

Differentiating Components of Sexual Well-Being in Women: Are Sexual Satisfaction and Sexual Distress Independent Constructs?

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ABSTRACT

Introduction. Sexual satisfaction and sexual distress are common outcome measures in studies of sexual health and well-being. However, confusion remains as to if and how the two constructs are related. While many researchers have conceptualized satisfaction and distress as polar opposites, with a lack of satisfaction indicating high distress and vice versa, there is a growing movement to view satisfaction and distress as relatively independent factors and measure them accordingly.

Aim. The study aimed to assess the level of independence between sexual satisfaction and distress in female clinical and nonclinical samples.

Methods. Ninety-nine women (mean age = 25.3) undergoing treatment (traditional sex therapy and/or ginkgo biloba) for sexual arousal disorder with or without coexistent hypoactive sexual desire disorder and/or orgasmic disorder completed surveys assessing sexual satisfaction, sexual distress, sexual functioning, and relational functioning at pretreatment, mid-treatment, posttreatment, and follow-up. Two hundred twenty sexually healthy women (mean age = 20.25) completed similar surveys at 1-month intervals.

Main Outcome Measures. Sexually dysfunctional women completed the Sexual Satisfaction Scale for Women (SSS-W), the Female Sexual Function Index (FSFI), and the Dyadic Adjustment Scale. Sexually healthy women completed the SSS-W, the FSFI, the Relationship Assessment Scale, and the Dimensions of Relationship Quality Scale.

Results. Sexual satisfaction and distress were generally closely and inversely related; however, distress was more closely related to sexual functioning variables than was satisfaction in the clinical sample, and satisfaction was more closely related to relational variables than was distress in the nonclinical sample. Additionally, satisfaction and distress showed partially independent patterns of change over time, and scales of distress showed a larger change in response to treatment than did scales of satisfaction.

Conclusion. Although sexual satisfaction and distress may be closely related, these findings suggest that they are, at least, partially independent constructs. Implications for research on sexual well-being and treatment outcome studies are discussed. **Stephenson KR, and Meston CM. Differentiating components of sexual well-being in women: Are sexual satisfaction and sexual distress independent constructs? J Sex Med 2010;7:2458–2468.**

Key Words. Sexual Satisfaction; Sexual Distress; Sexual Well-Being; Sexual Functioning; Female Sexual Dysfunction

Introduction

Despite its importance, psychological well-being has rarely been the subject of focused, systematic scientific inquiry [1]. Recently, however, researchers have begun to address ways of conceptualizing and measuring the various

components of well-being [2–7], suggesting that one important step in moving toward a comprehensive theory is to differentiate between positive and negative aspects of well-being. In the field of sexuality, there is an analogous paucity of research focusing on subjective sexual well-being (as compared with sexual function), and while theories

such as the Interpersonal Exchange Model of Sexual Satisfaction [8,9] outline factors that contribute to satisfaction with the sexual aspects of long-term, heterosexual relationships, none differentiate between the positive aspects of sexual well-being (satisfaction) and the more clinically important negative aspects (distress).

Sexual satisfaction and sexual distress have both been used as outcomes in a number of recent clinical trials assessing the efficacy of treatment for female sexual dysfunction (FSD) [10–12]. However, confusion remains as to if and how these outcomes are related. While many researchers and clinicians have conceptualized satisfaction and distress as polar opposites, with a lack of satisfaction indicating high distress and vice versa [13], others have suggested that satisfaction and distress may be related but independent constructs [14], and recent measures have explicitly separated the assessment of satisfaction and distress [15,42]. It is important to determine which of these positions is correct because, if these two variables are in fact independent, the practice of using measures of satisfaction and distress interchangeably [13,16,17], and including items tapping both factors in the same measure [18–20] may be masking the effectiveness of treatments for sexual dysfunction, as well as important relationships between the components of sexual well-being and other variables of interest.

To determine how sexual satisfaction and distress are related, we must first define them. Sexual satisfaction has been described as “the individual’s subjective evaluation of the positive and negative aspects of one’s sexual relationship, and his/her subsequent affective response to this evaluation” [8]. Sexual satisfaction has been shown to be related to relationship satisfaction [9] and stability [21,22], as well as overall quality of life [23–25]. It is also correlated with frequency of penile–vaginal intercourse [26] and sexual functioning [27,28], with measures of sexual satisfaction typically being validated by their ability to differentiate sexually functional from dysfunctional individuals.

Sexual distress has been described as worry, frustration, and anxiety regarding sexual activity [29,42], and marked distress (or interpersonal difficulty) is required for a diagnosis of sexual dysfunction by the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV [30]. Despite its importance, sexual distress has received relatively little empirical attention to date. Measures of personal distress are rarely included in epidemiologic

studies of sexual dysfunction [31], which is troubling in light of recent findings suggesting that sexual difficulties are often not distressing, especially for women [32–34]. In response, a panel of international experts in human sexuality has called for a renewed focus on personal distress in sexuality research [35], and measures specifically targeting sexual distress have recently become available [29,42]. Recent studies have found that low satisfaction with the relationship is a prominent risk factor for high sexual distress [30] and that factors such as a history of vaginal orgasm and low frequency of anal sex are protective against female sexual arousal disorder with distress, but not without distress [33].

