

## Causes of Sexual Dysfunction: The Role of Anxiety and Cognitive Interference

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Recent research findings have implicated, in a preliminary manner, five factors that seem to differentiate sexually functional subjects from sexually dysfunctional subjects suffering from inhibited sexual excitement. These factors include differences in affect during sexual stimulation, differences in self-reports of sexual arousal and perception of control over arousal, distractibility during sexual stimulation, and differential sexual responding while anxious. These findings suggest a working model of sexual dysfunction that is based on cognitive interference and anxiety. Implications of this model for the treatment of sexual dysfunction are suggested.

Sex therapy has changed very little since Masters and Johnson (1970). Although direct and brief behavioral approaches to psychogenic sexual dysfunction began to appear in the late 1950s and early 1960s (Brady, 1966; Lazaraus, 1963; Wolpe, 1958), Masters and Johnson's work influenced psychotherapeutic approaches to this problem in a manner unprecedented for other psychological disorders. It is little wonder that innovations since that time have been limited largely to small variations of the Masters and Johnson approach reflecting the inclinations of various sex therapists (e.g., Hartmann & Fithian, 1972; Kaplan, 1981). Typically, all of these approaches, including the original Masters and Johnson techniques, contain a variety of techniques based loosely on hypothetical causes of sexual dysfunction, such as performance anxiety. The success rates of these approaches and the commonalities among them have been reviewed many times (e.g., Cooper, 1981; Crown & D'Ardenne, 1982; Kuriansky & Sharpe, 1981; Marks, 1981; Mills & Kilmann, 1982). It seems that with or without variations in the basic treatment, approximately one half to two thirds of sexually dysfunctional patients will show some improvement immediately following treatment. For erectile dysfunction, however, (e.g., inhibited sexual excitement in males from diagnoses in *Diagnostic and Statistical Manual of Mental Disorders, DSM-III*; American Psychiatric Association, 1980) the figure can be as low as 30% (Crown & D'Ardenne, 1982). Furthermore, Levine and Agle (1978) pointed out that these "improved" patients with erectile dysfunction are quite unstable in their sexual functioning over time and are certainly not cured. These more pessimistic results for erectile dysfunction are paralleled by increasing reports from sex therapists of difficulties in replicating the success of Masters and Johnson, even in the area of erectile dysfunction where some of their highest failure rates were originally reported (e.g., Zilbergeld & Evans, 1980).

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In any case, in recent years interest in surgical intervention for erectile dysfunction has increased. Surgical alternatives to the treatment of erectile difficulties have become particularly popular with the advent of diagnostic techniques such as evaluating nocturnal penile tumescence (NPT; Karacan, 1970). The procedures are thoroughly reviewed elsewhere in this series. But, as Fisher et al. (1979) pointed out, recordings of NPT are only an aid in clinical diagnosis and not a definitive criterion. Indeed, many patients, later proven to be psychogenically impotent, display depressed NPTs, whereas others with known organic etiologies seemingly display normal NPTs. In addition, it has become an increasingly common clinical report that even patients suffering from erectile difficulties with known organogenic etiology, such as diabetes, hypospadias, alcohol neuropathy, or other peripheral neuropathies, are capable of erectile response (Sakheim, 1984) and will on occasion respond to psychological sexual therapy. As Beutler and Gleason (1981) and others pointed out, organic and psychogenic etiologies can coexist and mask one another. Nevertheless, those approaching the problem from a surgical versus a psychological perspective continue to accuse each other of doing unnecessary surgery on the one hand or performing lengthy, unnecessary psychological therapy on the other. This state of affairs seems a clear indication of the continuing unevenness of research in sexual dysfunction in general and inhibited sexual excitement specifically. That is, most research to date has been focused on treatment outcome rather than more basic knowledge in the area of psychology, psychopathology, or physiology. The fact is, little is known about the physiology of the sexual response on the one hand, for example, the hemodialysis of penile erections (Bennett, 1982; Schiavi, 1981), or the psychological mechanisms of action responsible for erectile difficulties or related sexual dysfunctions on the other.

More recently, data have accumulated that contradict, in part, some of the prevailing notions of the causes of sexual dysfunction and inhibited sexual excitement in particular, on which most treatments are based. This article reviews new data on factors contributing to erectile dysfunction in men, and to some extent, inhibited sexual excitement in women and suggests a working model of sexual dysfunction that may have substantial implications for treatment. Before describing this model, a brief review

of the relation of anxiety as well as a variety of cognitive sets to sexual arousal is necessary.

