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Sexual functioning and self-reported depressive symptoms among college women

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Sexual Functioning and Self-Reported Depressive Symptoms Among College Women

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We conducted an exploratory study comparing 47 college-aged women reporting depressive symptoms but not receiving antidepressant medication to 47 age-matched controls. We examined various dimensions of sexual functioning, including sexual desire, arousal, orgasm, pain, pleasure, and satisfaction. The women with depressive symptoms reported more inhibited sexual arousal, more inhibited orgasm, more sexual pain problems, and less sexual satisfaction and pleasure than control participants. Novel to this study, the women with depressive symptoms reported greater desire for sexual activity alone (masturbation) than the nondepressed women. The findings are discussed in terms of primary reinforcers and depressive symptomology.

An association between depression and sexual dysfunction in women is frequently reported in the literature. Sexual problems noted among depressed women include loss of sexual desire (Clayton, McGarvey, Clavet, & Piazza, 1997; Gitlin, 1995; Graziottin, 1998; Hirschfeld, 1999; Kennedy, Dickens, Eisfeld, & Bagby, 1999), sexual arousal difficulties (Graziottin, 1998; Hirschfeld, 1999; Kennedy et al., 1999), orgasm difficulties (Graziottin, 1998; Hirschfeld, 1999; Kennedy et al., 1999), reduced sexual satisfaction (Gitlin, 1995), reduced sexual pleasure (Clayton et al., 1997), sexual aversion (Graziottin, 1998), and sexual pain (Meana, Binik, Khalife, & Cohen, 1998). With regard to sexual desire, some studies have linked depressive symptoms to decreases in sexual desire (Davidson, Krishnan, France, & Pelton, 1985; Kennedy et al., 1999) while others have noted an increase (Mathew & Weinman, 1982).

Most studies noting a relationship between depression and sexual dysfunction are confounded by pharmacological treatment for depression (e.g., Meston & Gorzalka, 1992; Rosen, Lane, & Menza, 1999). The few studies that have examined sexual functioning in depressed patients not receiving antidepressant medication often are limited by a lack of appropriate control groups, and/or have combined male and female data. Moreover, different operational definitions of sexual dysfunctions make comparisons across studies difficult. For example, Kennedy et al. (1999) evaluated sexual drive using fantasies, masturbation, and interest in erotic media, while Clayton et al. (1997) evaluated sexual drive by frequency of sexual activity and desire for and interest in sex.

The present study is an exploratory analysis of the relationships between various dimensions of sexual functioning and self-reported depressive symptoms in women. One of the fundamental characteristics of depression is a loss of interest in previously enjoyed activities, suggesting that the process by which pleasurable behaviors are reinforced becomes altered or disrupted. Sexual activity, along with eating and drinking, is considered to be a primary reinforcer. Examining sexual functioning among women with depressive symptoms may help elucidate the role of reinforcement in the pathogenesis and maintenance of depression. This study extends previous studies of this nature by (a) excluding participants who are receiving antidepressant medication treatment, (b) using an age-matched control group, and (c) measuring a wide range of self-reported sexual difficulties (desire, arousal, orgasm, pain, pleasure, and satisfaction).

Method

Participants

Participants for the present study were drawn from a large database of standard screening measures administered to research participants in the Human Sexuality Laboratory at the University of Texas at Austin. This database contained data drawn from 2,159 female undergraduate psychology students. The Beck Depression Inventory (BDI; Beck & Beamesderfer, 1974), a widely used 21-item self-report inventory for assessing depressive symptomology, was used as a screening device for participant classification. Although BDI scores alone do not provide sufficient information to diagnose major depression, in a sample of 17 to 18 year olds, a BDI cutoff score of 16 was shown to be sensitive and specific to major depression (Canals, Blade, Carbajo, & Domenech-Llaberia, 2001). Steer, Brown, Beck, and Sanderson (2001) found that mean BDI scores of 18, 27, and 34 were associated with mild, moderate, and severe major depressive episodes, respectively.

