robust literature shows that rejection sensitivity, is associated with lower relationship quality and satisfaction (Downey & Feldman 1996) and an increased likelihood of breaking up (Downey et al., 1998). High rejection sensitivity is also associated with increased depressive symptoms in women who have recently been romantically rejected (Ayduk et al., 2001).

Research has also found that rejection sensitivity was associated with negative relationship emotional processes when controlling for other potential predictors, such as attachment style and self-esteem (Downey & Feldman, 1996). The rejection sensitivity framework has been expanded to other domains: appearance-based rejection sensitivity (Appearance-RS) is associated with increased symptoms of disordered eating and lower self-esteem (Park, 2007), and gender-based rejection sensitivity (Gender-RS) is associated with lower perceived academic self-efficacy for women (London et al., 2012).

Importantly, research suggests that higher growth mindsets are related to less rejection sensitivity. For example, those primed with fixed mindsets related to language learning demonstrated higher language-based rejection sensitivity and subsequent intergroup anxiety toward native speakers (Lou & Noels, 2019), while growth language mindsets reduced these concerns (Lou & Noels, 2020). Further, undergraduates with fixed mindsets *and* class-based rejection sensitivity are more likely to experience lower academic performance (Rheinschmidt, & Mendoza-Denton, 2014). Moreover, in the context of relationships, research demonstrates people with greater sexual growth mindsets engage in more positive coping strategies to deal with sexual difficulties (Sutherland & Rehman, 2018), suggesting that they rely on their partner being receptive to such actions (i.e., are lower in rejection sensitivity). In addition, people who believe they can work to improve their sex life might be less sensitive to sexual rejection as they

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may harbor more optimism about future sexual encounters including their partner's sexual reactions, given that they recognize their own ability to change.

Based on the aforementioned literature, we will test the relationship between sexual growth mindsets and rejection sensitivity in the domain of sexuality in the present research. *Partner* sexual growth mindset may be especially relevant to a person's sexual rejection sensitivity because of the relational context of sexuality. If one has a partner (or perceives themselves to have a partner) who believes that people can become better lovers, this may facilitate seeing your partner as receptive to your sexual efforts and reduce a person's own fear of trying something new (i.e., sexual rejection sensitivity).

In sum, this body of work demonstrates the maladaptive nature of rejection sensitivity in pursuit of healthy relationships and performance in a variety of domains, and the potential for growth mindsets to facilitate less rejection sensitivity. To our knowledge, the present studies are the first to adapt the rejection sensitivity framework to sexuality. Specifically, this work investigates the association between sexual growth mindsets and sexual rejection sensitivity in predicting sexual satisfaction, and tests sexual rejection sensitivity as a potential mediator.

### **The Present Research**

In two studies, the present research tests models of sexual growth beliefs, sexual rejection sensitivity, and sexual satisfaction. In Study 1, participants completed measures of sexual rejection sensitivity and sexual growth beliefs both from their own and from their partner's perspective. Though no work to date has studied *perceptions* of a partner's sexual growth beliefs or sexual rejection sensitivity, prior research suggests that perceptions of growth mindsets are important predictors of individual performance in relevant domains (Fuesting et al., 2019). Moreover, higher perceived partner sexual satisfaction has been linked to higher sexual



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satisfaction for the self (Øverup & Smith, 2017), suggesting that metaperceptions related to sex play an important role in sexual satisfaction among couples.

We expected own sexual growth mindset to be associated with lower sexual rejection sensitivity and, based on previous research by Maxwell and colleagues (2017), higher sexual satisfaction. Further, we hypothesized that *perceived partner* sexual growth mindset would also be associated with lower sexual rejection sensitivity and higher sexual satisfaction (see Figure 1 of hypothesized model with key variables).

We also hypothesized that own sexual rejection sensitivity would be negatively associated with sexual satisfaction. Sexual rejection sensitivity was tested as a potential mediator between sexual growth mindset and sexual satisfaction. We had no prediction with regards to how *perceived partner* sexual rejection sensitivity would be associated with sexual satisfaction, though we considered that people who think their partners view them as defensive or less open may have other negative perceptions about their sexual relationship (e.g., Gottman et al., 1998).

Figure 1: Hypothesized Model Tested in Study 1  
[Figure 1 here]

In addition, we will test whether this model holds equally well for men and women in heterosexual relationships. Previous work finds inconsistent patterns of gender differences in sexual growth and destiny beliefs (Maxwell et al., 2017). Men and women may behave differently during sexual encounters, perhaps to their own detriment, in accordance with heterosexual scripts (Sanchez et al., 2005; Wiederman, 2005) or other social factors. Therefore, we also planned to test participant gender as a moderator in our analyses. Moreover, we included sex frequency as a covariate of sexual satisfaction throughout our analyses by adding pathways from sex frequency to both sexual rejection sensitivity and sexual satisfaction. Sex frequency is associated with sexual satisfaction (Frederick et al., 2017). Thus, researchers often control for

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sex frequency to better isolate relationships between sexual satisfaction and other key variables that cannot be solely attributed to frequency (see Sanchez et al., 2011 and Sanchez et al., 2012 for similar approaches). In Study 2, we administered the same measures to a sample of mixed-sex (i.e., one man and one woman) romantic couples to conceptually replicate Study 1 findings, replacing *perceived* partner beliefs with *actual* partner beliefs. These models provide consistent and unique insight into sexual rejection sensitivity and sexual satisfaction among U.S. adults in mixed-sex romantic relationships.