### Role of Anxiety

Anxiety is considered to play a role in the development and maintenance of sexual dysfunctions for both men and women by writers of virtually every theoretical persuasion. For example, both Fenichel (1945) and Wolpe (1958) have considered anxiety to be a contributing factor to the development of the various types of sexual dysfunctions in men and women. More recently, Masters and Johnson (1970) and Kaplan (1974, 1981) emphasized the role of anxiety in the short-term treatment of sexual dysfunctions. Masters and Johnson (1970) underlined the importance of performance fears as a major concern to individuals and couples experiencing sexual dysfunctions. Fears of inadequacy often coexist with performance fears deterring effective sexual functioning according to Masters and Johnson. Kaplan (1974, 1981) has also given fear of failure a primary role in the development of sexual anxieties and has added other fears, such as demands for performance on the part of the partner and excessive need to please partners, to the list of sexual anxieties. These sexual anxieties are seen as preventing an individual from experiencing sexual arousal and, in fact, as inhibiting autonomic nervous system functioning to such an extent that physiological arousal is impossible (Kaplan, 1974, 1981). For both Masters and Johnson and Kaplan, a major task of therapy is overcoming performance fears and feelings of sexual inadequacy as well as other sources of sexual anxiety. In a similar vein, as early as 1958 Wolpe suggested the use of systematic desensitization in the treatment of sexual dysfunctions, with the elimination of anxiety as the goal of treatment. The fact that anxiety is thought to be the most important etiological factor in sexual dysfunction is surprising because the evidence is based purely on clinical inference and not on empirical data. Schiavi pointed out as late as 1976 that there were "no studies of men with erectile dysfunctions that have assessed the pattern of autonomic arousal and penile tumescence in response to erotic stimulation" (Schiavi, 1976, p. 564).

In fact, there is both clinical and experimental evidence that anxiety can facilitate sexual arousal as indicated by physiological assessment (Beck & Barlow, 1984; Norton & Jehu, 1984). For example, from a clinical perspective, Ramsey (1943) conducted a study on adolescent boys and reported that approximately 50% of the boys noted erections from some type of nonerotic stimulus. The situation in which the nonerotic responses occurred usually involved elements of fear, excitement, or other emotional situations. These included such events as accidents, near accidents, being chased by the police, fear of being punished, and so forth. Bancroft (1970) noted similar examples. The theoretically interesting account of male sexual performance during sexual threats and molestation by women, reported by Sarrel and Masters (1982), adds to this clinical evidence. In this report, men were able to perform sexual intercourse (and therefore were able to attain adequate erection) repeatedly despite ongoing direct threats with knives and other weapons if they failed. This phenomenon has also been noted in some paraphilias as well, because many exhibitionists or voyeurs, for example, find it impossible

to get sexually aroused and erect without first experiencing fear or anxiety concerning being apprehended. Stoller (1976) provided a theoretical rationale for this in his analysis of sexual excitement.

From a basic physiological perspective both Barfield and Sachs (with rats; 1968) and Redmond, Kosten, and Reiser (with adult males; 1982) noted that severely elevated levels of "anxiety" were associated with increased sexual arousal and/or activity. This topic has also been examined from a social psychological perspective. A number of studies (i.e., Berscheid & Walster, 1974; Brehm, Gatz, Goethals, McCrimmon, & Ward, 1978; Dutton & Aron, 1974; Riordan, 1979) have found that experimentally induced anxiety can increase interpersonal or sexual attraction.

More recently, the relation of anxiety to sexual arousal has been examined directly in the laboratory. Hoon, Wincze, and Hoon (1977) preexposed sexually functional women to 2-min film sequences designed to elicit either anxiety or neutral responses and presented them in counterbalanced order while measuring sexual arousal. The results indicated that exposure to an anxiety-producing film subsequently produced increases rather than decreases in sexual arousal during the viewing of an erotic film as compared with preexposure to a neutral film. Wolchik et al. (1980) replicated this study, in part, with sexually functional men. Once again it was demonstrated that a validated anxiety-producing preexposure film could enhance rather than inhibit sexual arousal.

