

## When Are Sexual Difficulties Distressing for Women? The Selective Protective Value of Intimate Relationships

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### ABSTRACT

**Introduction.** Recent studies have shown that sexual functioning and sexually related personal distress are weakly related in women, with only a minority of sexual difficulties resulting in significant levels of distress. However, there has been little systematic research to date on which factors moderate the relationship between sexual functioning and sexual distress.

**Aim.** To assess the degree to which relational intimacy and attachment anxiety moderate the association between sexual functioning and sexual distress in college-age women.

**Methods.** Two hundred women (mean age = 20.25) completed surveys assessing sexual functioning, relational intimacy, attachment anxiety, and sexual distress.

**Main Outcome Measures.** Participants completed the Sexual Satisfaction Scale for Women, the Female Sexual Function Index, the Dimensions of Relationship Quality Scale, and the Revised Experiences in Close Relationships Measure of Adult Romantic Attachment.

**Results.** Relational intimacy and attachment anxiety moderated the association between multiple aspects of sexual functioning and sexual distress. For lubrication and sexual pain, functioning was more strongly associated with distress in low-intimacy vs. high-intimacy relationships, but only for women with high levels of attachment anxiety. Results regarding desire were mixed and neither intimacy nor attachment anxiety interacted with subjective arousal or orgasm in predicting distress.

**Conclusion.** Both relational intimacy and attachment anxiety are important moderators of the association between sexual functioning and subjective sexual distress in women. Theoretical and practical implications are discussed. **Stephenson KR, and Meston CM. When are sexual difficulties distressing for women? The selective protective value of intimate relationships. J Sex Med 2010;7:3683–3694.**

**Key Words.** Sexual Distress; Sexual Functioning; Female Sexual Dysfunction; Attachment Orientation

### Introduction

Problems with sexual desire, arousal, orgasm, and pain are alarmingly common in the United States with between 32% and 58% of women reporting one or more of these problems in the past year [1–3]. A common assumption has been that these difficulties are distressing to the women who experience them. However, recent research suggests that problems with sexual functioning may lead to significant levels of distress in only a minority of cases [2,4–6]. For example, King and colleagues [7] found that, while 38% of their female sample was assigned a clinical diagnosis of sexual dysfunction using ICD-10 (The

International Statistical Classification of Diseases and Related Health Problems 10th Revision) criteria, only 6% regarded their sexual problems as somewhat or very distressing. Indeed, a recent study using a national probability sample found that physical aspects of sexual response are generally poor predictors of distress for women [8].

The fact that many sexual difficulties are not distressing for women begs the question: when are sexual problems distressing? Stated another way, what factors moderate the relationship between sexual functioning and sexual distress? Researchers have identified a number of contextual factors that are associated with increases in sexually related distress including the presence of multiple sexual

problems [6,9], depression [2], and a partner's sexual difficulties [4,8]. However, two separate lines of research suggest that two of the most important moderators may be individual attachment orientation and the level of intimacy in the relationship.

Experiencing problems with the relationship has been identified as the strongest and most consistent risk factor for women's sexual distress in a number of studies [2,4,7,8]. In one case, women with low relationship satisfaction were nearly six times more likely to have a very distressing sexual problem vs. a nondistressing sexual problem [4]. The relational context of sexual activity has long been recognized as important in shaping subjective sexual well-being, especially for women [10,11]. For example, women in committed relationships tend to be more sexually satisfied than single women [12–14] and the quality of women's relationships predicts the quality of their sexual interactions [8,15]. Thus, it is no surprise that women's relational satisfaction and sexual satisfaction are strongly associated [16–18].

Relational intimacy plays an especially important role in shaping women's sexual experiences. Intimacy has been repeatedly linked to sexual satisfaction [15,19,20] and sexual passion [21] and some methods of sex therapy focus almost exclusively on increasing levels of intimacy [22]. However, there is some confusion in the literature as to precisely what "intimacy" refers to. The term has been used to describe different aspects of relationships ranging from acceptance and caring [23] to openness of communication [24]. Indeed, intimacy often refers to many different aspects of relationships within a single study [25]. In an attempt to satisfactorily encompass the components that make up the construct of relational intimacy, we use the term in the current study to refer to a relatively wide range of factors including openness, honesty, and trust [26], a conceptualization similar to those used by major theories of romantic relationships [27,28].