### Study 1

#### Method

##### *Participants and Procedure*

A sample of 381 participants in romantic relationships was recruited using online sampling methods. We had originally based our sample size stop point on regression models before we decided that path analyses would be more parsimonious test of our hypotheses. The power analysis was conducted using G\*Power software (Faul et al., 2007) based on multiple regression using the variables of interest and calculated for an effect size of .25, suggesting that we would be powered above 90% with a sample of 400. Given that path modeling was later decided to be the most parsimonious test of our hypotheses, we attempted to replicate our findings in Study 2, and provide a lengthy discussion of power and sample size for the given studies in our discussion.

To participate, participants had to be at least 18 years of age, be in a romantic relationship, and have prior sexual experience within that romantic relationship. Participants who did not identify as cisgender ( $n = 2$ ), and participants who failed all attention checks ( $n = 2$ ) were removed.<sup>1</sup> The final sample consisted of 377 cisgender individuals. 46.7% of this sample ( $n =$

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176) were undergraduate students in the U.S. enrolled in an introductory psychology course who were required to participate in research for course credit. The remaining 53.3% ( $n = 201$ ) of the convenience sample were adults living in the U.S. recruited online using Amazon's Mechanical Turk. The sample was 50.1% cisgender men and 49.9% cisgender women, ranging in age from 18 to 100 years old ( $M_{age} = 29.1$  years,  $SD_{age} = 12.2$  years,  $Mdn_{age} = 26$  years). The lengths of participants' relationships ranged from 1 month to 49.17 years ( $M = 4.9$  years,  $SD = 6.4$  years). The sample was mostly (89.4%) heterosexual (7.4% bisexual, 2.7% gay or lesbian, and 1 participant identified as queer) and mostly (54.6%) White (12.2% multiracial/biracial, 8.8% South Asian, 8.8% East Asian, 5.8% Hispanic/Latinx, 5.3% Black, 1.9% Southeast Asian, 1.3% Middle Eastern/North African, <1% Native American/Alaska Native, and <1% selected "other"). The analyses were conducted on a subset of measures included in the survey and are presented below in the order that they appeared to participants.<sup>2</sup>

### **Measures**

#### *Sexual Growth Mindset*

Sexual growth mindset was assessed using a three-item measure scored on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) adapted from Dweck et al. (1995). The items were, "The kind of sexual partner someone is, is something basic about them, and it can't be changed very much"; "People can do things differently, but the important part of who they are as a sexual partner can't really be changed"; and "Everyone is a certain kind of sexual partner and there is not much that they can do to really change that." Items were reverse scored and averaged ( $\alpha = .90$ ;  $M = 4.6$ ,  $SD = 1.5$ ). Participants were also asked to complete this measure from the perspective of their current romantic partner; items were reverse scored and averaged

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such that higher scores indicated greater sexual growth mindset beliefs ( $\alpha = .92$ ;  $M = 4.5$ ,  $SD = 1.5$ ; see supplement for additional measure validation).

### *Sexual Satisfaction*

Sexual satisfaction was measured using the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1998). Participants were asked to describe their sexual relationship with their partner using 7-point semantic differential scales with the following endpoints: good/bad, pleasant/unpleasant, positive/negative, satisfying/unsatisfying, and valuable/worthless. Scores were reversed and averaged ( $\alpha = .95$ ;  $M = 6.1$ ,  $SD = 1.1$ ).

### *Sexual Rejection Sensitivity*

Sexual rejection sensitivity was assessed using a measure adapted from Downey and Feldman (1996). Participants read a series of six scenarios involving their romantic partner (e.g. “Imagine that you were to ask your partner to explore a new sexual activity with you”). After each scenario, participants responded to the following two statements on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*): 1) “I would be anxious and concerned about my partner’s response,” and 2) “My partner would be open to that feedback” (see supplement for the full measure). Following the scoring of traditional rejection sensitivity measures (Downey & Feldman, 1996), the latter was reverse scored and multiplied by the former for each scenario, producing six scenario-specific sexual rejection sensitivity scores.<sup>3</sup> These scores were averaged to create one index of sexual rejection sensitivity with possible scores ranging from one to 49 ( $\alpha = .90$ ;  $M = 7.6$ ,  $SD = 6.1$ ; see supplement for additional measure validation). Participants were also asked to complete the first item for each scenario from their *partner’s* perspective (i.e., “I think that my partner would be anxious and concerned about my response) on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*); scores were averaged ( $\alpha = .93$ ;  $M = 3.3$ ,  $SD =$

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1.6; see supplement for full scale). When comparing the mean scores and effects of sexual rejection sensitivity and perceived partner sexual rejection sensitivity, note that the ranges of possible scores for each measure differ.

### *Sex Frequency*

Participants were asked to report how often they engage in sexual activity with their partner each week. Responses ranged from 0 to 20 times a week ( $M = 4.4$ ,  $SD = 3.5$ ).

