The interaction between anxiety and sexual functioning: a controlled study of sexual functioning in women with anxiety disorders

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ABSTRACT A controlled study on the sexual functioning of women with anxiety disorders is presented. A literature review is given of both the experimental findings on the influence of anxiety in sexually (dys)functional women and clinical research findings regarding the sexual functioning of women with anxiety disorders. The sexual functioning of women with panic disorder \( (n = 27) \) or obsessive compulsive disorder \( (OCD) \) \( (n = 17) \) and their male partners was evaluated in comparison with that of controls \( (n = 34) \). Self-report instruments regarding sexual dysfunctions, sexual satisfaction, marital functioning and psychopathology were used. Both women with panic disorder and those with obsessive compulsive disorder were found to have lower sexual desire and lower frequency of sexual contact than controls. In addition, a hyposexual desire disorder and a sexual aversion disorder were more frequently found in anxiety patients than in controls. OCD patients reported more sexual dysfunctions in total and were less satisfied with their sex lives than panic disorder patients and controls. Findings from experimental studies that anxiety may enhance the sexual response could not be replicated in a clinical population. Instead, it seems that patients with anxiety disorders are more at risk of sexual dysfunctions that ‘normal’ people. It is likely that sexual dysfunction is related to avoidance. Therefore, sexual behaviour should be taken into account in the treatment of anxiety disorder. Further research should focus on experiments involving the sexual responsiveness of patients with anxiety disorders.

This article focuses on the interaction between anxiety and sexual functioning in women. First, the experimental findings on the influence of anxiety in sexually (dys)functional women are reviewed, then an additional perspective on the interaction between anxiety and sexual functioning is offered. This is the sexual functioning of women with anxiety disorders and, for this, the literature on sexual functioning in patients with panic disorder or obsessive compulsive disorder is summarized. Next,
a controlled study into the sexual functioning of women with anxiety disorders is presented.

**Experimental findings on the influence of anxiety in sexually (dys)functional women**

Based on the theoretical framework of Masters and Johnson (1970) and Kaplan (1974), one would assume that anxiety has an adverse effect on sexual arousal. In several experiments these assumptions were tested by provoking anxiety as a state-condition (e.g. by a shock threat or by means of anxiety-producing films) and determining the influence of the state-anxiety on sexual arousal. Although some researchers did indeed find that anxiety had an inhibitory effect on sexuality in sexually functional women (Beggs et al., 1987), most studies with female subjects (Hoon et al., 1977; Laan et al., 1993; Laan et al., 1995; Palace & Gorzalka, 1990; Pawlowski, 1979), indicate that anxiety either facilitates sexual arousal or does not affect it. In their overview of sexuality in women, Andersen and Cyranowski (1995) concluded that these studies suggest that the previous conceptualizations of Masters and Johnson and Kaplan may be less relevant for women.

The enhancing rather than adverse effects of anxiety on sexual functioning can be explained by the process of labelling the autonomic response; the physiological response caused by the anxiety-provoking condition is, in combination with sexual cues, falsely labelled by the subjects as sexual arousal (Palace & Gorzalka, 1990). Other studies showed that in sexually *dysfunctional* women, anxiety may inhibit sexual response and maintain the sexual dysfunction. Palace and Gorzalka (1990) found that anxiety enhanced genital arousal in both sexually functional and dysfunctional women. The dysfunctional women, however, showed relatively lower sexual arousal as a result of their negative cognitions and expectations of sexuality. This is in accordance with Barlow’s (1986) feedback loop model of sexual excitement, in which the cognitive component of the arousal process is central in predicting the response. This model implies that in sexually functional subjects a demand for sexual performance gives rise to positive cognitions of control, which leads to increased attentional focus on erotic cues and increased autonomic (including sexual) arousal. In people with sexual problems on the other hand, the same demand gives rise to negative cognitions (of failure, for instance) and attention is focused on sexual performance and other non-erotic cues, which leads to a failure in sexual performance. In a study by Elliot and O’Donohue (1997) of sexually functional women, it was indeed found that sexual arousal varied as a function of distraction, the cognitive component of anxiety, with increased distraction leading to decreased sexual arousal.