Given its importance, it is possible that the level of intimacy in women's relationships moderates the association between their sexual functioning and sexual distress such that sexual difficulties are less distressing in the context of a good relationship than they are in the context of a bad one. Why might relational intimacy play this moderational role? As viewed from a social exchange perspective [29], sexual and relational functioning can be conceptualized as competing rewards or costs, with the cost of sexual difficulties leading to distress only in the absence of the offsetting reward of a

positive relationship. This theoretical perspective has been applied to sexuality [30] and sexual well-being in particular [31]. For example, the Interpersonal Exchange Model of Sexual Satisfaction (IEMSS) for long-term opposite-sex relationships posits that sexual satisfaction is affected by four components: the balance of sexual rewards and sexual costs in the relationship, the way that sexual rewards and costs compare to the expected level of sexual rewards and costs, the perceived equality of sexual rewards and costs between partners, and the quality of the nonsexual aspects of the relationship [32]. Although we did not utilize the IEMSS specifically as a theoretical framework in the current study, the concept of the balance of costs and rewards seems applicable here in that high relational intimacy may act as a protective factor (a reward), buffering against the negative effects of sexual problems (a cost), maintaining a favorable balance between costs and rewards (manifested as low sexual distress). Alternatively, low relational intimacy may act as a potentiating factor (an additional cost), exacerbating the negative effects of sexual problems (manifested as high sexual distress). In this scenario, we would expect a two-way interaction, with sexual functioning and distress being more strongly related in the context of a low-intimacy relationship than in a high-intimacy one.

An independent line of research suggests that attachment orientation may play an important role in shaping subjective sexual well-being [33–36]. According to modern attachment theory [37], attachment orientations can be viewed along two independent dimensions: avoidance and anxiety. Adult attachment avoidance can be understood as the extent to which an individual strives for independence in close relationships and fears overreliance on relational partners, while adult attachment anxiety can be understood as the extent to which an individual fears and worries about abandonment and rejection in close relationships. Whereas avoidantly attached individuals fear excessive closeness, anxiously attached individuals typically desire high levels of intimacy in their romantic relationships and exhibit great anxiety and distress when these goals are not met [38,39].

Recent research on attachment's role in sexuality has suggested that the sexual and nonsexual aspects of relationships are very closely related for anxiously attached individuals [35], possibly due to that fact that anxiously attached individuals are more likely to view sexual activity as a reflection of relationship quality [33], using sexual interactions

as “barometers” of the relationship as a whole. As a result, negative sexual encounters are often perceived as indicators of rejection, intensifying attachment insecurities and resulting in increased distress [34,40] at the event level. Based on these findings, we would expect attachment anxiety to moderate the association between sexual functioning and sexual distress such that difficulties with functioning are more distressing for highly anxious women than for securely attached women.

How might attachment anxiety and relational intimacy work in conjunction to moderate the association between sexual functioning and distress? One way to answer this question is by focusing on the differing goals of anxiously attached and securely attached women. Recall that highly anxious women desire high levels of intimacy and closeness in their relationships to allay fear of abandonment. One way to fulfill this desire for intimacy is by engaging in a number of intimate nonsexual activities such as spending large amounts of time together. However, anxiously attached individuals’ frequent demands for intimacy and security often lead their partners to reject their proximity-seeking attempts [37], leaving their needs unmet. An alternative means through which these individuals can achieve their desired level of intimacy is through sexual activity. Research has shown that anxiously attached individuals are more likely to have sex to fill attachment needs [41,42] and that satisfying sexual experiences can bring relief from relationship worries for anxiously attached people [34]. As such, we can conceptualize satisfying sexual experiences as an alternative means through which anxiously attached women can satisfy their desire for closeness and intimacy.

If sex is more likely to serve the purpose of alleviating worries about intimacy for anxiously attached women, then the degree to which a sexual difficulty is distressing should depend on the level of intimacy in their relationships. If they perceive their relationships as highly intimate, their desire for closeness is likely already being satisfied and, thus, sexual difficulties should result in little distress. However, if they experience low levels of intimacy in their relationships, sexual difficulties may deprive them of the ability to engage in satisfying sexual activity, leaving their need for intimacy unfulfilled and resulting in high levels of distress. As women with low attachment anxiety are less likely to use sexual activity as a means of satisfying a high need for closeness [34,41], the level of intimacy in the relationship should have

less of an effect on determining how distressing sexual problems are for securely attached women. Thus, the degree to which relationship intimacy moderates the association between sexual functioning and distress may itself be dependent on attachment orientation, specifically attachment anxiety. In this scenario, we would expect sexual functioning and distress to be more strongly related in low-intimacy vs. high-intimacy relationships, but only for women high in attachment anxiety.

In sum, our primary hypothesis was that sexual functioning would be more strongly associated with levels of sexual distress in low-intimacy relationships as compared to highly intimate ones for anxiously attached women, but not for securely attached women. However, it is also possible that relational intimacy and attachment anxiety serve as moderators independently of one another. Thus, our secondary hypotheses were that, in cases where our predicted three-way interaction was not present, sexual functioning would interact with both intimacy and attachment anxiety independently. Specifically, we predicted that functioning would be more strongly associated with sexual distress in low-intimacy relationships as compared to highly intimate relationships *and* more strongly associated to levels of sexual distress for anxiously attached women as compared to securely attached women.