### *Statistical Analysis*

We tested the hypothesized model with path analysis on Mplus 8 (Muthén & Muthén, 2017) using maximum likelihood estimation. Mediation was analyzed using bias-corrected 95% confidence intervals from 10,000 bootstrapped samples of the indirect effects (Preacher & Hayes, 2008). Models demonstrated good fit if the results indicated null chi-square test of model fit, root mean square error approximation (RMSEA)  $< 0.06$ , comparative fit index (CFI)  $> 0.95$ , Tucker-Lewis Index (TLI)  $> 0.95$ , and standardized root mean square residual (SRMR)  $< 0.08$  (Hu & Bentler, 1999; Kline, 2011).

## **Results**

Data and code for Studies 1 and 2 can be found at <https://osf.io/btcn2/>. Bivariate correlations and descriptive statistics for all measures can be found in Table 1. As we expected, own sexual growth mindset was significantly associated with lower sexual rejection sensitivity. Own sexual growth mindset was not significantly associated with sexual satisfaction, but greater perceived partner growth mindset was significantly associated with both greater sexual satisfaction and lower own sexual rejection sensitivity (effect sizes for significant correlations ranged from small to medium; see Table 1). As hypothesized, sexual rejection sensitivity was significantly negatively associated with sexual satisfaction, as was perceived partner rejection

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sensitivity. Additionally, own sexual growth mindset was significantly positively related to perceived partner's sexual growth mindset; sexual rejection sensitivity and perceived partner's sexual rejection sensitivity were also positively related (effect sizes for significant correlations ranged from medium to large; see Table 1).

Table 1: Bivariate Correlations and Descriptive Statistics (Study 1)  
[Table 1 here]

### *Gender Comparisons*

We conducted a series of independent sample *t*-tests to determine if the men and women in our sample scored differently on the focal outcome measures. Men and women did not differ in their sexual growth mindsets,  $t(373) = 1.69, p = .10, d = .18$ , or in their perceptions of their partner's sexual growth mindsets,  $t(372) = 1.14, p = .26, d = .12$ . Men ( $M = 8.98, SD = 6.33$ ) reported higher sexual rejection sensitivity than women ( $M = 6.20, SD = 5.63$ ),  $t(375) = 4.51, p < .001, d = .46$ , but there was no gender difference in perception of a partner's sexual rejection sensitivity,  $t(375) = 1.74, p = .08, d = .18$ . Additionally, men and women did not differ in their reported sexual satisfaction,  $t(373) = 0.93, p = .35, d = .10$ , or weekly sex frequency,  $t(362) = 1.40, p = .16, d = .15$ .

### *Path Analysis Model*

Next, we tested the hypothesized model. The model indicated good fit,  $\chi^2(2, N = 361) = 1.88, p = .39, CFI = 1.0, TLI = 1.0, RMSEA = .00, SRMR = .01, AIC = 8888.78$  (see Figure 2). Greater perceived partner sexual growth mindset was associated with lower (own) sexual rejection sensitivity ( $\beta = -.24, p = .002$ ) and lower perceptions of partner's rejection sensitivity ( $\beta = -.21, p = .02$ ). However, there was no relationship between participants' own sexual growth mindset and own or perceived partner's sexual rejection sensitivity. Further, the indirect effect from own sexual growth mindset to sexual satisfaction through rejection sensitivity was not

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significant,  $\beta = 0.03$ ,  $p = .31$ , 95% CI [-0.03, 0.08]; however, the indirect effect from perceived partner sexual growth mindset to sexual satisfaction through rejection sensitivity was significant,  $\beta = 0.09$ ,  $p = .006$ , 95% CI [0.02, 0.15]. This suggests that when both participants' own and their perceived partner's sexual growth mindset is considered, a person's sexual rejection sensitivity is associated more strongly with how they perceive their partner's sexual growth mindset, and less strongly with their own sexual growth mindset. Higher (own) sexual rejection sensitivity significantly predicted lower sexual satisfaction ( $\beta = -.35$ ,  $p < .001$ ); however, the path from perceived partner's sexual rejection sensitivity to sexual satisfaction did not. Finally, sexual frequency was associated with lower sexual rejection sensitivity and greater overall sexual satisfaction.

Figure 2: Path Estimates for Hypothesized Model  
[Figure 2 here]

### ***Moderation by Gender***

We used multigroup path analysis to examine whether the model was moderated by participant gender. We examined fit for the constrained and unconstrained models. In the constrained model, the path coefficients were constrained to be equal between men and women, while they were free to differ between gender groups in the unconstrained model. The correlations between variables were free to vary in both models. Both the constrained model,  $\chi^2(13, N = 361) = 18.41$ ,  $p = .14$ , CFI = 0.98, TLI = 0.96, RMSEA = 0.05, SRMR = 0.05, AIC = 8863.53, and the unconstrained model,  $\chi^2(4, N = 361) = 2.03$ ,  $p = .73$ , CFI = 1.0, TLI = 1.0, RMSEA = 0.00, SRMR = 0.01, AIC = 8865.14 indicated good fit. The chi-square difference test did not reach conventional standards for significance suggesting that the model was not moderated by participant gender,  $\chi^2(9, N = 361) = 16.38$ ,  $p = .06$ . Thus, we concluded the model fit similarly for men and women.