Based on these definitions, it appears that satisfaction and distress are related, but it is unclear as to whether they are merely opposite poles on the same continuum. While viewing them as polar opposites makes intuitive sense, satisfaction and distress may, in actuality, be independent constructs insofar as certain conditions can affect one to a greater degree than the other. For example, a woman who sees sexual pleasure as relatively unimportant in her relationship could experience decreased sexual satisfaction as a result of anorgasmia without necessarily being distressed by this problem.

There is also evidence suggesting that satisfaction and distress respond differently to treatment. In two recent placebo-controlled studies on the effectiveness of treatment for FSD, satisfaction with functioning showed greater treatment-induced change than did sexual distress [10,11]. However, it is difficult to gauge the importance and generalizability of such findings because of the limited research on the relationship between these two outcomes, and the validity and reliability of currently available scales in measuring treatment effects [12]. Additionally, the measures used in these studies included items tapping both subjective sexual well-being *and* sexual functioning (e.g., how satisfied have you been with your level of sexual arousal?). Thus, it is unclear whether these results would apply to measures that specifically tap subjective sexual well-being.

Despite their potential disconnect, we are aware of no empirical studies to date that have explicitly examined the relationship between sexual satisfaction and sexual distress. Empirical evidence to this regard would be useful for a number of reasons. First, such findings would suggest possible additions to current theories of sexual health and well-being. For example, if sexual distress and

satisfaction were found to be independent components of sexual well-being, it would be important to test if and how the Interpersonal Exchange Model of Sexual Satisfaction [8] extends to sexual distress. Second, comparison of satisfaction and distress would lead to clearer specification of treatment efficacy in clinical trials of sexual dysfunction. While most treatments of sexual dysfunction are ultimately judged by their effect on sexual well-being, effects are measured in many diverse ways, ranging from single items assessing global sexual satisfaction to targeted measures of sexual distress [29]. While these measures are often used interchangeably when assessing treatment outcomes, they may, in fact, be measuring different components of sexual well-being that respond differentially to treatment. If, for example, sexual distress is more closely related to sexual functioning than sexual satisfaction, then treatments targeting aspects of sexual functioning would have a greater impact on measures of distress, and using a measure of satisfaction to gauge the effectiveness of these treatments would underestimate their effectiveness. Thus, differentiating between two relatively similar psychological constructs has importance far beyond psychological theory construction. Using the most sensitive and appropriate outcome measure may ultimately determine treatment outcome sensitivity, whether measuring changes across groups or in individuals undergoing treatment.

Aim

The goal of the current study was to evaluate the level of independence between sexual satisfaction and sexual distress in two independent clinical and nonclinical female samples. In both samples, we compared sexual satisfaction and distress in terms of their distribution, their degree of covariation, and their association with sexual and relational functioning. In the nonclinical sample, we compared their stability over time, and in the clinical sample, we compared their sensitivity to treatment.

Method

Participants

Clinical Sample

Ninety-nine women (mean age = 25.30, standard deviation [SD] = 7.81) diagnosed with sexual arousal disorder with or without coexistent hypo-

active sexual desire disorder and/or orgasmic disorder (using DSM-IV-TR [30] criteria) were recruited through radio and newspaper announcements for participation in a randomized clinical trial assessing the efficacy of ginkgo biloba extract in treating FSD [36]. All participants were currently involved in a heterosexual, sexually active relationship and were majority Euro-American (72.2%) with 13.3% Hispanic, 5.05% Asian-American, 3.03% African American, and 6.06% mixed race or "other."

Nonclinical Sample

Two hundred twenty female undergraduates at the University of Texas participated for course credit in introductory psychology courses ($N = 83$) or a human sexuality course ($N = 137$) during the spring semester of 2009. Participants were of an average age of 20.25 ($SD = 2.33$) and were majority Euro-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 currently in an exclusive, sexually active, heterosexual relationship (mean length = 20.93 months, $SD = 25.13$ months) and reported a mode frequency for sexual activity of three to four times a week. All participants gave informed consent.

Measures

Sexual Satisfaction and Distress

The Sexual Satisfaction Scale for Women (SSS-W) [42] is a 30-item questionnaire that includes five domains of sexual well-being that have been supported by factor analysis: contentment, communication, compatibility, personal concern, and relational concern. The full scale has been shown to have excellent reliability (Cronbach's $\alpha = 0.94$), as have the subscales (contentment = 0.83, communication = 0.74, compatibility = 0.85, personal concern = 0.90, and relational concern = 0.88). Convergent and divergent validity has also been demonstrated in women with and without sexual dysfunction and relationship dissatisfaction for the full scale and each subscale [1]. Sexual satisfaction was measured using the contentment subscale of the SSS-W, which includes items such as "I feel content with the way my current sex life is." Sexual distress was measured by taking the average of the personal concern and relational concern subscales, which include items such as "I'm worried that my sexual difficulties will adversely affect my relationship" and "My sexual difficulties are frustrating to me." Items in the sexual distress subscales are

reverse scored, with higher scores signifying less distress.

Sexual Functioning

Sexual functioning was assessed using the Female Sexual Functioning Index (FSFI). The FSFI is made up of 19 items encompassing six domains: desire, arousal, lubrication, orgasm, satisfaction, and pain. It has been shown to have excellent reliability (Cronbach's $\alpha = 0.97$) and validity in women with and without diagnoses of female arousal dysfunction and female orgasm dysfunction [37].