In the present study, only those participants whose BDI scores were greater than or equal to 20 were considered for the depressive symptom group, and only those participants

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whose BDI scores were less than or equal to 3 were considered for the control group. In addition, only those participants who indicated being in a sexually active relationship were considered for the study. Any participant who indicated use of antidepressant medication within the past 6 months was not considered for inclusion in the study.

The final depressive symptom group consisted of 47 women with BDI scores ranging from 20 to 38 with a mean of 24.55 (*SD* = 5.12). We selected control participants semirandomly from a larger group of participants who met criteria for the control group by randomly matching control participants to depressive symptom participants by age (+/- 3 years). The final control group consisted of 47 women with BDI scores ranging from 0 to 3 with a mean of .36 (*SD* = .85). The final depressive symptom group and the control group did not differ significantly in average age (depressive symptom group average age = 19.2 years, range 18 to 25; control group average age = 19.0 years, range 18 to 24 years).

Measures and Procedures

All measures and procedures used to obtain the data for the present study were approved by the ethics committee at the University of Texas. All prospective participants completed questionnaires on the computer by entering an assigned code number into the computer. They were instructed to skip any items that they did not feel comfortable completing. Prospective participants completed the BDI, a Medical Information form, and selected sections of the Brief Index of Sexual Functioning for Women (BISF-W; Taylor, Rosen, & Leiblum, 1994). The BISF-W is a 22-item questionnaire that was validated on a sample of 269 women aged 20 to 73. The questionnaire contains three factors: sexual interest, sexual activity, and sexual satisfaction. Test-retest reliability ranged from .68 to .78 and internal consistency ranged from .39 to .83 (Taylor et al., 1994). Concurrent validity was demonstrated by comparing the BISF-W with the Derogatis Sexual Functioning Index (DSFI; Derogatis & Melisaratos, 1979). In a placebo-controlled study of the effects of transdermal testosterone treatment on sexual function in 75 oophorectomized women, the BISF-W was sensitive to detecting differences between treatment groups (Shiffrin et al., 2000). For the present study, we drew questions regarding sexual desire, sexual arousal, orgasm, sexual pain, sexual satisfaction, and sexual pleasure from the BISF-W. We assessed sexual desire as (a) the desire to engage in sexual activity alone ("How frequently have you felt a desire to engage in masturbation?"; 0 = *not at all* to 4 = *more than once a day*), and (b) the desire for sexual activity with a partner ("How frequently have you felt a desire to engage in kissing? Foreplay? Vaginal penetration?"; 0 = *not at all* to 4 = *more than once a day*; coefficient alpha for the present sample was .814). We assessed sexual arousal using the item "How frequently have you experienced lack of vaginal lubrication?" (0 = *not at all* to 4 = *always*). We assessed orgasm functioning with the item "How frequently have you experienced difficulty reaching orgasm?" (0 = *not at all* to 4 = *always*). We assessed sexual pain with the item "How frequently have you experienced painful penetration or intercourse?" (0 = *not at all* to 4 = *always*). We assessed sexual satisfaction with the item "How satisfied have you been with your sexual relationship with your partner?" (1 = *very dissatisfied* to 5 = *very satisfied*). Finally, we assessed sexual pleasure with the item "Have you felt pleasure from any forms of sexual experience?" (1 = *have not felt any pleasure* to 5 = *always felt pleasure*).

Results

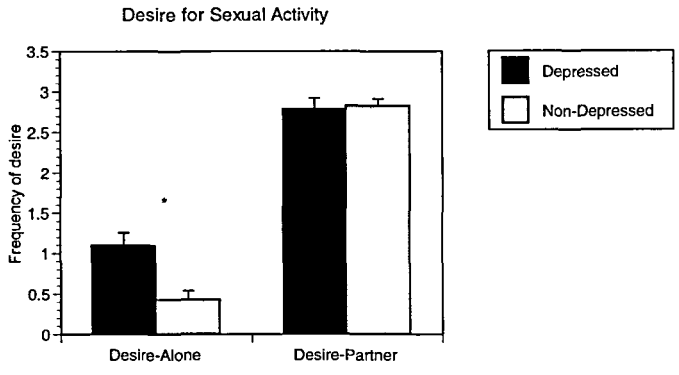
Results from a between participants (depressive symptoms versus no depressive symptoms) repeated measures MANOVA conducted on sexuality variables (desire for sexual activity alone, desire for sexual activity with a partner, arousal problems, orgasm problems, pain, pleasure, satisfaction) yielded a significant difference between groups, $F(1, 92) = 6.187$, $p = .000019$. Follow-up comparisons are described below. Because of the increased likelihood of Type I errors when multiple statistical tests are performed, we considered only mean differences of $p < .007$ ($p < .05/7$) statistically significant.