### **Aim**

The goal of the current study was to help explain why sexual difficulties are only distressing in a minority of cases by assessing the degree to which relational intimacy and attachment anxiety moderate, either independently or in conjunction, the association between sexual functioning and levels of sexual distress in women.

### **Method**

#### **Participants**

Two hundred female undergraduates at the University of Texas at Austin participated for research credit in an introductory psychology course ( $n = 73$ ) or a human sexuality course ( $n = 127$ ). Participants had an average age of 20.25 years old (standard deviation [SD] = 2.33) and were primarily European-American (54.5%) with 17.7% Hispanic, 16.4% Asian-American, 4.5% African American, and 5.9% mixed race or “other.” All

participants were in exclusive, sexually active (intercourse in the past month) heterosexual relationships (mean length = 20.93 months, SD = 25.13 months) at the time of their participation. Aside from these factors, no other inclusion criteria were used. Although young women may be somewhat less likely to report some sexual problems than older women [1,43], a number of studies suggest that the prevalence of sexual difficulties is relatively constant across age ranges [44], and that young women may be more likely to be distressed by their sexual problems [8]. As such, it is important to study sexual functioning and distress in this population.

### Measures

#### Sexual Distress

Sexual distress has been described as frustration, anxiety, and worry regarding one's sexual activity, and has recently been differentiated from sexual satisfaction [45–49] which is defined as one's affective response to a subjective evaluation of both the positive and negative aspects of one's sexual experience [31]. The Sexual Satisfaction Scale for Women (SSS-W) [48] is a 30-item questionnaire that explicitly measures both overall satisfaction (contentment) and distress in particular (personal concern). Items consist of Likert responses coded so that higher scores indicate higher sexual well-being (either higher satisfaction or lower distress). Subscale scores are obtained by summing individual items. The personal concern subscale used in the current study measures the effect of sexual difficulties on the individual herself and includes items such as "My sexual difficulties are frustrating to me." The SSS-W has been shown to have excellent reliability (Cronbach's alpha = 0.94), as has its subscales (contentment = 0.83, communication = 0.74, compatibility = 0.85, personal concern = 0.90, relational concern = 0.88) [48]. Convergent and divergent validity has been demonstrated in women with and without diagnosed sexual dysfunction [48]. Cronbach's alpha for the personal concern subscale in the current sample was 0.89.

#### Sexual Functioning

Sexual functioning was assessed using the Female Sexual Function Index (FSFI) [50]. The FSFI is made up of 19-items encompassing six domains: desire, arousal, lubrication, orgasm, satisfaction, and pain. In each case, higher scores indicate better, more consistent functioning. The FSFI has been shown to have excellent reliability (Cron-

bach's alpha = 0.97) and validity in women with and without diagnoses of female orgasm disorder and hypoactive sexual desire disorder [51]. The satisfaction subscale was excluded from analyses because of its overlap with our outcome. Cronbach's alpha in the current sample was 0.87, 0.88, 0.83, 0.92, and 0.85 for desire, arousal, lubrication, orgasm, and pain subscales, respectively.

#### Relational Intimacy

Relational intimacy was assessed using the Intimacy subscale of the Dimensions of Relationship Quality Questionnaire (DRQ) which is a 30-item measure of relational intimacy. This DRQ subscale has been shown to be reliable and valid measures of relationship intimacy across multiple countries [26]. The intimacy subscale includes items assessing empathy, openness, and trust in the relationship. Items consist of Likert responses coded so that higher scores indicate higher relational intimacy. Subscale scores are obtained by summing individual items. Cronbach's alpha for the intimacy subscale in the current sample was 0.97.

#### Attachment Anxiety

Attachment anxiety was assessed using the anxiety subscale of the Experiences in Close Relationships Scale-Revised (ECR-R) [52,53]. Although there has been debate as to the appropriateness of using self-report scales to measure attachment orientation [54], the ECR-R has been shown to be one of the most reliable and valid measures of this type, exhibiting excellent psychometric properties and explaining between 30% and 40% of variation in ratings of attachment-related emotions experienced during interactions with a romantic partner [53]. Additionally, this scale is recommended for use when attachment is to be utilized in moderation analyses, making it appropriate for use in the current study [53]. Sample items include "I need a lot of reassurance that I am loved by my partner" and "My desire to be very close sometimes scares people away." Items consist of Likert responses coded so that higher scores indicate higher attachment anxiety. Subscale scores are obtained by summing individual items. Cronbach's alpha for the attachment anxiety subscale in the current sample was 0.73. Means and SDs for all scales can be found in Table 1.