Relational Functioning

In the clinical sample, relational functioning was assessed using the Dyadic Adjustment Scale (DAS). The DAS is a 32-item measure of relationship quality made up of four subscales: *agreement* between partners on important issues, *cohesion* of the couple, *satisfaction* with the relationship, and the *expression* of affect in the relationship. The DAS and its subscales have been shown to be reliable and valid measures of relationship functioning. In the nonclinical sample, relational functioning was assessed using the Relationship Assessment Scale (RAS), a reliable and validated seven-item scale of relationship satisfaction, and the Dimensions of Relationship Quality Questionnaire (DRQ), which is a 64-item measure of relationship quality made up of four subscales: *intimacy* within the relationship, *agreement* between partners, *independence* of partners, and *sexuality*. The DRQ and its subscales have been shown to be reliable and valid measures of relationship quality across multiple countries. The sexuality subscale was not included in analyses because of overlap with other variables.

Procedure

Clinical Sample

After qualifying for the clinical trial and completing the initial assessment, participants who chose to continue with the study were randomized to one of four conditions: ginkgo biloba ($N = 19$), sex therapy ($N = 19$), ginkgo biloba and sex therapy ($N = 14$), or placebo ($N = 16$). Fifty-five women completed the entire study, which included four assessments: pretreatment, mid-treatment (4 weeks), posttreatment (8 weeks), and follow-up (12 weeks). The analyses below are based on data from the initial assessment (time 1) or on difference scores computed using pretreatment and follow-up scores (12 weeks apart).

Nonclinical Sample

Participants completed the study survey four times at 1-month intervals through a third-party Web site. One hundred sixty-seven of 220 initial participants completed all four sessions. The analyses below are based on the data from the initial assessment (time 1) or on difference scores computed using first and fourth assessment scores (16 weeks apart). The University of Texas Institutional Review Board approved all procedures for both samples.

Results

Correlation of Satisfaction and Distress

To assess the strength of the relationship between satisfaction and distress, we computed Pearson product-moment correlations between the two at time 1 in both samples. In the clinical sample, satisfaction (mean = 13.18, SD = 4.64) and distress (mean = 16.44, SD = 4.87) were significantly correlated ($r = 0.619$, $P < 0.001$). Satisfaction (mean = 23.53, SD = 5.09) and distress (mean = 26.01, SD = 4.96) were also significantly correlated in the nonclinical sample ($r = 0.575$, $P < 0.001$).

Distribution of Satisfaction and Distress

To compare the distribution of satisfaction and distress, we constructed histograms (including 20 intervals or scoring ranges) of each variable at time 1 in both samples.

Clinical Sample

Upon visual inspection of the histograms (Figure 1), it appeared that sexual distress was normally distributed, while satisfaction was multimodal and positively skewed. This interpretation was supported by normality tests with sexual distress meeting criteria for normality (Shapiro-Wilk = 0.985, $P > 0.20$) and satisfaction not meeting criteria (Shapiro-Wilk = 0.957, $P < 0.01$).

Nonclinical Sample

Upon visual inspection of the histograms (Figure 2), it appeared that both variables were negatively skewed with pronounced ceiling effects. While neither distribution met criteria for normality, satisfaction scores were more evenly spread along the range of possible values, while distress scores were generally restricted to high values. This is reflected in the fact that distress scores were more heavily skewed (skewness = -1.301 , standard error [SE] = 0.176) than satisfaction scores (skewness = -0.549 , SE = 1.76).