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In sum, Study 1 findings demonstrate the importance of perceptions of a partner's sexual growth mindset in predicting one's own sexual rejection sensitivity. Further, this study demonstrated for the first time that sexual rejection sensitivity was a significant predictor of sexual satisfaction. Importantly, however, perceptions of a sexual partner's beliefs or desires are not guaranteed to be accurate. Past research has found that men underperceive their female partners' sexual desire (Muisse et al., 2016), and women underperceive their male partners' desire to engage in behaviors such as foreplay (Miller & Byers, 2004). Therefore, our goal for Study 2 was to investigate the relationship between a person's sexual rejection sensitivity and their partner's *actual* sexual growth mindset by surveying a dyadic sample of mixed-sex couples. Sexual rejection sensitivity will again be tested as a potential mediator between sexual growth mindset and sexual satisfaction.

### Study 2

#### Method

##### *Participants and Procedure*

A convenience sample of 104 sexually active, cisgender mixed-sex couples (50% cisgender men, 50% cisgender women) who have been in a heterosexual relationship for at least four months was recruited using an online Qualtrics panel. Most participants (92.4%) identified as heterosexual (4.8% bisexual, and 2 identified as gay or lesbian) and 76.4% of the sample was White (7.7% Hispanic/Latinx, 5.8% Black, 4.3% Multiracial/Biracial, 2.9% South Asian, 1.4% selected "other", 1% East Asian, and < 1% Native American/Alaska Native). Sample size was determined considering the financial feasibility of recruiting dyadic data without compromising statistical integrity. See discussion for further explanation.



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Participants had to reside in the United States and be at least 18 years of age to participate. Ages of participants ranged from 20 to 81 years ( $M_{age} = 43.9$  years,  $SD_{age} = 14.5$  years,  $Mdn_{age} = 40$  years). The couples were in relationships ranging from 0.5 to 61.92 years in length ( $M = 17.7$  years,  $SD = 14.0$  years). 99% of the couples in our sample cohabitated, 85.6% were married, and 71.2% had children. Participants were instructed to complete survey measures independently, without input from their partner, and without knowledge of their partner's responses. Participants provided their partners' initials at the beginning of the study; these initials were piped into the survey to increase comprehension. The measures were presented to participants in the same order that they were presented in Study 1.

### *Measures*

Participants individually completed the same measures of sexual growth mindset (adapted from Dweck et al., 1995);  $\alpha = .91$ ;  $M = 3.86$ ,  $SD = 1.54$ ), and sexual rejection sensitivity (adapted from Downey & Feldman, 1996;  $\alpha = .91$ ;  $M = 7.87$ ,  $SD = 5.21$ ) that were administered in Study 1.

### *Sexual Satisfaction*

Sexual satisfaction was measured using the 12 positively-worded items of the Index of Sexual Satisfaction (ISS; Hudson et al., 1981, as used by Babin, 2013). Participants responded to statements such as "I feel that my sex life with my partner really adds a lot to our relationship" and "I think that my sex life with my partner is wonderful" on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*); responses were averaged ( $\alpha = .96$ ;  $M = 5.90$ ,  $SD = 0.99$ ). When compared in a single sample, the ISS and GMSEX (used in Study 1) have similar psychometric properties and are strongly correlated (Mark et al., 2014), but we used a different scale to

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replicate the model with more generalizability (i.e., ensure our results were not a function of the sexual satisfaction measure).

### *Sex Frequency*

Based on similar measures of sexual frequency with more standardized ranges (e.g., Muise et al., 2015), participants were asked to report the frequency of their sexual activity with their partner using the following scale: 1 = I have not had sex in the past year; 2 = Less than once a month; 3 = Less than once a week; 4 = 1-2 times a week; 5 = 3 or more times a week ( $M = 4.0$ ,  $SD = 0.93$ ).

### *Statistical Analysis*

The hypothesized model was tested using the Actor-Partner Interdependence Model (APIM) using Mplus 8 (Fitzpatrick et al., 2016). Dyadic analyses using the APIM and maximum likelihood estimation account for the interdependence within couples, and estimate actor effects (the association between a participant's own sexual growth mindset and sexual satisfaction) separately from partner effects (the association between a partner's sexual growth mindset and participant's sexual satisfaction). As in Study 1, mediation was tested using bias-corrected 95% confidence intervals from 10,000 bootstrapped samples of the indirect effects. Because all couples were mixed-sex, we employed the model for distinguishable dyads with gender as the distinguishing variable. Dyad distinguishability was determined through the theoretical rationale driving the research question (Fitzpatrick et al. 2016; Gonzalez & Griffin, 1999). A chi square difference test further confirmed the distinguishability of the dyads,  $\chi^2(12, N = 104) = 243.79, p < .001$  (Kenny, 2015; Olsen & Kenny, 2006).

## **Results**

### *Within-Couple Comparisons*

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Paired samples correlations for all measures can be found in Table 2, and correlations split by gender can be found in Table 3. Within couples, there were strong, positive associations between men's and women's sexual growth mindsets, sexual rejection sensitivity, and sexual satisfaction. Paired samples *t*-tests revealed that men and women within the romantic dyads in our sample reported similar sexual growth mindsets,  $t(103) = 1.79, p = .08, d = .16$ , and sexual rejection sensitivity,  $t(103) = 1.74, p = .09, d = .16$ . Men's sexual satisfaction ( $M = 6.00, SD = 0.91$ ) was higher than their female partners' sexual satisfaction ( $M = 5.80, SD = 1.06$ ),  $t(103) = 2.86, p = .005, d = .20$  (see descriptive statistics in Table 4).