Despite this diverse literature, Wolpe (1978, p. 453) pointed out that increases in sexual arousal subsequent to an anxiety-producing event such as a film, as in the Hoon et al. (1977) experiment, might be due to an "anxiety relief" phenomenon rather than a facilitatory effect of anxiety. To address this issue, Barlow, Sakheim, and Beck (1983) examined the effects of anxiety simultaneous with sexual arousal in young sexually functional volunteer men. Anxiety was manipulated by a shock threat during an explicit, erotic film. Two types of experimental instructions were employed; each was signaled by a different light during the film. In one condition subjects were told that there was a 60% chance of shock if they did not achieve adequate arousal (contingent threat). In the second condition subjects were told that the chance of shock was unrelated to their arousal or any other response (noncontingent threat). These two forms of shock threat instruction were used in an attempt to produce personal performance pressures or demands (contingent) and to differentiate this *performance anxiety* from more *generalized anxiety* (noncontingent). These two conditions were compared with a no-shock condition, that is, a light signaling no shock while watching the erotic movie. The results indicated that noncontingent anxiety increased sexual arousal, compared with the no-shock condition. But, in an unexpected development, even the demand condition where subjects were told there was a 60% chance they would be shocked if they did not achieve adequate arousal increased sexual arousal when compared with the no-shock condition. In fact, this produced the highest overall sexual arousal of all three conditions (see Figure 1).

Despite these data, it is still possible that sexually dysfunctional subjects could react very differently from sexually functional subjects to erotic stimuli while experiencing anxiety. We now have completed an experiment testing this exact same paradigm with sexually dysfunctional and matched sexually functional men

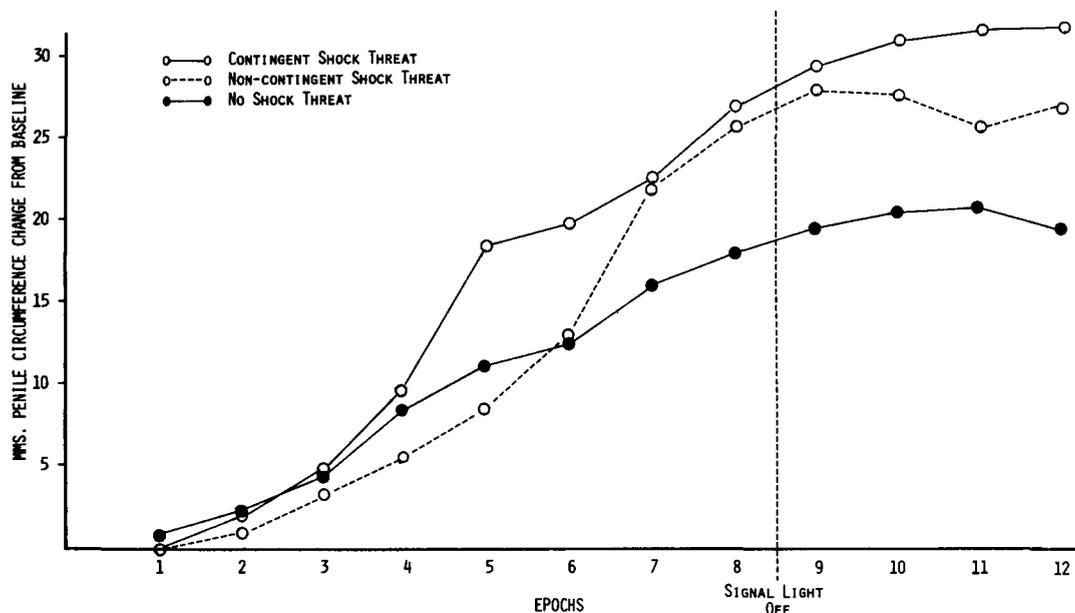


Figure 1. Average penile circumference change in millimeters (MMS.) for each 15-s epoch during each of three conditions: no shock threat, noncontingent shock threat, and contingent shock threat. (From "Anxiety Increases Sexual Arousal" by D. H. Barlow, D. K. Sakheim, and J. G. Beck, 1983, *Journal of Abnormal Psychology*, 92, p. 52. Copyright 1983 by the American Psychological Association. Reprinted by permission.)

(Beck, Barlow, Sakheim, & Abrahamson, 1984b). Our previous findings were partially replicated in that noncontingent threat produced significantly more sexual arousal than did a no-shock control condition for our sexually functional men. Unlike the previous report, however, contingent shock threat did not elevate sexual arousal over the control condition (although it did not inhibit sexual arousal either). It is possible that this represents an age difference. The previous experiment was conducted with relatively young volunteers with a mean age of 26 years old. The sexually functional subjects in this experiment, on the other hand, were matched with our older sexually dysfunctional population with a mean age of 38 years old.

But the more important finding was that unlike our sexually functional subjects, dysfunctional subjects evidenced significantly less sexual arousal during shock threat conditions. Thus, anxiety seems to affect functionals and dysfunctionals in very different ways. To reiterate, the first major difference between our sexually functional and sexually dysfunctional subjects is that anxiety, operationalized as shock threat, increases sexual arousal in sexually functional subjects and decreases sexual arousal in sexually dysfunctional subjects. We will return to this issue later.