**Another perspective: sexual functioning in patients with anxiety disorders**

It becomes clear from the abovementioned studies that the anxiety–sexual response relationship is a complex one. Strikingly, this relationship has been studied mainly in an experimental context, when manipulating state-anxiety in sexually functional
or dysfunctional subjects. Far less knowledge is available about the interaction between sexual functioning and high trait-anxiety, such as in people with anxiety disorders. Additional knowledge, gained from this perspective, may be important in understanding the theoretical concepts underlying the complex interaction between anxiety and sexual functioning. The main goal of the present study was to compare the sexual functioning of anxiety dysfunctional (panic disorder and obsessive compulsive disorder) and functional females (no anxiety disorder) and their male partners. Before describing the study, we offer an overview of the findings of previous studies into the sexual functioning of patients with anxiety disorders.

Sexual functioning in patients with panic disorder

Surprisingly, despite the fact that most patients and clinicians believe that psychiatric disorders interfere with sexual functioning (Pinderhughes et al., 1972), little is known about the sexual functioning of subjects with anxiety disorders. With regard to anxious patients in general, some studies (Schreiner-Engel & Schiavi, 1986; Winokur & Holeman, 1963;) discovered no strong co-morbidity of anxiety and sexual disorders. Gentil and Lader (1979), however, found the attitudes of female anxious patients (n = 18) towards sexual activity and the human body to be more negative than those of controls.

With regard to more specific anxiety disorders, most research attention has focused on the quality of the marital relationship, including sexual functioning, of patients with panic disorder, because it was believed that panic disorder was caused or maintained by relationship characteristics. In their review, however, Steketee and Shapiro (1995) concluded that there was no conclusive evidence that the quality of the marital relationship predicts treatment outcome in panic disorder.

In a more valid theory on the causation of panic attacks, the misinterpretation of physical symptoms is seen as central (Clark, 1986). Bodily sensations of autonomic arousal elicited by sexual arousal are seen as interoceptive cues that may be misinterpreted as a threat, and thus may lead to panic attacks. Indeed, Datillo (1992) found a significant overlap between panic and sexual arousal sensations. Buglass et al. (1977) found in a retrospective study that, although premorbid sexual adjustment was the same among agoraphobic and normal women, agoraphobic women reported more loss of libido during their disorder. Solyom et al. (1986) found that agoraphobics reported more sexual problems than did subjects with social phobias. Ware et al. (1996) found that patients with anxiety disorders (social phobia, panic disorder and generalized anxiety disorder) were at more significant risk of experiencing sexual dysfunctions than controls. More specifically, they found that patients with panic disorder reported less sexual desire. Kaplan (1987) found a high incidence of panic disorder (25%) or characteristic symptoms of panic disorder, but no panic attacks, (25%) among patients who phobically avoid sex or who complain of active sexual aversion. Sbrocco et al. (1997) diagnosed panic disorder in three of 35 male patients presenting with erectile dysfunct.
Sexual functioning in patients with obsessive compulsive disorder

Far less information is available on the sexual functioning of patients with obsessive compulsive disorder (OCD). There are several explanations as to why marital and sexual problems might exist or be expected to exist in OCD patients. First, some theories state that OCD develops as a reaction to severe sexual conflicts within the patients themselves or in their family of origin, although studies provide no strong evidence for this. Hoover and Insel (1984) studied the families of origin of OCD patients and did indeed find marital and sexual problems in the parents of those patients. Staebler et al. (1993), on the other hand, did not find any differences in sexual history between OCD patients and patients with a panic disorder or a depressive disorder. They concluded that the relationship between sexual history and current sexual problems in OCD patients is questionable and certainly not unique.

Second, the content of the obsessions may be sexual, which may be interfering with the sex lives of the patients. In a descriptive study of 44 OCD patients (Rasmussen & Tsuang, 1986), 14 (32%) showed sexual impulses that conflicted with their values. In a comparable study it was found that 36% of the patients had sexual obsessions (Freund & Steketee, 1989). Furthermore, it can be expected that OCD patients will avoid sexual intimacy in an effort to prevent contamination, failure or loss of control (Salzman, 1982). Freund and Steketee (1989) found a high rate of sexual dissatisfaction among OCD patients. In the study by Rasmussen and Tsuang (1986) 30% of OCD patients reported a loss of libido since the onset of the disorder. Although Staebler et al. (1993) found that the majority (59%) of OCD patients were not satisfied with their sex lives, they found no differences from patients with panic disorder or depressive disorder.

In conclusion, little research has thus far focused on the sexual functioning of women with anxiety disorders in general, and particularly on that of women with obsessive compulsive disorder. This article presents a controlled study comparing the sexual functioning of female panic patients, OCD patients and controls, together with their male partners.