Table 2: Paired Samples (Within-Dyad) Correlations Among Variables (Study 2)  
[Table 2 here]

Table 3: Bivariate Correlations Split by Gender (Study 2)  
[Table 3 here]

Table 4: Descriptive Statistics (Study 2)  
[Table 4 here]

### *Dyadic Analysis*

Next, we tested the model using the Actor-Partner Interdependence Model (APIM). As in Study 1, sex frequency was a predictor of sexual rejection sensitivity and sexual satisfaction.<sup>4</sup> All exogenous variables were correlated. This model demonstrated good fit,  $\chi^2(4, N = 104) = 5.05, p = .28, CFI = 1.0, TLI = .98, RMSEA = .05, SRMR = .03, AIC = 2703.79$  (see Figure 3).<sup>5</sup>

Figure 3: Path Estimates for Hypothesized Model  
[Figure 3 here]

As in Study 1, partner growth mindset predicted one's own sexual rejection sensitivity. Uniquely, in Study 2, perceived partner growth mindset was replaced with *actual* partner growth mindsets. For both men ( $\beta = -.24, p = .04$ ) and women ( $\beta = -.24, p = .02$ ), having a partner who had a greater sexual growth mindset predicted less sexual rejection sensitivity for oneself. For

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women, their own sexual rejection sensitivity was associated with lower sexual satisfaction for themselves ( $\beta = -.23, p = .03$ ) but men's sexual rejection sensitivity was not a significant predictor of their own sexual satisfaction. For men and women, sexual frequency was associated with lower sexual rejection sensitivity for themselves and their partners and overall greater sexual satisfaction in both members of the couple.

Finally, no indirect effects were significant in Study 2. For women, neither the indirect paths from own sexual growth mindset,  $\beta = .05, p = .17, 95\% \text{ CI } [0.00, 0.14]$ , nor partner's sexual growth mindset,  $\beta = .06, p = .12, 95\% \text{ CI } [0.01, 0.15]$ , to sexual satisfaction through rejection sensitivity were significant. The same pattern emerged for men: neither the indirect paths from own sexual growth mindset,  $\beta = .02, p = .41, 95\% \text{ CI } [-0.01, 0.10]$ , nor partner's sexual growth mindset,  $\beta = .04, p = .24, 95\% \text{ CI } [0.00, 0.14]$ , to sexual satisfaction through rejection sensitivity were significant.

### Discussion

The goal of this research was to better understand the associations between sexual growth mindsets, sexual rejection sensitivity, and sexual satisfaction among adults in mixed-sex romantic relationships. Importantly, this work makes two important contributions to the literature: this work expands the rejection sensitivity framework to the domain of sexuality, and tests the association of both perceived and actual partner sexual growth mindsets with sexual outcomes.

In both studies, partner's sexual growth mindsets were associated with own sexual rejection sensitivity. This suggests that partner's implicit beliefs (perceived or reported) are important to the sexual anxieties that people have about communicating about sexual activities. This is consistent with work demonstrating that growth mindsets can influence feedback

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sensitivity (Lou & Noels, 2019; Lou & Noels, 2020; Rheinschmidt, & Mendoza-Denton, 2014), but uniquely shows the interpersonal dynamics that contribute to couples' sexual rejection sensitivity. In addition, as we would expect given previous findings (Downey & Feldman, 1996), higher sexual rejection sensitivity significantly predicted lower sexual satisfaction in Study 1 and for women in Study 2.

These sexual rejection findings contribute a unique perspective to the rejection sensitivity literature and provide a new framework through which researchers can study sexual behaviors, beliefs, and their outcomes. For example, sexual rejection sensitivity may be associated with sex avoidance or disinterest in sexual activity to avoid opportunities for rejection. In addition, sexual rejection sensitive men and women may perceive ambiguous sexual behaviors as indicators of rejection in their partners, because prior research suggests that rejection-sensitive adults are prone to perceive rejection cues even in ambiguous situations (e.g., Downey & Feldman, 1996).

This work also expands our field's current understanding of sexual growth mindsets. Previous research finds that sexual growth mindsets are associated with increased sexual satisfaction (Böthe et al., 2017; Maxwell et al., 2017). However, across both samples, we find support for the greater predictive utility of *perceived* (Study 1) and *actual* (Study 2) *partner* sexual growth mindsets compared to one's *own* sexual growth mindset. Research has shown that perceived (e.g., Fuesting et al., 2019) and actual (e.g., Smith et al., 2018) growth mindsets of others can influence one's performance. Our work extends this work by investigating the impact of perceived and actual partner sexual growth mindsets on a person's own sexual rejection sensitivity (directly) and sexual satisfaction (indirectly). Of course, when we use the word *actual*, it is important to note that people may report mindsets that they aspire to have, rather than those

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they currently hold. Nonetheless, the additional replication with partner reports was an important corroboration of Study 1.

Notably, sexual rejection sensitivity mediated the effect on sexual satisfaction of perceived partner sexual growth mindset (Study 1) but not actual partner sexual growth mindset (Study 2). This difference highlights the relational importance of partner perceptions for individuals, and how these (potentially inaccurate) perceptions have an impact on sexual outcomes such as sexual satisfaction. Further, Study 2 demonstrates the high degree of interdependence that mixed-sex couples report with regards to their sex lives. We found positive, significant associations between sexual growth mindset, sexual rejection sensitivity, and sexual satisfaction scores for men and women in romantic relationships. Considered in tandem, this suggests the potential for sexual growth mindset interventions to help reduce sexual rejection sensitivity and indirectly have downstream consequences for couples' joint sexual satisfaction.