All of this must be seen, of course, in the context of anxiety as a construct (Barlow, Mavissakalian, & Schofield, 1980; Lang, 1968; Mavissakalian & Barlow, 1981) in which three separate response systems exist that may not be perfectly correlated. It is possible, therefore, that the physiological or somatic component of anxiety, when increased, facilitates sexual arousal in an additive way, as suggested in the emotional transfer literature (e.g., Zillman, 1983) because these two responses share many common components (e.g., increased heart rate and increased blood pressure), whereas the cognitive component of anxiety, such as dis-

tracting performance-related negative cognitions, might have a different effect.

### Role of Cognitive Interference

If autonomic arousal or the physiological component of anxiety is not fully correlated with other response systems, as the literature in anxiety disorders suggests (Barlow & Mavissakalian, 1981), then it is possible that other response systems and particularly the cognitive response system are of functional significance in sexual dysfunction. In fact, a literature is beginning to emerge suggesting that cognitive processes influence sexual arousal in a major way. For example, Briddell et al. (1978) demonstrated the strong effect of expectancy on sexual responding in sexually functional subjects, a finding that has since been replicated in part (Lansky & Wilson, 1981). Several years ago Laws and Rubin (1969) and Henson and Rubin (1971) demonstrated that sexually functional subjects could suppress erections while watching erotic films if asked to do so. Abel, Barlow, Blanchard, and Mavissakalian (1975) demonstrated that a group of men with homosexual arousal patterns could also suppress erections. Cerny (1978) replicated this finding, in part, with sexually functional women. This phenomenon has been followed up in subjects with other sexual orientations (Abel, Blanchard, & Barlow, 1981). In any case, when this suppression occurs, presumably the mechanism by which subjects suppress erections is self-distraction or a shift in attention.

Geer and Fuhr (1976) experimentally isolated the effects of distraction alone by noting decrements in sexual arousal in normal volunteers using a dichotic listening paradigm. They had subjects listen to increasingly distracting cognitive tasks in one

ear involving adding numbers and so forth while listening to erotic audiotapes in the other. Using a similar procedure, Farkas, Sine, and Evans (1979) found the same effect of distraction in normal volunteers who were watching explicit erotic videotapes.

There is a wide agreement among clinicians that several types of cognitive activities have a marked effect on sexual arousal and therefore may play an important role in the genesis and/or maintenance of sexual dysfunction. It is possible that these cognitive activities operate through the mechanism of cognitive interference, or distraction. For example, Kaplan (1974) outlined various types of distracting thoughts that interfere with potency among many of her clients. Masters and Johnson (1970, p. 10) discussed distraction as an inhibitor of potency, calling it "spectatoring." In other places these well-known clinicians discussed other potentially competing cognitions, using such labels as *performance demand characteristics* or *failure self-statements*.

Of course, this hypothesis requires a direct examination of the effects of cognitive interference on sexual arousal in both

sexually functional and sexually dysfunctional subjects. We have now completed an experiment testing the effects of neutral distraction on sexual arousal in sexually dysfunctional and matched sexually functional men (Abrahamson, Barlow, Sakheim, Beck, and Athanasiou, 1985). In this experiment subjects viewed an erotic film while listening to an unrelated audiotape portraying a nonsexual passage from a popular novel. Subjects were told they would be questioned on material from the audiotape. Both groups achieved adequate and equivalent levels of penile responding under the no-distraction condition, and the sexually functional subjects evidenced significant detumescence during distraction. But, in a surprising development, sexually dysfunctional subjects were not affected by distraction and maintained tumescence (see Figure 2). Nevertheless, sexually dysfunctional subjects consistently underestimated their erections on a continuous subjective measure of arousal, a point to which we will return later. Thus, these data replicate the effects of neutral distracting stimuli previously found on young sexually functional