Sexual Drive

The depressive symptom group reported significantly more desire for sexual activity alone than did the control group, $t(1, 92) = 3.18$, $p = .002$ (effect size estimated using Cohen's $D = .667$). There were no significant differences between the depressive symptom group and control group in terms of desire for sexual activity with a partner, $t(1, 92) = .25$, $p = .801$ (effect size estimated using Cohen's $D = .053$). Figure 1 presents these results.

To assess whether women with depressive symptoms were simply reporting a greater desire for masturbation versus actually engaging in more masturbation, we conducted a follow-up comparison between women with and

Figure 1. The women with depressive symptoms reported a greater desire to engage in sexual activity alone (e.g., masturbation) than nondepressed women, but the two groups did not differ on desire to engage in sexual activity with a partner (e.g., kissing, foreplay, and intercourse).



without depressive symptoms using the dichotomous variable, presence or absence of masturbation during the past month. Women with depressive symptoms were significantly more likely to have masturbated in the previous month than were control participants, X^2 (1, N = 94) = 5.508, p = .019.

Sexual Arousal, Orgasm, and Pain

The depressive symptom group reported significantly more sexual problems than did the control group. For vaginal lubrication, t (1, 92) = 3.84, $p < .001$ (effect size estimated using Cohen's D = .830). For orgasm, t (1, 92) = 3.06, p = .003 (effect size estimated using Cohen's D = .635). For sexual pain, t (1, 92) = 4.37, $p < .001$ (effect size estimated using Cohen's D = .919). Figure 2 presents these results.

Sexual Satisfaction and Pleasure

The depressive symptom group reported less satisfaction with their sexual relationships than did the control group, t (1, 92) = 5.13, $p < .001$ (effect size estimated using Cohen's D = 1.136). Likewise, the depressive symptom group reported less pleasure during sexual activity, t (1, 92) = 3.93, $p < .001$ (effect size estimated using Cohen's D = .819). Figure 3 presents these results.

Discussion

Women reporting depressive symptoms were significantly more likely than control women to report experiencing problems when engaging in sexual activity with a partner. Women with depressive symptoms were more likely to report problems with sexual arousal (vaginal lubrication), orgasm, and pain than control women and were less likely to report sexual satisfaction and pleasure. These findings are consistent with previous research noting an association between depression and sexual arousal problems (Graziottin, 1998; Hirschfeld, 1999; Kennedy et al., 1999), orgasm difficulties (Graziottin, 1998; Hirschfeld, 1999; Kennedy et al., 1999), sexual pain (Meana et al., 1998), reduced sexual satisfaction (Gitlin, 1995), and reduced sexual pleasure (Clayton et al., 1997). In the present study, participants were not asked whether the sexual pain lessoned in instances where they were more lubricated or when an artificial lubricant was available. Thus, it is possible that the sexual pain reported by depressed participants resulted from a lack of vaginal lubrication rather than a primary sexual pain disorder.

A novel finding reported here is that women with depressive symptoms also reported a greater desire to engage in masturbation and were more likely to have engaged in masturbation during the past month compared with control women. Interestingly, there were no significant differences between groups in reported desire to engage in sexual activity with a partner. To our knowledge, the present study is the first to differentiate between desire for sexual activities alone and sexual activities with a partner in this population of women.

One potential explanation for why women with depressive symptoms reported a greater interest in masturbation than control women is that they were less satisfied with their sexual relationships. This would be consistent with the finding that women with depressive symptoms also reported lower levels of sexual satisfaction but inconsistent with the finding that women with depressive symptoms and control women did not differ in their desire for sexual activity with a partner.