### **Limitations and Future Directions**

These findings should be interpreted considering three main limitations. First, sexual satisfaction and sex frequency were measured differently in Studies 1 and 2; however, because these two models behaved very similarly, there is no substantial reason to doubt the theoretical consistency between them. In fact, the alternative measurement could be viewed as a strength in a conceptual replication project. Second, given the recruitment and survey methods used in both Studies 1 and Study 2, we acknowledge the potential for self-selection and self-report biases to have influenced our outcomes. Third, this work is correlational. Therefore, no conclusions can be made regarding cause and effect. Future work will consider the impact of sexual communication, which predicts higher sexual satisfaction (Jones et al., 2018) and may be hampered by sexual rejection sensitivity. Future research should also explore other sources of sexual rejection

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sensitivity other than growth mindsets (e.g., early sexual rejection experiences, inexperience, and attachment styles).

Further, sexual rejection sensitivity mediated the effect of perceived partner sexual growth mindset on sexual satisfaction in Study 1 but not the effect of *actual* partner growth mindset on sexual satisfaction for either men or women in Study 2. We speculate that because rejection sensitivity measures the fear of facing rejection (rather than responses to actual rejection), perceptions of partner mindsets may be more influential than partners' actual mindsets. Similarly, past work has shown that perceived similarity with a relationship partner is more predictive of marital well-being (Acitelli et al., 1993) and attraction (Montoya, 2008) compared to actual similarity. Therefore, future work will assess the accuracy of partner perceptions and the potential for the degree of (in)accuracy to affect sensitivity to sexual rejection and sexual satisfaction.

Finally, we will briefly address the limitation of our sample sizes. Scholars have varied in their recommended sample sizes for path models. For example, one recommendation is to have 15 participants per variable or indicator (Stevens, 2002). Some researchers recommended at least 100 participants (Loehlin, 1992; Nassar & Wisenbaker, 2003) while others have argued that 200 participants (or 5 to 10 cases per parameter) should be the minimum (Kline, 2011; Marsh et al., 1988). Both standards were met in Study 1 and Study 2. For Study 2, which involves multi-level modeling to assess actor-partner interdependence models, we used the 200 participants standard despite some researchers suggesting that APIM requires fewer dyads (e.g., Lederman & Kenny, 2017). In sum, our sample sizes were adequate based on the outlined suggestions. In addition, we did not collect demographic information from participants regarding disability, socioeconomic status, or educational status, and we hope that future research on this topic will be conducted to

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examine the generalizability of these models (e.g., applicability to LGBT populations, married vs. unmarried cohabitating partners).

### **Conclusion**

Because sexual satisfaction contributes to overall well-being (e.g., Holmberg et al., 2010) and is associated with many positive relationship outcomes (e.g., relationship satisfaction; Christopher & Sprecher, 2000), understanding the factors that are associated with sexual satisfaction is important for researchers and practitioners. Adding to a large literature on the power of growth mindsets, the present work suggests that partner's sexual growth mindset may facilitate sexual openness, which may have important downstream consequences for sexual satisfaction. Further, these studies are a first step in understanding the dyadic association of sexual growth mindsets and rejection sensitivity in couples' sexual relationships.

### **Declaration of Conflicting Interest**

The authors declare that there is no conflict of interest.



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## Notes

1. Given the sexual nature of the survey, data collection was anonymous. Therefore, MTurk Worker IDs were not linked to survey data, and we were unable to delete two participants with repeat Worker IDs after data collection was complete. Because this represented less than .006% of the data, we proceeded with analysis. To ensure a higher standard of data quality in Study 2, we recruited participants using an online Qualtrics panel and worked closely with a specialized Qualtrics project management team.

2. The additional measures included in both Study 1 and Study 2 surveys include sexual growth and sexual destiny beliefs (Maxwell et al., 2017), orgasm frequency, sexual desire, and relationship satisfaction. Alternative models including the sexual growth and destiny subscales from Maxwell et al. (2017) were included; although these models did not reach the standards for good fit, sexual growth was associated with lower sexual rejection sensitivity, and sexual destiny was associated with higher sexual rejection sensitivity. Alternative models including relationship satisfaction similarly resulted in worse fitting models. Also, perceived partner sexual growth mindset and sexual rejection sensitivity were measured in Study 2, but were not used in analyses given the ability to measure actual partner beliefs. A full list of measures and alternate models for both studies can be found at <https://osf.io/btcn2/>.

3. As explained by Downey and Feldman (1996), the second item is reverse scored to represent expected *rejection*, rather than expected acceptance, in each scenario. Then, because the rejection sensitivity framework was conceptualized using an expectancy-value model (Bandura, 1986), this expectancy score is multiplied by the attitude score (the first item) for each scenario, giving more weight to scenarios that are more highly anticipated. See Feather (1988) for a review of the significance and statistical benefit of including this product in expectancy-value models.

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4. Because the sex frequencies reported by each member of the couples in our sample were strongly correlated,  $r(102) = .91, p < .001$ , we used one sex frequency variable (men's) as a covariate in this model.