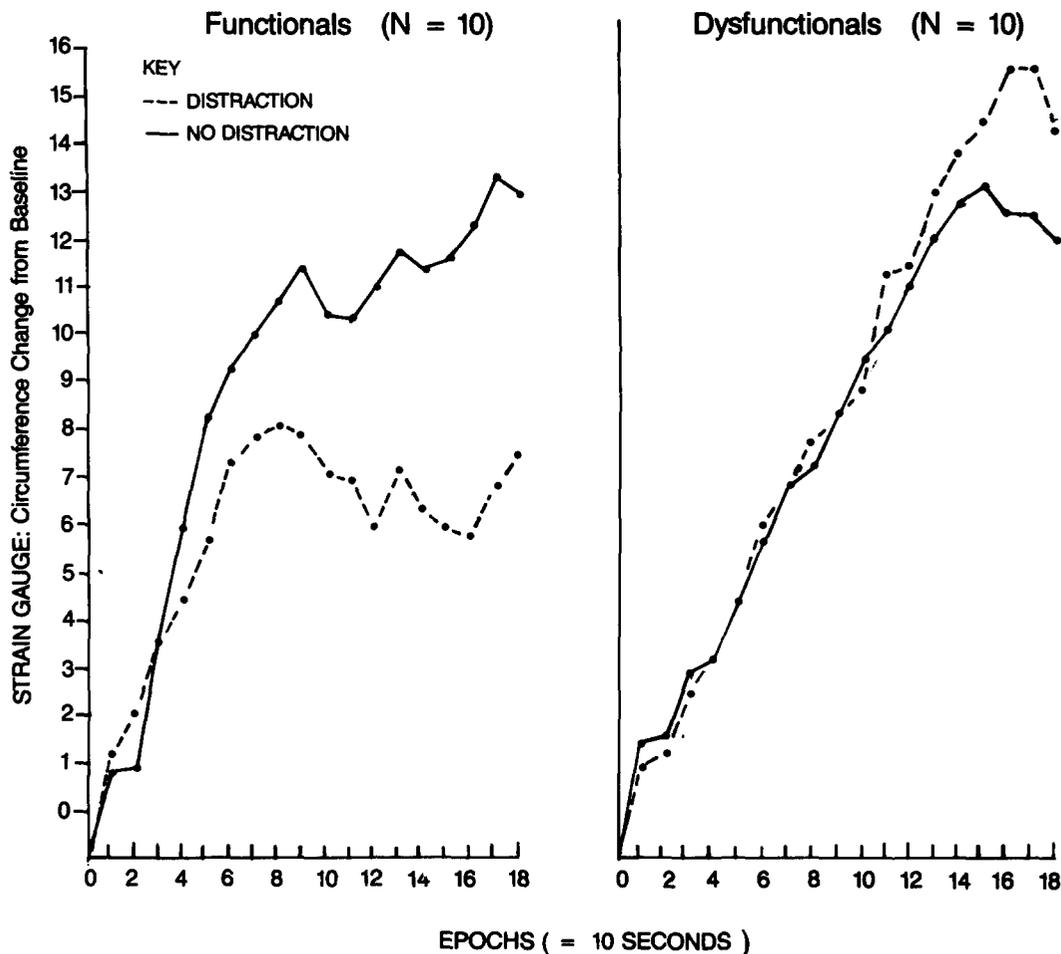


Figure 2. Mean strain gauge responding across subjects by epoch during distraction and no distraction: sexually functional (left) versus sexually dysfunctional (right) subjects. (From "Effects of Distraction on Sexual Responding in Functional and Dysfunctional Men" by D. J. Abrahamson, D. H. Barlow, D. K. Sakheim, J. G. Beck, and R. Athanasiou, 1985, *Behavior Therapy*, 16, p. 509. Copyright 1985 by the Association for Advancement of Behavior Therapy. Reprinted by permission.)

subjects with our older sexually functional subjects. But once again sexually dysfunctional subjects seem to respond in a markedly different and somewhat surprising way. Thus, the second major difference between our sexually functional and dysfunctional subjects is that neutral distraction decreases sexual arousal in sexually functional subjects but does not alter sexual arousal in dysfunctional subjects.

In view of these findings using neutral distracting stimuli (e.g., listening to unrelated material, adding numbers, etc.), an examination of the effects of other more clinically relevant cognitive sets becomes particularly interesting. We will note here that there seems to be some surprising parallels between these more clinically relevant cognitive sets and the effects of neutral distraction.

In one experiment from our laboratory, sexual arousal was examined in sexually functional subjects and sexually dysfunctional subjects while viewing a film in which the partner was perceived as highly sexually aroused or not very aroused (along with an ambiguous condition; Beck, Barlow, & Sakheim, 1983). Clear group differences emerged when subjects were focusing on a partner who was highly aroused. In this condition, which subjects later reported as very "demanding," sexually functional subjects showed increases in sexual arousal, whereas sexually dysfunctional subjects demonstrated markedly lower sexual arousal. In a further study, Abrahamson, Barlow, Beck, Sakheim, and Kelly (1985) replicated these findings using audiotaped erotic stimuli rather than videotapes. What is interesting about these studies again is a differential response between matched sexually functional subjects and dysfunctional subjects. Also, post hoc analyses indicate that sexually dysfunctional men seemingly begin concentrating on distracting performance-related concerns when viewing a more responsive partner, whereas sexually functional controls attend to and concentrate on erotic cues under the same conditions.