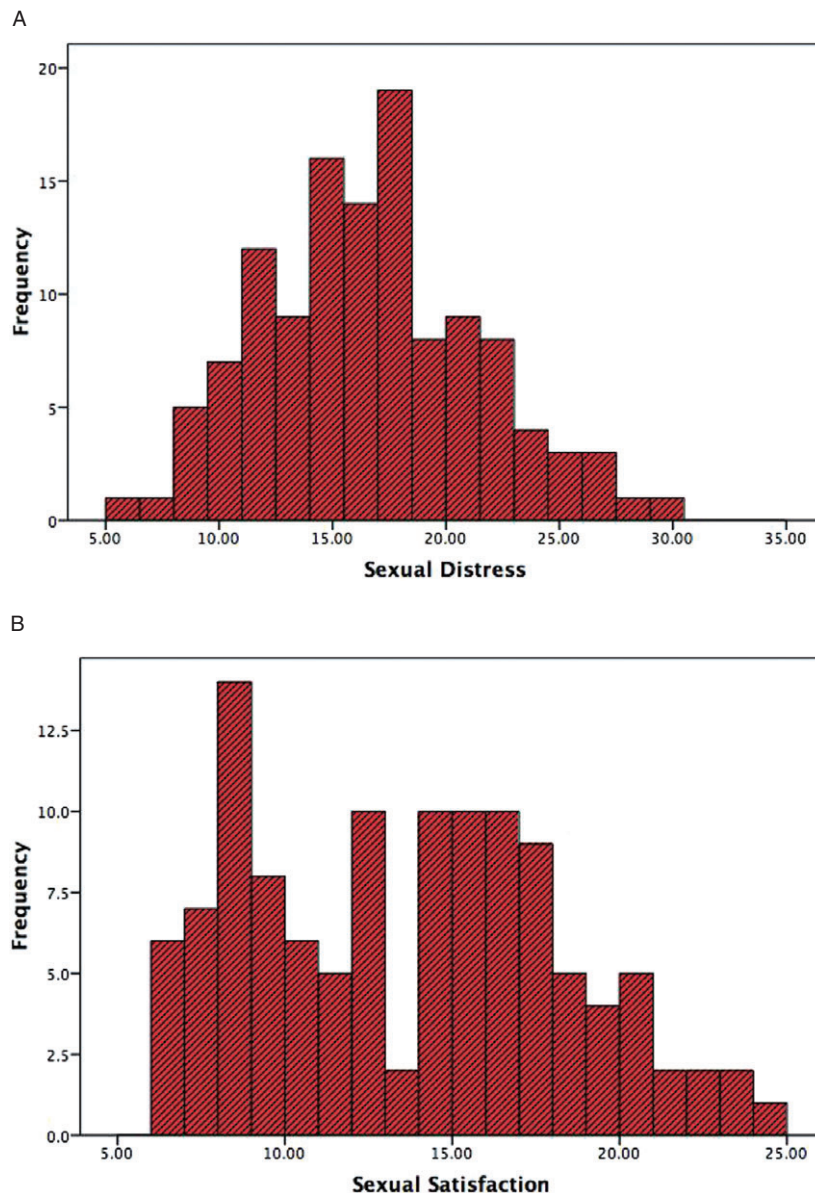


Figure 1 (A) Distribution of sexual distress in a clinical sample. (B) Distribution of sexual satisfaction in a clinical sample.

Association with Sexual Functioning

To compare the strength of association between sexual satisfaction/distress and sexual functioning, we computed Pearson product-moment correlations comparing satisfaction and distress, and each subscale of the FSFI at time 1 (Tables 1 and 2). We then performed a series of correlation coefficient *t*-tests to determine if the strength of association differed between satisfaction and distress, and each of the functioning subscales.

Clinical Sample

Desire, arousal, and lubrication were all significantly correlated with both satisfaction and distress; sexual pain was not significantly correlated

with either factor. Orgasmic functioning was correlated with distress ($r = 0.317$, $P < 0.01$), but not satisfaction ($r = 0.089$, not significant [ns]). Satisfaction and distress were differentially related to sexual arousal ($t [96] = 1.75$, $P < 0.05$) and orgasmic functioning ($t [96] = 2.82$, $P < 0.01$). In each case, sexual distress exhibited a stronger association with sexual functioning variables.

Nonclinical Sample

Desire, arousal, lubrication, orgasmic functioning, and sexual pain were all significantly related to both satisfaction and distress. Satisfaction and distress were similarly related to all aspects of sexual functioning.

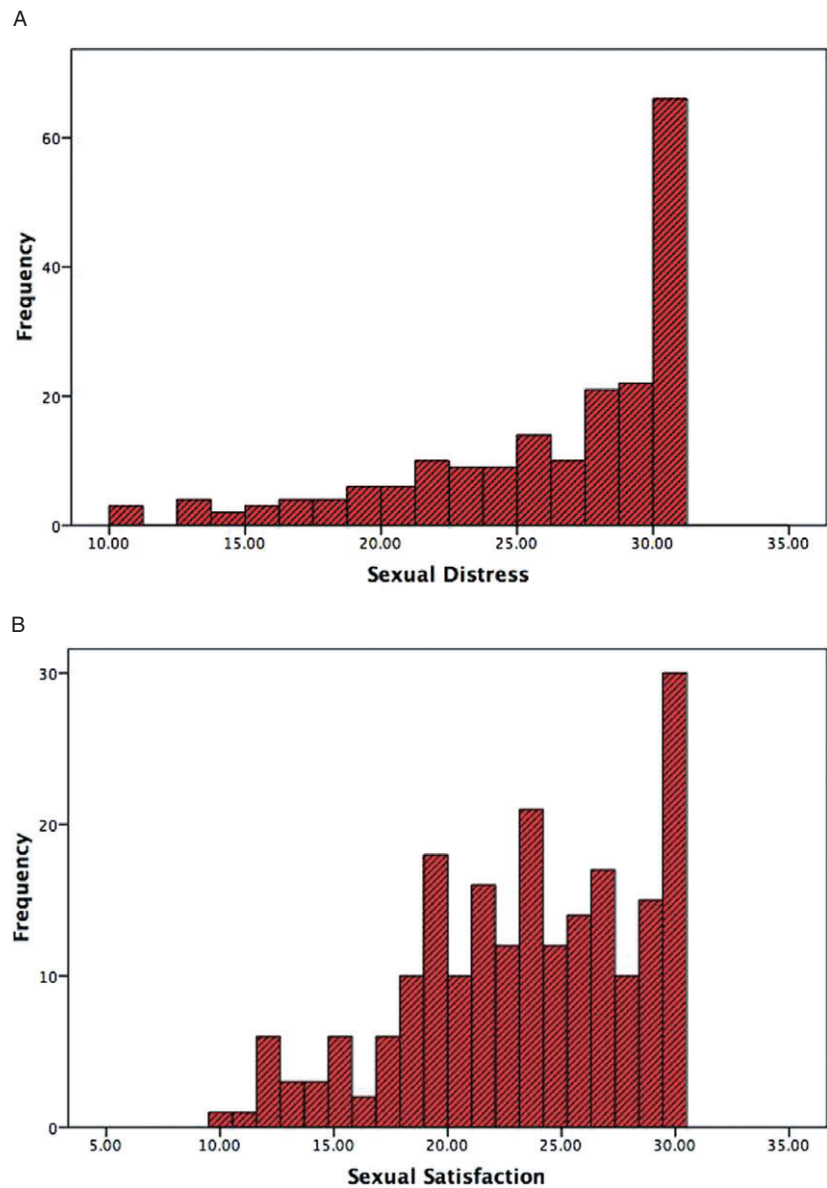


Figure 2 (A) Distribution of sexual distress in a nonclinical sample. (B) Distribution of sexual satisfaction in a nonclinical sample.