5. Given the large variation in relationship length, we ran a model including moderation by relationship length on each path. Because the relationship lengths reported by each member of the couples in our sample were almost perfectly correlated  $r(102) = .9997, p < .001$ , we calculated the interaction terms using only one relationship length variable (women's). The model did not fit the data well,  $\chi^2(60, N = 104) = 1946.47, p < .001$ , CFI = 0.02, RMSEA = .55, SRMR = .31, AIC = 4114.34. Further, the relationship length interaction was not significant for any path in the model ( $ps > .16$ ).

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Table 1: Bivariate Correlations and Descriptive Statistics (Study 1)

	<i>M (SD)</i>	Range	Skewness ( <i>SE</i> )	Kurtosis ( <i>SE</i> )	1	2	3	4	5	6
1. SGM	4.56 (1.48)	1-7	-0.29 (0.13)	-0.72 (0.25)	--					
2. Perceived Partner's SGM	4.47 (1.53)	1-7	-0.24 (0.13)	-0.95 (0.25)	.77***					
3. Sexual-RS	7.59 (6.14)	1-49	1.65 (0.13)	5.03 (0.25)	-.26***	-.30***				
4. Perceived Partner's Sexual-RS	3.29 (1.64)	1-7	0.26 (0.13)	-1.06 (0.25)	-.22***	-.26***	.54***			
5. Sexual Satisfaction	6.12 (1.14)	1-7	-1.79 (0.13)	3.42 (0.25)	.08	.14**	-.38***	-.23***		
6. Sex Frequency	4.36 (3.54)	0-20	1.68 (0.13)	3.71 (0.26)	-.11*	-.09	-.11*	.00	.17**	--

**Note.**  $N = 361-377$  (due to missing data). SGM = Sexual Growth Mindset. Sexual-RS = Sexual Rejection Sensitivity.

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

## SEXUAL GROWTH MINDSETS

Table 2: Paired Samples (Within-Dyad) Correlations Among Variables (Study 2)

	Men's SGM	Men's Sexual-RS	Men's Sexual Satisfaction	Men's Sex Frequency
Women's SGM	.59***	-.25**	-.05	-.19*
Women's Sexual-RS	-.34***	.54***	-.40***	-.19
Women's Sexual Satisfaction	-.02	-.39***	.77***	.48***
Women's Sex Frequency	-.05	-.23*	.45***	.91***

**Note.**  $N = 104$  mixed-sex couples. SGM = Sexual Growth Mindset. Sexual-RS = Sexual Rejection Sensitivity.

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

## SEXUAL GROWTH MINDSETS

Table 3: Bivariate Correlations Split by Gender (Study 2)

	SGM	Sexual-RS	Sexual Satisfaction	Sex Frequency
SGM	--	-.24*	.02	-.08
Sexual-RS	-.30**	--	-.42***	-.23*
Sexual Satisfaction	.01	-.40***	--	.46***
Sex Frequency	-.15	-.18	.51***	--

**Note.** Men ( $n = 104$ ) above the diagonal; women ( $n = 104$ ) below the diagonal. SGM = Sexual Growth Mindset. Sexual-RS = Sexual Rejection Sensitivity.

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

## SEXUAL GROWTH MINDSETS

Table 4: Descriptive Statistics (Study 2)

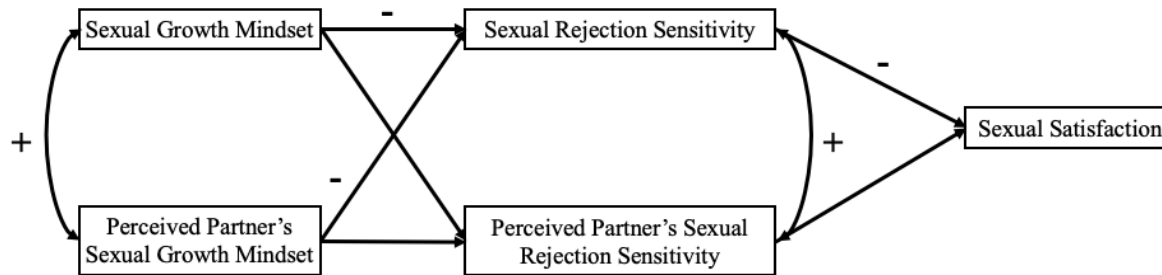
	Men ( $n = 104$ )				Women ( $n = 104$ )		
	Range	M ( <i>SD</i> )	Skewness ( <i>SE</i> )	Kurtosis ( <i>SE</i> )	M ( <i>SD</i> )	Skewness ( <i>SE</i> )	Kurtosis ( <i>SE</i> )
SGM	1-7	3.74 (1.56)	0.37(0.24)	-0.88(0.47)	3.98(1.51)	0.15(0.24)	-0.61(0.47)
Sexual-RS	1-49	8.29 (5.28)	0.70(0.24)	0.55(0.47)	7.45(5.12)	0.70(0.24)	-0.18(0.47)
Sexual Satisfaction	1-7	6.00 (0.91)	-1.21(0.24)	1.39(0.47)	5.80(1.06)	-0.95(0.24)	0.19(0.47)
Sex Frequency	0-20	4.02(0.92)	-0.79(0.24)	0.25(0.47)	4.06(0.93)	-0.78(0.24)	0.10(0.47)