Method

Patients

Patients were referrals to an outpatient clinic specializing in the treatment of anxiety disorders, and a university outpatient clinic. Female patients with either a panic disorder (with or without agoraphobia) (panic group) or an obsessive compulsive disorder as a primary disorder (OCD group), who were married or cohabiting and aged between 18 and 65 were included in the study. Excluded were patients with depressive or psychotic disorders, patients on antidepressants or anxiolytics, patients with physical or emotional disorders that might influence sexual functioning, and pregnant or nursing mothers. Both the patients and their male partners were asked to participate. After they had given their informed consent, the patients and their partners completed the questionnaires independently.
Ultimately, the study population comprised:

- 27 patients with panic disorder with agoraphobia, whose mean age was 33.7 (SD 9.2) and their male partners (mean age 37.2, SD 10.2). The mean relationship duration was 11 years and one month (range 2–30 years). Sixteen patients (59.3%) had one or more children. Patients’ mean duration of anxiety symptoms before entering treatment was seven years and three months (range four months–28 years). Their mean score on the Mobility Inventory for Agoraphobia (MI—Chambless et al., 1985), as an indication of the severity of the panic disorder, was 2.7 (SD 1.2) for MI with company and 2.2 (SD 0.9) for MI when alone.

- 7 OCD patients, whose mean age was 31.6 (SD 6.9) and their male partners (mean age 34.7, SD 7.4). The relationship duration was nine years and three months (range 2–24 years). Eight patients (47.1%) had one or more children. The mean duration of anxiety symptoms before entering treatment was six years and five months (range five months–10 years). Their mean score on a self-rating questionnaire for obsessive compulsive behaviour (Kraaimaat & van Dam-Baggen, 1976), as an indication of the severity of the OCD, was 93.4 (SD 22.0).

Controls

Control women and their partners were recruited following their response to an advertisement in a regional paper, in which couples were asked to participate in a study into several aspects of partner relationships. Healthy couples in a committed relationship of at least one year who had plans for a future together were considered for inclusion in the study. Subjects with a psychiatric illness or a physical condition that might interfere with sexual functioning, pregnant and nursing mothers, and subjects using psychotropic drugs were excluded. Women were matched pair-wise with the panic and OCD group by age and duration of relationship. The couples completed the questionnaires independently and were paid a nominal fee for their participation.

The control group consisted of 34 women (mean age 30.4, SD 8.3) and their male partners (mean age 33.4, SD 9.7). The mean relationship duration was eight years and six months (range 1–28 years). Fourteen patients (41.2%) had one or more children. There were no significant differences between the panic group, the OCD group and the controls on demographic variables.

Measures

The Questionnaire for screening Sexual Dysfunctions (QSD—Vroege, 1995) was used to examine sexual functioning. The QSD consists of 70 items relating to sexual problems during masturbation and during sexual contact with the partner. Items address sexual desire, sexual aversion, frequency of sexual activities, sexual excitement (in women: lubrication; in men: erectile problems), orgasm, genital pain,
and negative emotions after sexual activities. Both the frequency of the sexual problems and the distress they cause are addressed in every item. In addition to completing the QSD, the anxiety patients were asked whether they considered their anxiety symptoms to have a positive, negative or no influence on their sexual functioning.

The Maudsley Marital Questionnaire (MMQ—Arrindell et al., 1983) and the Interactional Problem Solving Inventory (IPSI—Lange, 1983) were used to assess marital and sexual problems. The MMQ (20 items) is made up of three subscales: quality of relationship, sexual satisfaction and general life satisfaction. The IPSI (17 items) measures partners’ problem solving ability.

The Symptom Checklist 90-R (SCL-90—Arrindell & Ettema, 1986) was used to measure psychological adjustment and health symptoms.

Results

The results are summarized in Table I.

For women, one-way ANOVA’s revealed significant differences for the QSD subscales sexual desire ($F(2.68) = 9.3, p < 0.001$) and frequency of sexual contact ($F(2.72) = 10.2, p < 0.001$). Post hoc analysis showed that women with panic disorder and those with OCD had lower sexual desire and lower frequency of sexual contact than controls.