#### Procedure

Participants in introductory psychology were recruited by e-mail based on their responses to a prescreening survey utilized by the University of



**Table 1** Means and SDs for measures in current sample

	Range (Possible)	Range (Observed)	Mean	SD
Personal Sexual Distress (SSS-W)	6–30	6–30	26.33	5.54
Attachment Anxiety (ECR-R)	6–36	6–36	21.01	6.59
Relational Intimacy (DRQ)	20–200	28–196	172.19	27.32
Sexual Desire (FSFI)	0–6	1.8–6	4.20	0.95
Arousal (FSFI)	0–6	4.2–6	5.10	0.94
Lubrication (FSFI)	0–6	1.5–6	5.30	0.80
Orgasm (FSFI)	0–6	4.8–6	4.70	1.40
Pain (FSFI)	0–6	3.8–6	5.30	0.96

Texas Psychology Department indicating that they were currently in exclusive, sexually active romantic relationships. Participants who were contacted gave informed consent before completing an online survey, entitled “Sexuality and Relationships” within 2 weeks of the start of the semester for partial course credit. Participants in human sexuality could volunteer to complete an identical online survey for extra credit in the course. Those not meeting inclusion criteria completed a similar survey (not used in the current study) for credit. All participant responses were anonymous. The University of Texas IRB approved all procedures.

## Results

### Associations between Functioning and Distress

We began by examining the strength of the relationship between sexual functioning and sexual distress. All FSFI domains were significantly correlated with distress (see Table 2). However, the strength of the relationship between functioning and distress ranged from weak ( $r = 0.164$ ,  $P < 0.05$ ) to moderate ( $r = 0.542$ ,  $P < 0.001$ ).

### Moderators of Associations between Functioning and Distress

To test our hypotheses regarding the roles of relational intimacy and attachment anxiety in moderating the relationship between functioning

and distress, we performed a series of linear regression analyses with sexual distress regressed on relational intimacy, attachment anxiety, and each subscale of the FSFI (except satisfaction) in turn. We also included interactions between predictors. All predictors were mean centered prior to analyses.

Of the five initial analyses, two resulted in significant three-way interactions between intimacy, attachment anxiety, and the functioning subscale. For lubrication ( $R^2 = 0.27$ ,  $F(7,151) = 7.82$ ,  $P < 0.001$ ;  $\beta$  for three-way interaction =  $-0.983$ ,  $P < 0.01$ ), inspection of simple slopes revealed a significant relationship between functioning and distress at low levels of intimacy ( $-1$  SD) and high levels of attachment anxiety ( $+1$  SD) such that worse functioning was related to increased distress ( $t = 3.08$ ,  $P < 0.01$ ). A significant but weaker relationship between lubrication and distress was present at low levels of intimacy and low levels of attachment anxiety such that worse functioning was related to decreased distress ( $t = 2.37$ ,  $P < 0.05$ ). Upon visual inspection of predicted values, this second relationship appears to have little practical value as levels of distress are very low for this group regardless of functioning. At high levels of intimacy, lubrication and distress were not significantly related, regardless of attachment anxiety. In short, worse lubrication functioning was associated with increased levels of sexual distress only for anxiously attached women in low-intimacy relationships.

For pain ( $R^2 = 0.11$ ,  $F(7,147) = 3.73$ ,  $P < 0.001$ ;  $\beta$  for three-way interaction =  $-0.561$ ,  $P < 0.01$ ), no simple slopes were significantly different from zero, likely due to the negatively skewed distributions of the predictors. However, visual inspection of the predicted values suggests a pattern or results similar to lubrication wherein high levels of sexual pain were more likely to be associated with increased distress in low-intimacy vs. high-intimacy relationships, especially for anxiously attached women (see Tables 3 and 4, Figure 1).

**Table 2** Correlation matrix

	Personal distress	Desire	Arousal	Lubrication	Orgasm	Pain
Personal distress	1	0.164*	0.542**	0.409**	0.513**	0.172*
Desire		1	0.479**	0.228**	0.136	0.069
Arousal			1	0.575**	0.508**	0.118
Lubrication				1	0.240**	0.379**
Orgasm					1	-0.004
Pain						1

\* $P < 0.05$ , \*\* $P < 0.01$ .