**Note.** SGM = Sexual Growth Mindset. Sexual-RS = Sexual Rejection Sensitivity.



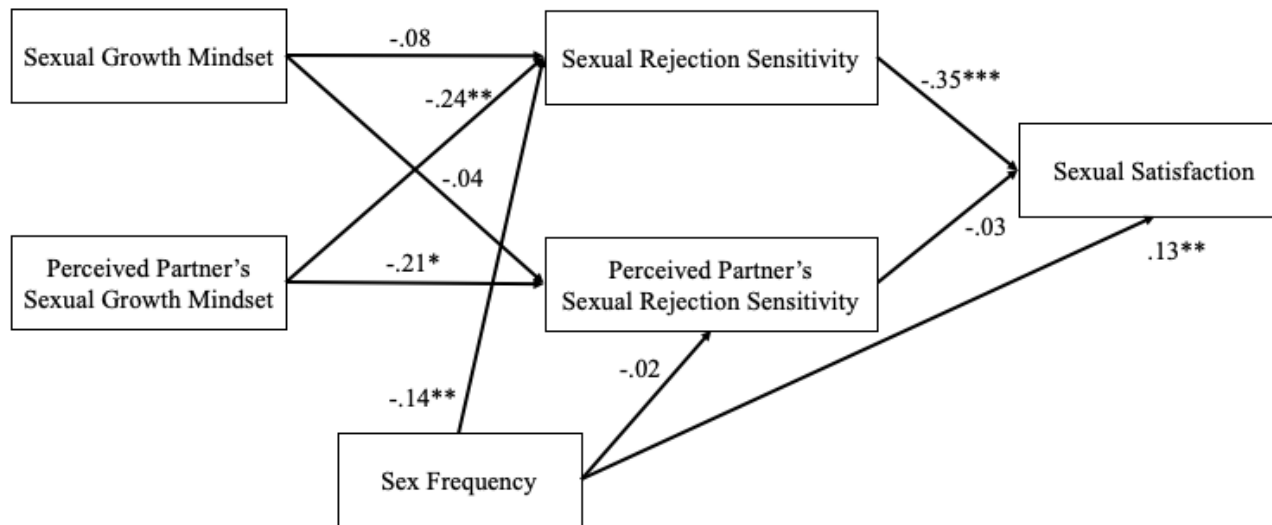
## SEXUAL GROWTH MINDSETS

Figure 1: Hypothesized Model Tested in Study 1



## SEXUAL GROWTH MINDSETS

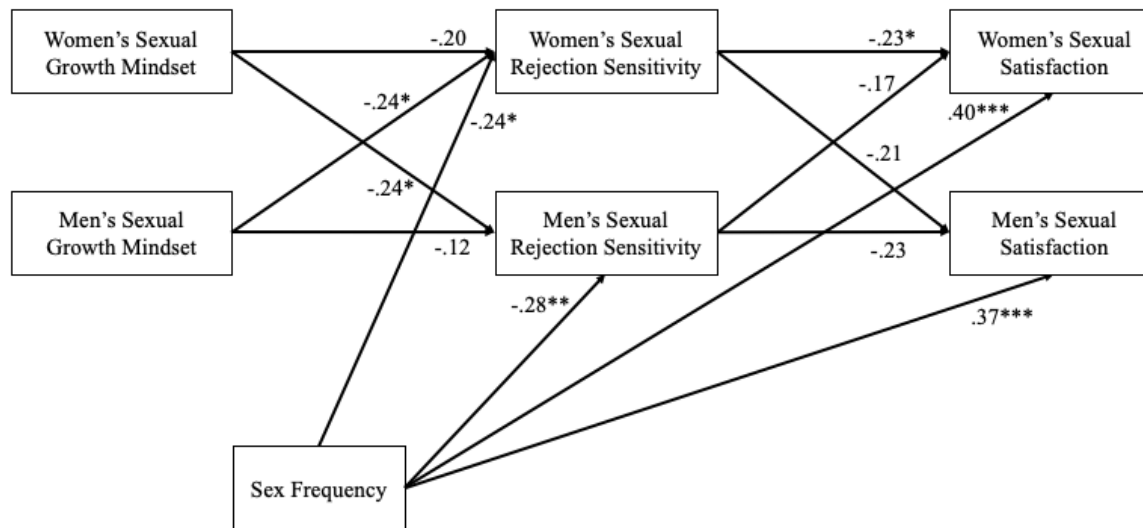
Figure 2: Path Estimates for Hypothesized Model



**Figure 2.** Correlations are not shown in this figure for parsimony but were included between all exogenous variables including between sexual growth mindset and perceived partner sexual growth mindset,  $r = .77, p < .001$ , and between sexual rejection sensitivity and perceived partner sexual rejection sensitivity,  $r = .51, p < .001$ .  
 $*p < .05$ .  $**p < .01$ .  $***p < .001$ .

## SEXUAL GROWTH MINDSETS

Figure 3: Path Estimates for Hypothesized Model



**Figure 3.** Correlations are not shown in this figure for parsimony but were included between all exogenous variables including between women's sexual growth mindset and men's growth mindset,  $r = .59, p < .001$ . In addition, the correlation between women's rejection sensitivity and men's rejection sensitivity,  $r = .46, p < .001$ , and men's and women's satisfaction,  $r = .65, p < .001$ , were also estimated in the model.

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