An alternative explanation of these findings is that women with depressive symptoms may desire more masturbation because it provides a reliable form of pleasure. Depression is associated with a loss of interest in previously enjoyed activities; it is possible that secondary reinforcers (e.g., work and hobbies) may provide women with depressive symptoms little to no pleasure while primary reinforcers (e.g., food, sex, and sleep) may continue to provide some fulfillment. The women with depressive symptoms in the present study reported higher interest in masturbation but no greater desire for sexual activity with a partner. It is feasible that women with depressive symptoms experience greater desire for sexual pleasure in general, but expect that this desire will more likely be fulfilled through masturbation than through sexual activity with a partner. This notion is

Figure 2. The women with depressive symptoms reported more frequent problems with sexual arousal, orgasm, and pain than nondepressed women.

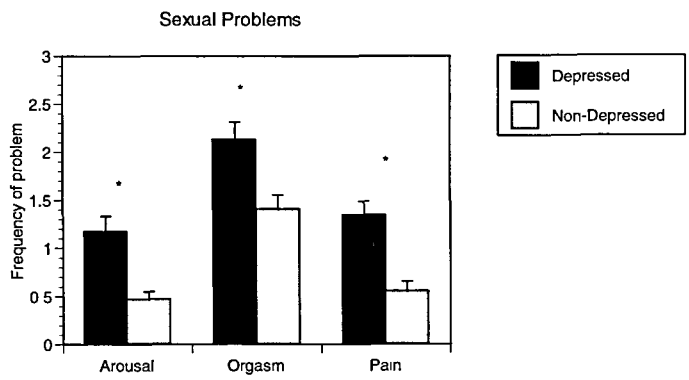
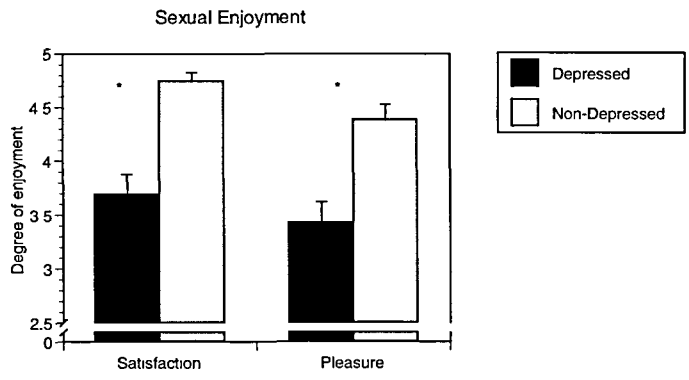


Figure 3. The women with depressive symptoms reported experiencing less sexual satisfaction and less sexual pleasure than nondepressed women.



supported by the fact that women with available partners often engage in masturbation because they are unable to reach orgasm during intercourse with their partner or because they do not expect an orgasm through intercourse (Darling, Davidson, & Cox, 1991). If the women with depressive symptoms are more likely to experience sexual pleasure through masturbation than through sex with a partner, it would be expected that they would report greater sexual satisfaction and pleasure through masturbation than through sexual activity with a partner. Future studies will need to address this hypothesis, however, as it is not possible to examine it using the present data.

It is also feasible that depressive symptoms are associated with greater rumination about sex, and/or a greater urge to engage in self-soothing behaviors. That is, women experiencing depressive symptoms may attempt to self-sooth by seeking activities that are unlikely to aggravate their depressed feelings (e.g., worry about evaluation/rejection). Masturbation, being a solo activity, is unlikely to induce the same concerns about performance or evaluation that sexual activity with a partner may produce. If so, their reported desire for masturbation may reflect a desire to seek behaviors that simply help them feel better, if only momentarily, rather than a desire to relieve sexual tension per se. This would be consistent with past research that indicates that higher sexual desire is associated with atypical vegetative symptoms of depression such as greater appetite and more sleep (Davidson, Miller, Turnbull, & Sullivan, 1982; Davidson & Turnbull, 1986).