Their QSD subscale scores were used to determine whether or not each patient fulfilled the DSM-IV criteria for a diagnosis of sexual dysfunction. Thirteen of the OCD patients (76.4%) and 12 of the panic disorder patients (44.4%) had one or more sexual dysfunctions, compared with six patients (17.6%) in the control group. When using Chi-square, patients with panic disorder or OCD showed a hypoactive sexual desire disorder ($\chi^2 = 7.2$, $p < 0.05$) and a sexual aversion disorder ($\chi^2 = 5.7$, $p < 0.05$) significantly more often. In total, OCD patients showed more sexual dysfunctions than panic disorder patients and controls ($\chi^2 = 5.3$, $p < 0.05$).

For the male partners, significant differences were found for the QSD subscales sexual desire ($F(2.65) = 5.9, p < 0.01$), frequency of sexual contact ($F(2.64) = 3.2$, $p < 0.05$), sexual excitement ($F(2.66) = 9.6$, $p < 0.001$), and orgasm problems ($F(2.66) = 6.3$, $p < 0.01$). In post hoc analyses it was found that partners of panic disorder patients showed lower sexual desire and more orgasm problems than partners of OCD patients and controls. However, partners of OCD patients showed lower frequency of sexual contact than partners of panic disorder patients and controls. Partners in both the panic and OCD group showed lower sexual excitement than controls. When women and their partners were compared (paired t-tests), it was found that men showed more sexual desire ($t(64) = 6.2, p < 0.001$), less sexual aversion ($t(66) = 3.8, p < 0.001$), and less genital pain ($t(66) = 3.7, p < 0.001$) than women, but more orgasm problems ($t(66) = -3.9, p < 0.001$).

Seventy-six percent of the panic group answered that their anxiety symptoms had no effect on their sexual functioning, whereas 24% thought that their anxiety symptoms had a negative influence. Forty-three percent of the OCD group indicated
### Table I. Sexual, marital and psychological functioning (mean, SD) for women with panic disorder (n = 27) or obsessive compulsive disorder (n = 17), women controls (n = 34) and their male partners.

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Male Partners</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Panic (n = 27)</td>
<td>OCD (n = 17)</td>
</tr>
<tr>
<td>QSD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual desire</td>
<td>4.8 (1.6)</td>
<td>5.1 (1.3)</td>
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<tr>
<td>Sexual aversion</td>
<td>1.0 (0.2)</td>
<td>1.3 (0.5)</td>
</tr>
<tr>
<td>Frequency</td>
<td>3.2 (1.4)</td>
<td>2.6 (1.2)</td>
</tr>
<tr>
<td>Sexual excitement</td>
<td>1.4 (0.5)</td>
<td>1.3 (0.5)</td>
</tr>
<tr>
<td>Lubrication/erection</td>
<td>1.1 (0.3)</td>
<td>1.2 (0.3)</td>
</tr>
<tr>
<td>Orgasm</td>
<td>1.5 (0.6)</td>
<td>1.5 (0.7)</td>
</tr>
<tr>
<td>Genital pain</td>
<td>3.3 (0.5)</td>
<td>3.9 (1.4)</td>
</tr>
<tr>
<td>Negative emotions</td>
<td>1.0 (0.1)</td>
<td>1.0 (0.1)</td>
</tr>
<tr>
<td>MMQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality relationship</td>
<td>14.3 (10.6)</td>
<td>15.7 (8.7)</td>
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<tr>
<td>Sexual satisfaction</td>
<td>9.8 (7.5)</td>
<td>13.8 (6.7)</td>
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<tr>
<td>IPSI</td>
<td></td>
<td></td>
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<tr>
<td>Problem solving</td>
<td>67.2 (13.2)</td>
<td>65.0 (11.7)</td>
</tr>
</tbody>
</table>

QSD = Questionnaire for screening Sexual Dysfunctions; MMQ = Maudsley Marital Questionnaire; IPSI = Interational Problem Solving Inventory.

1higher scores indicate better sexual or marital functioning, 2higher scores indicate worse sexual or marital functioning.

**p < 0.001.
no influence and 57% reported a negative effect of anxiety symptoms on their sexual functioning. No patient reported positive effects.