**Table 3** Three-way interaction, Lubrication × Intimacy × Attachment Anxiety predicting personal sexual distress

Predictor	$\beta$	Model parameters		
		B	SE	
Lubrication	1.95	10.17	3.41	**
Intimacy	1.78	10.26	3.68	**
Attachment Anxiety	-0.248	-1.31	3.49	
Lubrication × Intimacy	-2.44	-13.31	4.87	**
Lubrication × Attachment Anxiety	0.05	0.25	3.13	
Attachment Anxiety × Intimacy	0.11	0.60	2.82	
Lubrication × Intimacy × Attachment Anxiety	-0.376	-0.983	0.34	**
<i>F</i>	7.82			***
<i>R</i> <sup>2</sup>	0.27			

\*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

For functioning subscales with nonsignificant three-way interactions, we tested our hypotheses regarding two-way interactions between functioning subscales and both attachment anxiety and intimacy independently. Desire interacted with intimacy (marginally significant) such that desire was more strongly related to distress in low-intimacy vs. high-intimacy relationships ( $R^2 = 0.10$ ,  $F(3,163) = 6.23$ ,  $P < 0.001$ ;  $\beta$  for interaction =  $-0.86$ ,  $P = 0.06$ ). Inspection of simple slopes confirmed that desire was significantly related to distress in low-intimacy ( $t = 12.87$ ,  $P < 0.001$ ), but not high-intimacy relationships. Desire also interacted with anxiety such that desire was more strongly related to distress for non-anxiously attached individuals than for anxiously

**Table 4** Three-way interaction, Sexual Pain × Intimacy × Attachment Anxiety predicting personal sexual distress

Predictor	$\beta$	Model parameters		
		B	SE	
Sexual pain	0.56	2.87	2.34	
Intimacy	1.27	7.22	2.99	*
Attachment Anxiety	0.86	4.58	3.82	
Sexual Pain × Intimacy	-0.61	-3.29	3.06	
Sexual Pain × Attachment Anxiety	0.29	1.56	2.33	
Attachment Anxiety × Intimacy	-1.15	-6.08	3.36	
Sexual Pain × Intimacy × Attachment Anxiety	-0.561	-0.753	0.24	**
<i>F</i>	3.73			**
<i>R</i> <sup>2</sup>	0.11			

\* $P < 0.05$ , \*\* $P < 0.01$ .

attached individuals ( $R^2 = 0.09$ ,  $F(3,165) = 5.23$ ,  $P < 0.01$ ;  $\beta$  for interaction =  $-0.99$ ,  $P < 0.05$ ; see Figure 2, Table 5)<sup>1</sup>. Inspection of simple slopes confirmed that desire was significantly related to distress for women low in attachment anxiety ( $t = 3.14$ ,  $P < 0.01$ ), but not for women high in attachment anxiety. Orgasm and subjective arousal interacted with neither intimacy nor anxiety.