If replicated, the present findings may have implications for developing new assessment tools for depression. Frequently used questionnaires for assessing depression, such as the Hamilton Depression Inventory (Reynolds & Kobak, 1995) and the Beck Depression Inventory (BDI; Beck & Beamesderfer, 1974), include a decrease in sexual interest as a symptom of depression. In the present study, approximately one third of participants with BDI scores above 30 reported that they would like to masturbate once a day—a rate of desired masturbation well above the norm of one to two times per month seen in the present control sample and in a previously published university sample (Meston, Trapnell, & Gorzalka, 1996). This suggests that increased desire, as measured by reported and/or actual masturbatory drive, may be seen in patients who are more than just mildly depressed. Of course it may be the case that depressive symptoms are associated with increased reported masturbatory drive but not actual masturbatory drive. In the present study, only presence or absence of masturbation, not actual frequency rates, was assessed. Nevertheless, the results from the present study and from previous studies that report both increases (Mathew & Weinman, 1982) and decreases (Davidson, Krishnan, France, & Pelton, 1985; Kennedy et al., 1999) in sexual desire among depressed patients suggest that depression inventories should include questions regarding changes in desire, rather than decreases in desire, and questions should include both inter- and intra-personal measures of desire.

Several factors limit the generalizability of the present findings. First, the present sample contained women who reported depressed symptoms as measured by the BDI, but who were not evaluated for clinical depression. The distinction between depressive symptoms and clinical depression (distinct disorders versus part of a continuum) continues to be an unresolved issue within the depression literature (Solomon, Haaga, & Arnow, 2001), but relatively little has been published regarding this issue within the sexuality literature. The vast majority of studies examining sexuality and depression have studied a clinically depressed population (e.g., Kennedy et al., 1999) with only a few selecting participants based on the presence of depressive symptoms only (e.g., Liu, Ma, Kurita, & Tang, 1999). It is worth noting, however, that Beck (1967) suggested that increases in sexual desire are typically seen only in cases of mild depression, and that once people reach a moderate to severe level of depression, they exhibit partial to complete loss of sexual desire. It is feasible that the present data represents empirical support for Beck's assertion. That is, increases in masturbatory drive are associated with depressive symptoms, subthreshold depression, and/or mild clinical depression, but not moderate to severe clinical depression. Future studies will need to explore this hypothesis by examining sexual desire among clinically diagnosed subtypes of depressive disorders (e.g., dysthymic disorder, major depression, cyclothymic disorder, bipolar disorder) to determine whether the association between reported and/or actual masturbatory drive and depression is limited to transient depressive symptoms or is also present among specific subtypes of more clinically disordered populations.

Second, the sample of women studied here were of a younger age range than that seen among women who typically present for therapy with depression (Olfson, Zarin, Mittman, & McIntyre, 2001). Sexual functioning and sexual practices among older women may differ from those in the present sample given that older women are more likely to be in long-term, sexually established relationships.

Third, while attempts were made to measure a variety of dimensions of sexual functioning, some important aspects of sexuality were not assessed. For example, sexual arousal was defined in this study as lack of vaginal lubrication, a definition that closely matches the Diagnostic and Statistical Manual of Mental Disorders (4th edition, text revision). DSM-IV-TR criteria of inhibited female arousal are "persistent or recurrent inability to attain, or to maintain until completion of the sexual activity, an adequate lubrication-swelling response of sexual excitement" (American Psychiatric Association, 2000). However, we did not assess psychological experience of sexual arousal, which is an equally important dimension of sexual responding. One cannot assume that increases in vaginal lubrication are intricately connected to feelings of sexual arousal, given that recent laboratory studies strongly point to a desynchrony between these two aspects of sexual arousal (Meston, 2000). In addition, orgasm in this study

was defined solely in terms of difficulty reaching orgasm, and hence we are unable to speculate about intensity of orgasm among these patients. Clearly this is an equally important dimension of orgasmic functioning. Researchers interested in further examining the relationship between depression and sexual functioning should consider also assessing such aspects as intensity of orgasm (masturbation versus partner sex), psychological and cognitive sexual arousal, receptivity for sex (Basson, 2000), and masturbation frequency.

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