Significant differences in sexual satisfaction were found on the MMQ for both women and their partners ($F(2.75) = 7.1, p < 0.001$ for women; $F(2.66) = 2.8, p < 0.05$ for men); both women with OCD and their partners showed less sexual satisfaction than controls. No differences were found with regard to quality of marital relationship. No differences were found between women and their partners on MMQ-scores. Neither were any significant differences found on the IPSI. Correlations were computed between sexual functioning (QSD subscales) and sexual satisfaction (MMQ subscale), on the one hand and psychopathology (SCL subscales), on the other (Pearson $r$, significance corrected for multiple comparisons with bonferroni). Sexual satisfaction was significantly negatively related to depression ($r = -0.33, p < 0.001$), anxiety ($r = -0.41, p < 0.001$) and somatization ($r = -0.33, p < 0.001$). Sexual functioning was not significantly related to psychopathology, except on the anxiety subscale; the more anxiety women reported on the SCL subscale anxiety, the less sexual desire ($r = -0.33, p < 0.01$) and the less frequency of sexual contact ($r = -0.37, p < 0.001$) they showed.

Discussion

This study found a significant co-morbidity of anxiety and sexual problems. Both women with panic disorder and those with obsessive compulsive disorder were found to have lower sexual desire and lower frequency of sexual contact than controls. In addition, a hypoactive sexual desire disorder and a sexual aversion disorder were more frequently found in anxiety patients than in controls. In some areas, OCD patients seemed to be affected more by sexual problems than panic disorder patients or controls: they reported more sexual dysfunctions in total and were less satisfied with their sex lives.

Based on the present study, it may be concluded that the sexual problems of female anxiety patients are most likely to involve the first phase of the sexual response cycle: sexual desire. Other phases in the sexual response cycle, such as excitement and orgasm, seem to be unaffected. This latter is not the case with the male partners of anxiety patients. In addition to problems with sexual desire and frequency of sexual contact, they also suffer from problems with sexual excitement and orgasm. These findings may mean that excitement and orgasm disorders in men may be connected with the sexual desire problems of their wives. It may also mean that sexual disorders in anxiety patients differ for men and women. Further research should therefore include both men and women with anxiety disorders in order to determine this.

The quality of the marital relationship was found to be unaffected by the anxiety disorder, which indicates that the reported sexual problems were specifically related to the anxiety disorder and not caused by marital problems.

From a clinical viewpoint, the results of our study are in accordance with previous findings regarding sexual functioning in anxiety disorder patients. One might wonder, however, whether sexual problems are specific to anxiety disorder
patients or whether they are non-specific sexual components of any neurotic disorder. In the present study, it was found that a non-specific sexual complaint, such as less general sexual satisfaction, was significantly negatively correlated with psychopathology in general (depression, anxiety and somatization) and might therefore be considered a non-specific element of any neurotic disorder. It may very well be that this dissatisfaction with sexual functioning disappears along with the psychopathological symptoms, and needs no specific treatment consideration. Problems with sexual desire, on the other hand, were found to be specifically related to anxiety. Although it cannot be directly derived from the results of this study, one could hypothesize that the reported problems of sexual desire and lower frequency of sexual contact among patients with anxiety disorders are the result of avoidance of sexual contact. It may be important to include this avoidance behaviour, as a characteristic symptom of the anxiety disorder, in the treatment programme. For patients with panic disorder, this may mean that sexual cues are included both in the interceptive exposure programme and in the \textit{in vivo} exposure hierarchy. For OCD patients, sexual behaviour should be included in the exposure and response-prevention programmes. It may be important in the treatment of sexual dysfunctions to distinguish sexually dysfunctional couples in which one partner has an underlying anxiety disorder and those couples with no anxiety disorder.

From a theoretical point of view, however, no enhanced effects of anxiety on sexual functioning, such as were found in experimental studies, were discovered. On the contrary, we found either no effect or a negative effect. Results from experimental studies using subjects with anxiety disorders may result in more knowledge about the complex anxiety–sexual functioning interaction. They may provide different results from those gained from studies which involve sexually (dys)functional subjects. First, faced with state-anxiety created by non-sexual stimuli when viewing a sexually explicit film, the healthy individual may mislabel the anxiety as sexual arousal, which may lead to heightened sexual arousal. However, when anxiety cues are well recognized as being anxiety cues, as is the case when someone suffers from an anxiety disorder, a facilitative effect of anxiety does not occur, because mislabelling of the anxiety arousal as sexual arousal is not an option. Rather, anxious subjects will probably perceive sexual arousal as anxiety and will focus attention on the threatening information, which will produce additional anxiety and sexual avoidance. Second, the level and nature of anxiety and its history may be important. It may be that moderate levels of state-anxiety, as caused by shock threat in experiments (as is usually the case in the experiments mentioned) may catalyse subsequent sexual arousal, but high levels of state- and trait-anxiety with a lengthy history, such as in anxiety disorders, may inhibit sexual arousal.

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