Association with Relational Functioning

To compare the strength of association between sexual satisfaction/distress and relational functioning, we computed Pearson product-moment correlations comparing satisfaction and distress to each subscale of the DAS in the clinical sample, and the RAS and each subscale of the DRQ in the nonclinical sample at time 1. We then performed a series of correlation coefficient *t*-tests to determine if the strength of association differed between satisfaction and distress for each of the scale or subscales.

Clinical Sample

Relational satisfaction, cohesion, and affective expression were all significantly related to both

sexual satisfaction and distress. Relational contentment was related to satisfaction ($r = 0.224$, $P < 0.05$), but not distress ($r = 0.108$, ns). Despite this, satisfaction and distress were similarly related to all relational factors in this sample.

Nonclinical Sample

Relational satisfaction, intimacy, agreement, and independence were all significantly related to both sexual satisfaction and sexual distress. Sexual satisfaction and distress were differentially related to relational satisfaction ($t [217] = 4.45$, $P < 0.001$), intimacy ($t [217] = 2.35$, $P < 0.01$), and agreement ($t [217] = 1.79$, $P < 0.05$). In each case, sexual satisfaction exhibited a stronger association with relational variables.

Table 1 Pearson product-moment correlations in clinical sample

	Desire	Arousal	Lubrication	Orgasm	Pain
Sexual distress	0.455**	0.536**	0.454**	0.317**	0.124
Sexual satisfaction	0.490**	0.410**	0.386**	0.089	0.032
Desire	1	0.614**	0.384**	0.104	0.259**
Arousal	0.614**	1	0.744**	0.421**	0.366**
Lubrication	0.384**	0.744**	1	0.371**	0.441**
Orgasm	0.104	0.421**	0.371**	1	0.196*
Pain	0.259**	0.366**	0.441**	0.196*	1
Consensus	0.077	0.18	0.239*	-0.098	0.033
Satisfaction	0.116	0.216*	0.236*	-0.07	-0.123
Cohesion	0.083	0.189*	0.193*	0.071	0.079
Affectional expression	0.351**	0.292**	0.289**	0.013	0.041

	Consensus	Satisfaction	Cohesion	Affectional expression
Sexual distress	0.108	0.303**	0.227*	0.465**
Sexual satisfaction	0.224*	0.342**	0.263**	0.428**
Desire	0.077	0.116	0.083	0.351**
Arousal	0.18	0.216*	0.189*	0.292**
Lubrication	0.239*	0.236*	0.193*	0.289**
Orgasm	-0.098	-0.07	0.071	0.013
Pain	0.033	-0.123	0.079	0.041
Consensus	1	0.707**	0.521**	0.398**
Satisfaction	0.707**	1	0.652**	0.575**
Cohesion	0.521**	0.652**	1	0.365**
Affectional expression	0.398**	0.575**	0.365**	1

* $P < 0.05$; ** $P < 0.01$.**Temporal Stability****Nonclinical Sample**

To determine relative stability over time, we computed Pearson product-moment correlations

comparing satisfaction and distress scores at assessment 1 to those at assessment 4. Satisfaction and distress were similarly stable over this time span ($r = 0.432$ and 0.521 , respectively).

Table 2 Pearson product-moment correlations in non-clinical sample

	Desire	Arousal	Lubrication	Orgasm	Pain
Sexual distress	0.178*	0.410**	0.406**	0.492**	0.276**
Sexual satisfaction	0.206**	0.486**	0.366**	0.530**	0.197**
Desire	1	0.457**	0.265**	0.198**	0.057
Arousal	0.457**	1	0.591**	0.473**	0.227**
Lubrication	0.265**	0.591**	1	0.316**	0.320**
Orgasm	0.198**	0.473**	0.316**	1	0.149*
Pain	0.057	0.227**	0.320**	0.149*	1
Intimacy	-0.029	0.117	0.096	0.216**	0.144*
Agreement	-0.013	0.137	0.105	0.224**	0.135
Independence	-0.036	0.187**	0.107	0.133	0.103
Satisfaction	0.054	0.202**	0.127	0.252**	0.095

	Intimacy	Agreement	Independence	Satisfaction
Sexual distress	0.280**	0.255**	0.203**	0.207**
Sexual satisfaction	0.418**	0.363**	0.231**	0.462**
Desire	-0.029	-0.013	-0.036	0.054
Arousal	0.117	0.137	0.187**	0.202**
Lubrication	0.096	0.105	0.107	0.127
Orgasm	0.216**	0.224**	0.133	0.252**
Pain	0.144*	0.135	0.103	0.095
Intimacy	1	0.816**	0.687**	0.724**
Agreement	0.816**	1	0.623**	0.676**
Independence	0.687**	0.623**	1	0.480**
Satisfaction	0.724**	0.676**	0.480**	1

* $P < 0.05$; ** $P < 0.01$.