In an interesting and important experiment along the same lines, Heiman and Rowland (1983) also reported a differential response between sexually functional and dysfunctional men who received either sensate focus, which required focusing on internal sensations of arousal, or performance demand instructions prior to listening to an erotic audiotape. Sexually functional men showed greater responsivity to the erotic audiotape when the tape was preceded by demand instructions that asked subjects to become as aroused as possible and maintain it. Sexually dysfunctional men, on the other hand, showed higher responding following sensate focus instructions. Once again, when focusing directly on sexual and performance-related cues, sexually functional men achieve more arousal (relative to focusing on less intense or alternative cues), whereas sexually dysfunctional men evidence less arousal.

One additional experiment (Sakheim, Barlow, Beck, & Abrahamson, 1984) bears on these findings. The purpose was to examine the effect of availability of genital focus on subjective and physiological responding. Young sexually functional male volunteers were shown erotic films of varying intensity. In one session the subject was not allowed to view his genital responding (a sheet covered the genital area), whereas in the second session he was able to visually attend to tumescence. At low and moderate levels of erotically intense stimuli (films), subjects displayed less responding when genital cues were visually available compared

with when they were not available. But during higher erotic intensity, significantly more tumescence was displayed when cues were available. In view of the previous findings, it might be predicted that sexually dysfunctional subjects would show the opposite results in that opportunities to view sexual responsiveness might produce distracting performance-related concerns.

Thus, sexually functional subjects and sexually dysfunctional subjects react very differently not only to neutral distraction but also to a variety of more sexually related cognitive sets that can be described as either sexual-performance related (e.g., demand) or non-sexual-performance related (e.g., sensate focus). This constitutes the third major difference between sexually functional and dysfunctional subjects. It is possible that performance-related demands distract sexually dysfunctional subjects from erotic cues, whereas these same subjects seem relatively unaffected by non-performance-related self-focus (sensate focus) or by neutral distractors. Sexually functional subjects, on the other hand, find their sexual arousal facilitated by sexual-performance-related cognitive states and expectancies but are distracted by non-performance-related self-focus or by neutral distractors. Further evidence bearing on those hypotheses is presented next.

#### Interaction of Anxiety and Cognitive Interference

Of course, emotional arousal and cognitive processes seldom exist in the type of isolation made possible by experimental manipulations. Ultimately, the interaction of these variables will have to be studied, and some preliminary data are now available. The next experiment seems to provide some insight into the relation among anxiety, cognitive processes, and sexual performance. Young sexually functional male volunteers were presented with erotic audiotapes simultaneous with four levels of shock threat (no shock, half tolerance, tolerance, and twice tolerance; Beck, Barlow, Sakheim, & Abrahamson, 1984a). As a further check on their level of attention to the audiotapes, a sentence recognition task administered with signal-detection methodology was carried out immediately following presentation of the stimuli. Essentially, the results indicated that shock threat lowered sexual responding particularly during half tolerance and tolerance shock; however, during the twice tolerance condition sexual responding returned somewhat and approached responding under the no-shock condition. Performance on the sentence recognition task improved during half tolerance and tolerance shock and then deteriorated somewhat during the twice tolerance condition. Thus, performance on the sentence recognition task forms an inverted U-shaped function under increasing intensities of shock threat (see Figure 3). This finding, of course, is as old as the Yerkes-Dodson Law (1908). Sexual arousal as measured by erectile response, however, mirrors this inverted U. In other words, the better that subjects do on the sentence recognition task (presumably as a function of greater attention to the sentences), the less sexual arousal. No such sentence recognition task was included in our previous shock threat experiments where we noticed a marked increase in sexual responding (at least when shock threat was not contingent) in our sexually functional subjects. What this experiment suggests in a very preliminary way is that anxiety, defined here as physiological arousal induced by shock threat, will improve performance (or concentration) in an in-