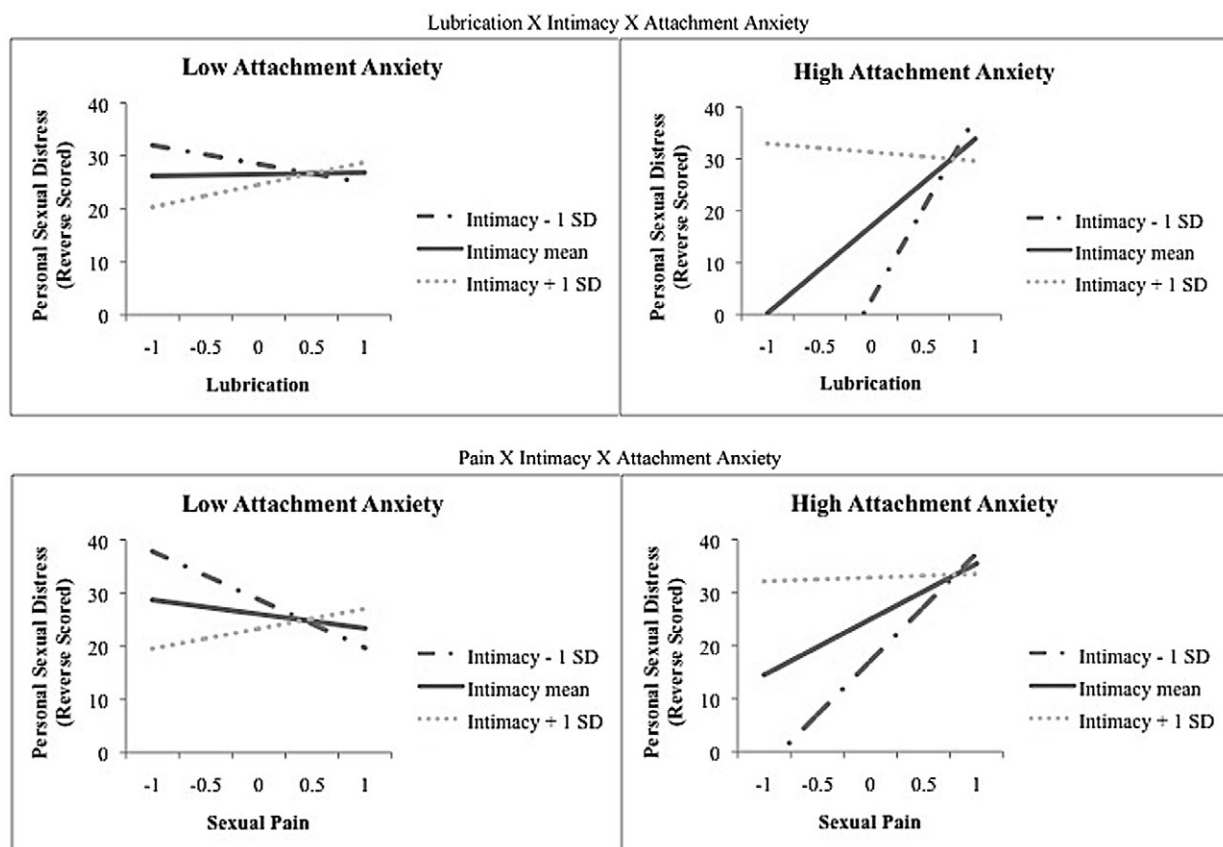
## Discussion

Our results suggest that both relational intimacy and individual attachment anxiety serve as important moderators of the association between multiple aspects of sexual functioning and levels of sexual distress in women. Specifically, intimacy moderated the association between desire and personal sexual distress such that low desire was associated with increased distress only in low-intimacy relationships. A plausible explanation of these results is that relational intimacy acts as a reward, offsetting the cost of low desire, resulting in little noticeable change in sexual distress as suggested by social exchange theories [31]. These findings suggest that this type of theoretical model may be a useful framework within which to explore predictors of sexual distress.

Attachment anxiety also moderated the association between desire and personal sexual distress. However, contrary to predictions, desire was more strongly related to distress for *less* anxiously attached individuals. These conflicting findings imply that recent research showing that sexual difficulties are more distressing for anxiously attached individuals at the event level [34] may not translate directly to more macro measures of sexual functioning and distress. One possible explanation for this finding is that sexual desire as assessed by the FSFI may not be of great importance to anxiously attached women who are likely more focused on their attachment goals of closeness and intimacy than sexual urges in particular. However, this interpretation may or may not apply to “responsive” desire that is triggered after sexual activity commences [55], a construct not assessed by the FSFI.

Additionally, our results suggest that attachment anxiety and relational intimacy appear to

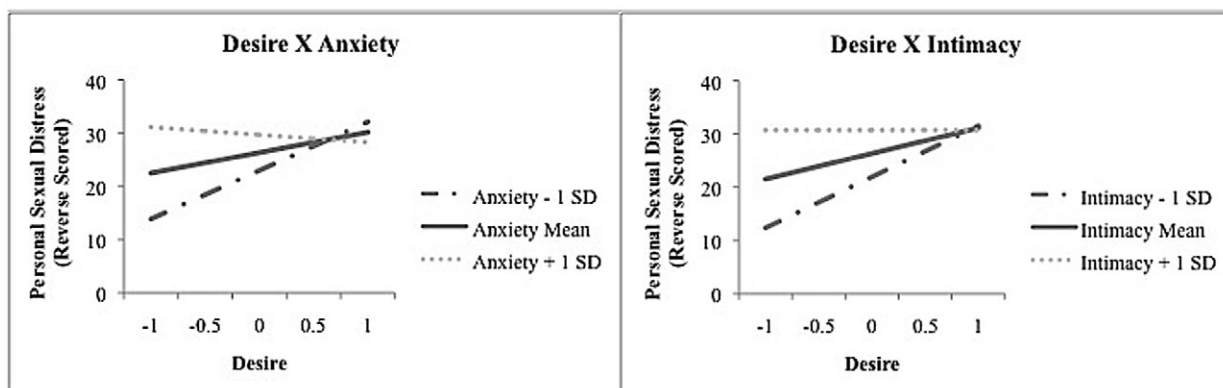
<sup>1</sup>In some regression analyses, our residuals did not meet criteria for normality, likely due to the negatively skewed distribution of our variables. To address this violation of assumptions, we re-ran these analyses using Lorentzian regression, which is robust to non-normal residuals. All findings were replicated.



**Figure 1** Three-way interactions in predicting personal sexual distress. Values of Lubrication and Sexual Pain are standardized.

work in conjunction in some cases, with the moderating effects of intimacy being dependent upon levels of anxiety and vice versa. Specifically, for lubrication and sexual pain, lower levels of sexual functioning were more likely to be associated with increased distress within less intimate relationships than in highly intimate relationships, especially for

women with high levels of attachment anxiety. These findings suggest that difficulties with lubrication and pain may be somewhat distressing for securely attached women, but could be either very distressing or not distressing at all for anxiously attached women depending on the level of intimacy in their relationship.