Sensitivity to Treatment

Clinical Sample

To determine the relative sensitivity of satisfaction and distress to treatment, we conducted two analyses of covariance, testing the differences in follow-up scores between treatment groups and placebo group while controlling for initial scores. Satisfaction was not significantly different in treatment (adjusted mean = 20.64, SE = 0.67) vs. control (adjusted mean = 18.54, SE = 1.05) groups ($F [1, 57] = 2.79$, $P < 0.10$). Distress exhibited a larger difference and was significantly different in treatment (adjusted mean = 17.05, SE = 0.868) vs. control (adjusted mean = 13.93, SE = 1.31) groups ($F [1, 57] = 3.94$, $P < 0.05$).

Covariation over Time

Clinical Sample

To determine if changes in satisfaction during treatment predicted changes in distress during treatment, we computed a change score for sexual satisfaction by subtracting pretreatment satisfaction from follow-up satisfaction and performed a linear regression with follow-up sexual distress regressed on changes in satisfaction while controlling for pretreatment distress. Our overall model was significant ($R^2 = 0.566$, $F [1, 57] = 37.754$, $P < 0.001$) with changes in satisfaction significantly predicting follow-up distress ($B = 0.595$, $P < 0.001$).

Nonclinical Sample

To determine if naturally occurring changes in satisfaction predicted similar changes in distress, we computed a change score for sexual satisfaction by subtracting session 1 satisfaction from session 4 satisfaction and performed a linear regression with session 4 sexual distress regressed on changes in satisfaction while controlling for session 1 distress. Our overall model was significant ($R^2 = 0.378$, $F [1, 166] = 40.41$, $P < 0.001$) with changes in satisfaction significantly predicting session 4 distress ($B = -0.387$, $P < 0.001$).

Discussion

Summary and Implications

Our findings support the notion that sexual satisfaction and sexual distress are closely related constructs. They were significantly correlated and were each significantly related to multiple aspects of sexual and relational functioning in clinical and nonclinical samples. Additionally, both naturally occurring changes in satisfaction and changes in

satisfaction because of treatment were associated with similar changes in distress.

However, our findings also suggest that satisfaction and distress are at least partially independent and imply that their relationship may be different in clinical and nonclinical samples. First, the distributions of the two factors were dissimilar in both clinical and nonclinical samples. Additionally, in our clinical sample, sexual distress was more closely related to multiple aspects of sexual functioning than was satisfaction, while in our nonclinical sample, sexual satisfaction was more closely related to relational functioning than was sexual distress. Furthermore, while changes in satisfaction predicted changes in distress in both samples, the strength of this relationship was not as strong as would be expected if the two scales were measuring the same construct (changes in one explained only 19–40% of change in the other, suggesting at least some level of independence). Last, sexual distress responded more strongly than satisfaction to clinical treatment.

These differences between sexual satisfaction and sexual distress are important for a number of reasons. First, sexual distress may be a more appropriate and sensitive outcome in clinical trials because of the fact that, in clinical populations, sexual distress may be more normally distributed, more closely related to multiple aspects of sexual functioning, and show a greater response to treatment than measures of satisfaction. As such, the use of measures that indiscriminately tap both satisfaction and distress [18–20] may partially mask the effect of treatment on distress specifically.

Second, sexual distress and satisfaction may potentially fall or rise to dysfunctional levels in response to different types of problems, and thus, each may be more sensitive to different types of interventions. For example, it may be possible to decrease sexual distress by inducing changes in sexual functioning alone (the aim of traditional sex therapy), whereas sexual satisfaction may increase only with concurrent changes in relational satisfaction, requiring the addition of more comprehensive couples counseling. Of course, given the correlational nature of the current findings, these are tentative conclusions that require replication in future outcome research.

Third, when investigating the association between sexual well-being and relationship satisfaction [21], it may be important to separately measure sexual satisfaction and distress in light of our findings that relational functioning is more closely related to sexual satisfaction than to dis-

tress. Indeed, given recent findings that different types of sexual activities are differentially related to relationship satisfaction [26], it is clear that more research is needed to address the complicated associations between the sexual and nonsexual aspects of close relationships in general. Fourth, when interpreting and extending recent findings suggesting that women's sexual problems are weakly tied to sexual distress [38] and sexual satisfaction [32], it is important to keep in mind that these problems may be differentially related to the two factors. As such, different variables may be moderating the link between sexual problems and satisfaction on the one hand, and distress on the other hand.

These findings also have more general implications for how we conceptualize and measure sexual well-being. Specifically, they suggest that subjective judgments regarding one's sexual quality of life are multifaceted. Put simply, the fact that a woman reports low sexual satisfaction does *not* mean that she will also report high distress and vice versa (though she is more likely to do so). This conclusion mirrors current general theories of psychological well-being that differentiate "well-being" from "ill-being" [7]. Practically, this means that to fully understand and assess levels of sexual well-being, we must utilize measures that are both multi-item *and* multidimensional as has been suggested by sexuality researchers [39] and marriage researchers [40].