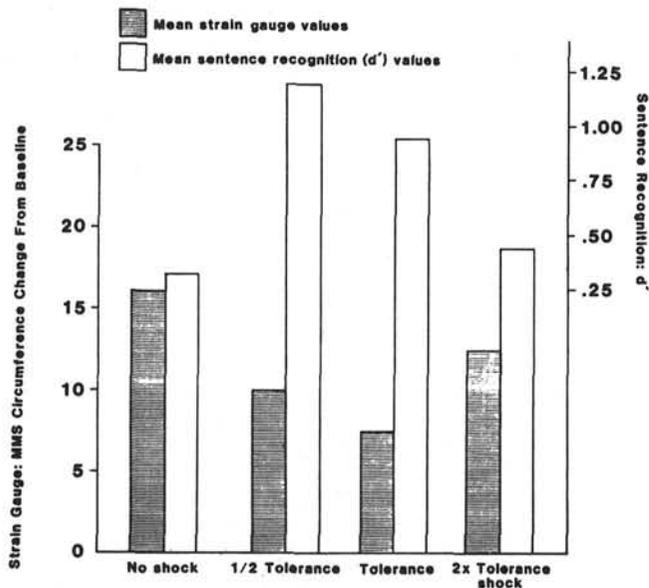


Figure 3. Mean strain gauge responding, averaged across stimulus duration, and mean sentence recognition values during four shock threat conditions. (From "A Cognitive Processing Account of Anxiety and Sexual Arousal: The Role of Selective Attention, Thought Content, and Affective States" by J. G. Beck, D. H. Barlow, D. K. Sakheim, and D. J. Abrahamson, 1984, paper presented at the annual convention of the American Psychological Association, Toronto, Ontario, Canada.)

verted U-shaped function. But if this performance focus is nonsexual, then sexual arousal will suffer proportionally. Thus, when one allows sexually functional subjects to focus on sexual cues while inducing anxiety, they will do better (up to a point). But because shock threat seems to interfere with sexual arousal in dysfunctional subjects even when no overt nonsexual task is available for focus, it is possible that sexually dysfunctional subjects are already focusing on or attending to something other than erotic cues.

A second experiment seems to support this notion. Beck (1984) showed sexually functional subjects and matched sexually dysfunctional subjects a series of erotic films while either threatened with shock in a contingent paradigm (you may be shocked if you do not achieve at least 60% arousal) or not. In addition, they were told to focus either on internal sensations (sensate focus) or actual erectile responses (spectator focus) very closely. Essentially, when sexually functional men were threatened with shock during either sensate focus or spectator focus, their sexual arousal decreased. Presumably, once again they were doing better at attending to the task at the expense of their sexual arousal. Sexually dysfunctional men, on the other hand, did not show this effect and, in fact, evidenced their highest level of sexual arousal while threatened with shock during the spectator focus condition. This experiment, of course, does not have a no-distraction control, but nevertheless the results parallel data from our experiment on the effects of neutral distraction on sexually functional and sexually dysfunctional men. That is, sexually functional men do worse (evidence lower sexual arousal) when given a task that removes their focus somewhat from the direct processing of erotic

cues in the film. But sexually dysfunctional men either show no effect or do slightly better when distracted from processing erotic cues. The tentative implication from these studies is that sexual arousal in sexually functional men is decreased by any number of tasks that compete with processing of erotic stimuli and performance-related sexual cues and that either sexual arousal or performance on nonsexual tasks is enhanced by increased anxiety depending on one's cognitive focus. For sexually dysfunctional subjects, however, performance-related sexual demands decrease sexual arousal perhaps through a process of distraction (based on data from simultaneous measures of cognitive processes and post hoc debriefings) and that threat of shock during performance demands also further decreases sexual arousal possibly by enhancing concentration on the nonerotic content of their attentional focus. Presumably, this focus centers on sexual-performance-related concerns, fears of scrutiny, failure, ridicule, and so forth. Introducing a competing nonerotic task for dysfunctional subjects does not further reduce sexual arousal and in some cases disinhibits it slightly.

#### Subjective and Affective Differences Between Sexually Functional and Dysfunctional Subjects

Several other differences emerged from these experiments comparing sexually functional and sexually dysfunctional subjects. First, a pattern of results became evident suggesting different affective responses in a sexual context between these two groups. Thus far, both Heiman and Rowland (1983) as well as Abrahamson, Barlow, Beck, et al (1985) and Beck (1984, in her dissertation) have observed generally negative affective responses in a sexual context (viewing erotic films) for sexually dysfunctional men, whereas more generally positive affective responses are evidenced by sexually functional men. These negative affective responses, best characterized as depression, seem situationally specific to a sexual context and may be a result of perceived inadequate responding or expectancies of inadequate responding in these sexually dysfunctional subjects. But an intriguing possibility is that these negative affective responses predate the dysfunction and contribute to its etiology. For example, Byrne has been investigating personality variables that are dispositional in terms of responding adequately to erotic cues. The trait that emerges falls along the dimension he termed *erotophilia-erotophobia* (Byrne, 1977, 1983a, 1983b). The negative affective responses of sexually dysfunctional men place them within the erotophobic end of the dimension. Negative affective responses may contribute to an avoidance of erotic cues and thereby facilitate some sort of cognitive interference produced by focusing on nonerotic cues. These different affective responses constitute a fourth difference between sexually functional and sexually dysfunctional subjects.