**Figure 2** Two-way interactions between desire and intimacy/anxiety. Values of Desire are standardized.

**Table 5** Two-way interactions, Desire  $\times$  Intimacy and Desire  $\times$  Attachment Anxiety predicting personal sexual distress

Predictor	$\beta$	Model parameters		
		B	SE	
Sexual Desire	0.88	4.79	2.10	*
Intimacy	0.76	4.39	1.67	**
Sexual Desire $\times$ Intimacy	-0.86	-4.79	2.57	****
F	6.23			***
R <sup>2</sup>	0.10			
Sexual Desire	0.71	3.84	1.29	**
Attachment Anxiety	0.62	3.35	1.18	****
Sexual Desire $\times$ Attachment Anxiety	-0.99	-5.26	2.20	*
F	5.23			**
R <sup>2</sup>	0.09			

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ , \*\*\*\* $P = 0.06$ .

Due to the correlational nature of our data, it is impossible to conclude precisely *why* intimacy and attachment anxiety play these moderational roles. However, as outlined in the introduction, a likely explanation for these results lies in the fact that anxiously attached women experience more relationship-focused fears, and a primary relational goal for these women is to ameliorate these worries by reinforcing and increasing feelings of intimacy. If they can achieve this goal, either through sexual or nonsexual means, they will likely experience low levels of distress, whereas if they are prevented from achieving this goal, they are typically highly distressed [38,39].

If a sense of relational intimacy is lacking, anxiously attached women will often use sexual activity as an alternative method of increasing intimacy and alleviating relational concerns [34,41,42]. However, if difficulties with sexual functioning prevent these women from experiencing pleasurable sexual interactions, or prevent them from engaging in sex altogether, they may be left with no effective means of meeting their attachment needs, resulting in high levels of distress. While securely attached women also desire intimacy in their relationships, they are less likely to use sexual activity as a way of reaching this goal [41,56] and are more likely to have sex to achieve more limited goals such as physical pleasure. As such, difficulties with sexual functioning, while somewhat distressing due to physical discomfort, decreased pleasure, etc., are less likely to represent a failure to achieve primary attachment-related goals for securely attached women, even in low-intimacy relationships.

While our results related to sexual pain and lubrication correspond well with this interpretation, multiple aspects of sexual functioning did not

fit with this pattern. Specifically, orgasm and subjective sexual arousal did not exhibit three-way interactions with intimacy and attachment in predicting distress. Additionally, desire interacted with attachment anxiety in the opposite direction than predicted, suggesting that the association between these aspects of functioning and distress may work differently. The question of why orgasm, subjective arousal, and desire differ from pain and lubrication is difficult to answer given the relative scarcity of quantitative research on if and how different types of sexual difficulties differentially affect sexual interactions. However, it seems safe to say that, while difficulties with orgasm, subjective arousal, and desire may make sex less pleasurable, they are not likely to make sexual intercourse impossible. As such, anxiously attached women who experience difficulties in these areas would still be able to engage in sexual activity and meet their goals of increasing feelings of intimacy and closeness. However, significant difficulties with pain or lubrication have the potential to prevent sexual activity altogether, not only decreasing pleasure, but also preventing anxiously attached women in low-intimacy relationships from alleviating relational concerns and fears. In other words, it is possible that disruption of sexual activity mediates the relationship between sexual difficulties and sexual distress for anxiously attached women in low-intimacy relationships<sup>2</sup>. Of course, additional longitudinal research that explicitly measures the suggested mechanisms is needed to fully test this hypothesis.

The current study had a number of limitations, chief among them is the reliance on cross-sectional data. While we were able to identify important moderators of the relationship between sexual functioning and sexual distress, longitudinal research that explicitly measures mechanisms is needed to fully test our hypotheses as to *why* attachment anxiety and relational intimacy play these moderational roles. Our use of self-report data, although necessary, also brings with it a number of well-documented limitations [59] including retrospective recall bias [60]. The measures of sexual functioning, attachment, and

<sup>2</sup>Of course, other types of sexual activity including oral sex and petting would likely be possible in spite of pain or impaired lubrication. However, a number of recent studies have shown that vaginal intercourse specifically is more closely related to sexual [57] and relational [58] well-being than are other types of sexual activity, suggesting that disruption of vaginal intercourse alone may be sufficient to result in distress as suggested here.



intimacy used have some limitations worth noting. First, although the measure of sexual functioning used (the FSFI) has demonstrated excellent reliability and validity in the assessment of female sexual function and dysfunction in a variety of research applications and has consistently demonstrated discriminant validity in diverse populations of women [61], this scale was originally developed to assess overall sexual functioning as opposed to specific subtypes of sexual problems. Recently, the Desire subscale of the FSFI has been shown to discriminate between women with and without clinically diagnosed hypoactive sexual desire disorder [62]; however, the remaining subscales have yet to be psychometrically established as independent assessment tools. Second, no single self-report measure of relational intimacy or attachment can satisfactorily assess the complete ranges of these multifaceted constructs (indeed, fully assessing attachment orientation requires a time-intensive interview process). As such, it is important to replicate these results using more in-depth measures, ideally including clinically administered interviews.