The current study had a number of limitations, the first of which is the use of self-report measures. Like all work on subjective sexual well-being, our study necessarily relied on self-report data. While the potential biases of such data have been well documented [41], there are currently no alternative methods available to measure such attitudes. Additionally, the measures used carry their own limitations. For example, while the FSFI is one of the most psychometrically sound measures of female sexual functioning currently available, having been validated for use with women suffering from a wide range of sexual dysfunctions [43], it nevertheless makes no distinction between different types of sexual behaviors. This distinction may be important in light of recent findings that sexual satisfaction is differentially related to different types of sexual activity, e.g., vaginal intercourse vs. noncoital sex [26]. Future studies would benefit from considering not only differences between the components of sexual well-being, but also differences between different types of sexual activity.

Another limitation of our study was that our clinical sample was slightly older than our non-clinical sample and may have differed on a number of additional, unmeasured variables (e.g., education level, sexual history, etc.). Also, different measures of relationship quality were used for each sample. As such, any comparisons between the two samples must be made with caution. In addition, both samples were primarily Caucasian, and the nonclinical sample was made up entirely of college students with an average age of around 20,¹ limiting our ability to generalize our findings beyond this age range and cultural group. Culture may play a particularly important role in this area as judgments regarding both satisfaction and distress are likely reliant on social norms and the socially constructed meaning of sexual activity. Whether these cultural factors differentially affect satisfaction and distress with one's sex life is an important area for future study. Lastly, a relatively large number of analyses were performed, resulting in a slightly inflated study-wide type I error rate. While the results were generally consistent and interpretable, it is important to replicate these findings to rule out the possibility of type I errors.

Conclusion

The goal of this study was to determine the level of independence between sexual satisfaction and sexual distress in women. Our results suggest that the two are at least partially independent, and thus, it may be inappropriate to conceptualize the two constructs as interchangeable or as opposite poles of the same continuum. This independence has important implications for measuring the efficacy of treatments for sexual dysfunction and for the exploration of the association between the presence of sexual difficulties and adverse subjective outcomes. Additionally, any comprehensive theory

¹Another potential confound is that a majority of the students in the nonclinical sample were concurrently enrolled in a human sexuality course. The course included readings and discussions regarding sexual dysfunction and treatment, and so may have functioned as an informal psycho-educational intervention. To test this possibility, a repeated measures analysis of variance was conducted to assess variation in sexual functioning and satisfaction scores. Sexual functioning scores showed significant variation over the course of the study ($F [3, 219] = 4.92, P < 0.05$). However, the quadratic constellation of means and the small absolute difference between high and low functioning means (time 1 = 29.75, time 3 = 30.73) suggest little systematic effect of the class on sexual functioning. Sexual satisfaction and distress showed no significant variation over time.

of sexual well-being must account for these independent components and their differential relationships with sexual and relational factors of interest.