Selection bias is another potential limitation of this, and likely a majority of studies on sexuality [63]. Research has shown that volunteers for sex research can differ from typical volunteers in a number of ways [64] and that this potential bias goes unrecognized in a number of paradigms across the field [65]. In the future, it may be helpful to advertise studies such as this in more general terms to reduce this potential bias. An additional issue in the current study was the use of a college-age sample of women. Studies have shown that both age [43] and education [5] may play important roles in determining levels of sexual distress. Also, the relational and sexual experiences of young women may be qualitatively different from those of older women in more established relationships. Thus, it is important to replicate the findings presented here in samples including older women and those with differing levels of education. Lastly, as our sample was made up primarily of sexually functional women, most of our variables were negatively skewed. While we took appropriate steps to correct for this non-normality, we must be cautious in generalizing these findings to more dysfunctional populations due to the typically large differences between clinical and nonclinical samples in the distribution of various sexual variables [49]. These differences make it essential to replicate the current findings in sexually dysfunctional

samples where the distribution of sexual distress is more normal [49] and the full range of female sexual function is more fully represented.

While a number of recent studies have shown that difficulties with sexual functioning are weakly related to levels of sexual distress [2,4,5], the current study is the first of which we are aware that explicitly tests whether identified risk factors of sexual distress moderate the relationship between sexual functioning and distress in women. Our results suggest that both attachment anxiety and relational intimacy moderate this association, but do so somewhat differently depending on the aspect of sexual functioning in question. The importance of these moderators provides a plausible explanation as to why physical aspects of sexual functioning are generally poor predictors of sexual distress in women [8] and provide initial evidence as to when sexual functioning is and is not strongly associated with distress.

These findings extend past research on the association between relational and sexual well-being in women [9,15,66,67] by showing that the connection between the two may differ based on attachment orientation. In particular, the status of the overall relationship may be of primary importance to anxiously attached women, with sexual difficulties being associated with distress only insofar as they prevent the attainment of important relational goals. For securely attached women, the physical pleasure of sexual interactions may be important independently of the quality of their relationships.

Our results also support the usefulness of attachment theory in understanding sexual well-being [33–36] and provide preliminary answers to a number of questions posed by recent studies on this topic. For example, Birnbaum and colleagues [34] asked whether attachment-related behaviors might compensate for sexual difficulties and temper sexual anxiety and worries. Our results suggest that, yes, for anxiously attached women whose attachment needs are being met through nonsexual means, some sexual difficulties result in little if any distress. Future research can provide a richer understanding of this process by taking other factors such as subjective sexual motives [68] into account.

Finally, the current study underscores the distinction between difficulties with sexual functioning and sexual *dysfunction* per se which requires concurrent personal or interpersonal distress [69]. This distinction, as outlined by Tiefer [70], has a number of implications for sexuality research and sexual medicine. First, it suggests that while researchers in the past have viewed sexual problems

and sexual dysfunction as synonymous [1], sexual functioning is only one of multiple pieces that must be in place to lead to a diagnosable dysfunction. To create more informative and ecologically valid models of FSD, additional contextual variables such as those included in the current study must be taken into consideration. Second, the fact that difficulties with functioning are not always distressing implies the existence of protective factors that buffer against the subjective distress found in sexual dysfunction. Once these protective factors are identified, it may be possible to augment current treatments for FSD by encouraging their beneficial effects. In effect, these protective factors would constitute secondary targets of treatment that may be relatively independent of sexual functioning. Having these additional treatment goals may be especially important in cases where it is difficult or impossible to treat the physical aspects of sexual dysfunction directly, e.g., when the dysfunction is secondary to selective serotonin reuptake inhibitors (SSRI) use, cancer treatment, or menopause. In these cases, contextual factors may be the only tenable targets of treatment, and so research outlining how these factors protect against sexual distress would be of great importance.

In conclusion, the current study adds to a growing body of research showing that women's subjective sense of sexual well-being is not determined solely by their sexual functioning. Both relational dynamics and individual differences play important roles in determining when a sexual difficulty is distressing and when it is not. To gain a nuanced understanding of women's sexual experiences, we must view their sexual behavior within its multifaceted personal and relational context.

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