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Statement of Authorship

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Category 3

(a) Final Approval of the Completed Article

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References

- 1 Christopher JC. Situating psychological well-being: Exploring the cultural roots of its theory and research. *J Couns Dev* 1999;77:141–52.
- 2 Diener E. Positive psychology: Past, present, and future. In: Diener E, ed. *Oxford handbook of positive psychology*. 2nd edition. New York: Oxford University Press; 2009:7–11.
- 3 Diener E. *Assessing well-being: The collected works of Ed Diener*. New York: Springer Science + Business Media; 2009.
- 4 McKnight P, Kashdan T. Purpose in life as a system that creates and sustains health and well-being: An integrative, testable theory. *Rev Gen Psychol* 2009;13:242–51.
- 5 Schmutte P, Ryff C. Personality and well-being: Reexamining methods and meanings. *J Pers Soc Psychol* 1997;73:549–59.
- 6 Ryff C. Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *J Pers Soc Psychol* 1989;57:1069–81.
- 7 Heady B. The set-point theory of well-being: Negative results and consequent revisions. *Soc Indic Res* 2008;85:389–403.
- 8 Lawrence K, Byers E. Development of the interpersonal exchange model of sexual satisfaction in long term relationships. *Can J Hum Sex* 1992;1:123–8.
- 9 Byers E. Relationship satisfaction and sexual satisfaction: A longitudinal study of individuals in long-term relationships. *J Sex Res* 2005;42:113–8.
- 10 Ferguson DM, Steidle CP, Singh GS, Alexander JS, Wehmler MK, Crosby MG. Randomized, placebo-controlled, double blind, crossover design trial of the efficacy and safety of Zestra for Women in women with and without female sexual arousal disorder. *J Sex Marital Ther* 2003;29:33–44.
- 11 Liao Q, Zhang M, Geng L, Wang X, Song X, Xia P, Lu T, Lu M, Liu V. Efficacy and safety of alprostadil cream for the treatment of female sexual arousal disorder: A double-blind, placebo-controlled study in Chinese population. *J Sex Med* 2008;5:1923–31.
- 12 Padma-Nathan H, Brown C, Fendl J, Salem S, Yeager J, Harning R. Efficacy and safety of topical alprostadil cream for the treatment of female sexual arousal disorder (FSAD): A double-blind, multicenter, randomized, and placebo-controlled clinical trial. *J Sex Marital Ther* 2003;29:329–44.
- 13 Snyder D, Berg P. Determinants of sexual dissatisfaction in sexually distressed couples. *Arch Sex Behav* 1983;12:237–45.
- 14 Lief H. Satisfaction and distress: Disjunctions in the components of sexual response. *J Sex Marital Ther* 2001;27:169–70.
- 15 Althof S, Rosen R, Symonds T, Mundayat R, May K, Abraham L. Development and validation of a new questionnaire to assess sexual satisfaction, control, and distress associated with premature ejaculation. *J Sex Med* 2006;3:465–75.
- 16 Litzinger S, Gordon K. Exploring the relationships among communications, sexual satisfaction, and marital satisfaction. *J Sex Marital Ther* 2005;31:409–24.
- 17 Impett E, Tolman D. Late adolescent girls' sexual experiences and sexual satisfaction. *J Adolesc Res* 2006;21:628–46.
- 18 Hudson W, Harrison D, Crosscup P. A short-form scale to measure sexual discord in dyadic relationships. *J Sex Res* 1981;17:157–74.
- 19 Pinney E. The Pinney sexual satisfaction inventory. *J Sex Res* 1987;32:233–51.
- 20 Rust J, Golombok S. The GRISS: A psychometric instrument for the assessment of sexual dysfunction. *Arch Sex Behav* 1986;15:157–65.
- 21 Sprecher S. Sexual satisfaction in premarital relationships: Associations with satisfaction, love, commitment, and stability. *J Sex Res* 2002;39:190–6.
- 22 Edwards J, Booth A. *Sexuality, marriage, and well-being: The middle years. Sexuality across the life course*. Chicago, IL: University of Chicago Press; 1994.
- 23 Apt C, Hurlbert D, Pierce A, White C. Relationship satisfaction, sexual characteristics and the psychosocial well-being of women. *Can J Hum Sex* 1996;5:195–210.
- 24 Laumann E, Palik A, Rosen R. Sexual dysfunction in the United States: Prevalence and predictors. *JAMA* 1999;281:537–44.
- 25 Ventegodt S. Sex and the quality of life in Denmark. *Arch Sex Behav* 1998;27:295–307.
- 26 Brody S, Costa RM. Satisfaction (sexual, life, relationship, and mental health) is associated directly with penile-vaginal intercourse, but inversely with other sexual behavior frequencies. *J Sex Med* 2009;6:1947–54.
- 27 Morokoff P, Gilliland R. Stress, sexual functioning, and marital satisfaction. *J Sex Res* 1993;30:43–53.
- 28 Hurlbert D, Apt C, Rabelh S. Key variables to understanding female sexual satisfaction: An examination of women in non-distressed marriages. *J Sex Marital Ther* 1993;19:154–65.
- 29 Derogatis L, Rosen R, Leiblum S, Burnett A, Heiman J. The Female Sexual Distress Scale (FSDS): Initial validation of a standardized scale for assessment of sexually related personal distress in women. *J Sex Marital Ther* 2002;28:317–30.
- 30 American Psychiatric Association. *Diagnostic and statistical manual of mental disorders—Text revised*. 4th edition. Washington, DC: American Psychiatric Association; 2000.
- 31 Shifren J, Monz B, Russo P, Segreti A, Johannes C. Sexual problems and distress in United States women: Prevalence and correlates. *Am J Obstet Gynecol* 2008;112:970–8.

- 32 Ferenidou F, Kapoteli V, Moisisidis K, Koutsogiannis I, Giakoumelous A, Hatzichristou D. Presence of a sexual problem may not affect women's satisfaction from their sexual function. *J Sex Med* 2008;5:631-9.
- 33 Hayes R, Dennerstein L, Bennet C, Sidat M, Gurrin L, Fairley C. Risk factors for female sexual dysfunction in the general population: Exploring factors associated with low sexual function and sexual distress. *J Sex Med* 2008;5:1681-93.
- 34 King M, Holt V, Nazareth I. Women's views of their sexual difficulties: Agreement and disagreement with clinical diagnoses. *Arch Sex Behav* 2007;36:281-8.
- 35 Basson R, Leiblum S, Brotto L, Derogatis L, Fourcroy J, Fugl-Meyer K. Definitions of women's sexual dysfunction reconsidered: Advocating expansion and revision. *J Psychosom Obstet Gynaecol* 2003;24:221-9.
- 36 Meston CM, Rellini AH, Telch MJ. Short- and long-term effects of ginko biloba extract on sexual dysfunction in women. *Arch Sex Behav* 2008;37:530-47.
- 37 Meston CM. Validation of the female sexual function index (FSFI) in women with female orgasmic disorder and in women with hypoactive sexual desire disorder. *J Sex Marital Ther* 2003;29:39-46.
- 38 Bancroft J, Loftus J, Long S. Distress about sex: A national survey of women in heterosexual relationships. *Arch Sex Behav* 2003;3:193-208.
- 39 Ahrold T, Stephenson K, Meston CM. Validated questionnaires in female sexual function assessment. In: Mulhall J, Goldstein I, Incrocci L, Rosen R, eds. *Cancer & sexuality* (in press).
- 40 Mattson R, Paldino D, Johnson M. The increased construct validity and clinical utility of assessing relationship quality using separate positive and negative dimensions. *Psychol Assess* 2007;19:146-51.
- 41 Schwartz N. Self reports: How the questions shape the answers. *Am Psychol* 1999;4:93-105.
- 42 Meston CM, Trapnell P. Development and validation of a five-factor sexual satisfaction and distress scale for women: The Sexual Satisfaction Scale for Women (SSS-W). *J Sex Med* 2005;2:66-81.
- 43 Weigel M, Meston CM, Rosen R. The Female Sexual Function Index (FSFI): Cross-validation and development of clinical cutoff scores. *J Sex Marital Ther* 2005;31:1-20.

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