Another intriguing phenomenon is apparent when one examines the relation of self-reported arousal to penile erection. Unlike sexually functional subjects and organogenically impotent men, psychogenically sexually dysfunctional men consistently underreport sexual arousal. That is, at the same levels of erectile response, psychogenically dysfunctional men will report far less sexual arousal than will sexually functional or organogenically dysfunctional men (Sakheim, 1984). This also seems true for dysfunctional women (Morokoff & Heiman, 1980). Finally, sex-

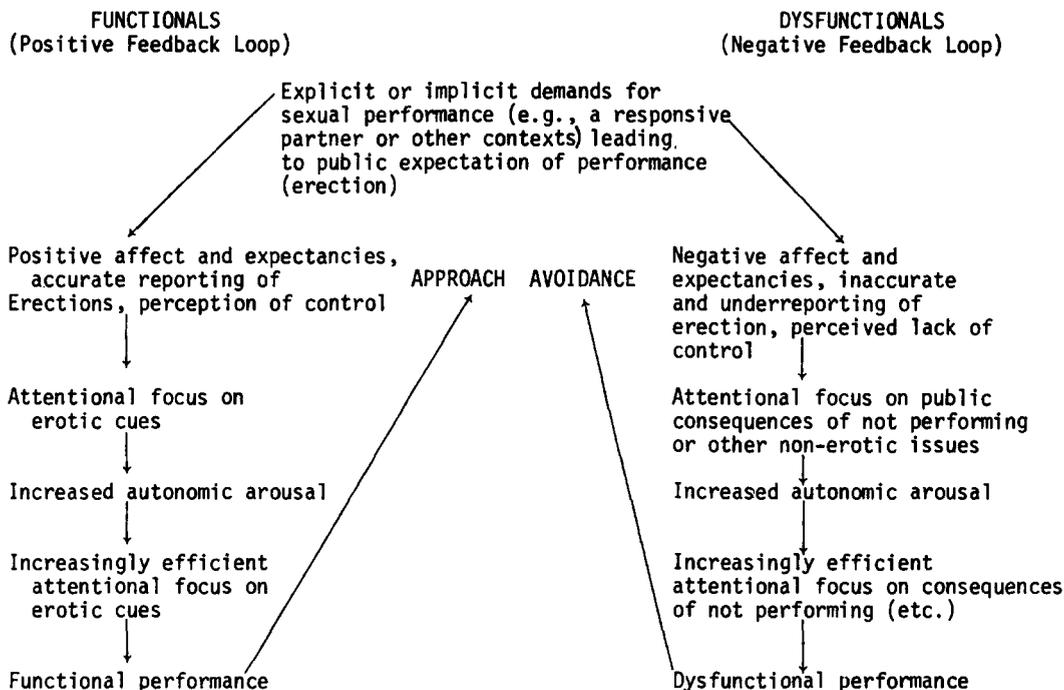


Figure 4. Model of erectile dysfunction.

ually functional and sexually dysfunctional men also seem to differ in their ability to suppress sexual arousal (assessed both physiologically and subjectively) by any cognitive means (e.g., Beck, Barlow, & Sakheim, 1982). In this preliminary report, sexually dysfunctional men perceived themselves as maintaining less control over their sexual arousal relative to sexually functional men. That is, although both sexually functional and dysfunctional men were able to suppress their arousal when asked, sexually functional men reported accurately that they were suppressing their arousal and described various cognitive means by which they accomplished this task. Sexually dysfunctional men, on the other hand, were not aware that they were successfully suppressing their arousal and were unable to perceive any means by which they either were or might be able to control their sexual arousal. Thus, a fifth difference between sexually functional and dysfunctional subjects is found in differential estimates of control of sexual arousal and the tendency of sexually dysfunctional subjects to underestimate their sexual arousal.

#### Working Model of Sexual Dysfunction

Thus far then, five factors seem to differentiate sexually functional subjects from sexually dysfunctional subjects. First, sexually dysfunctional subjects consistently evidence negative affect in the sexual context, whereas sexually functional subjects display more positive affect. Second, dysfunctional subjects consistently underreport their levels of sexual arousal and generally evidence diminished perceptions of control over their arousal. Third, dysfunctional men are not distracted by non-sexual-performance-related stimuli in that they evidence no decrease in erectile response, whereas sexually functional subjects are distracted and

show decreases in sexual response. Fourth, dysfunctional men are distracted by performance-related sexual stimuli, whereas the sexual arousal of sexually functional men is enhanced. Finally, anxiety inhibits sexual arousal in dysfunctional subjects but facilitates it in sexually functional subjects.

These preliminary findings, taken together, suggest to us a working model of psychogenic sexual dysfunction. In this model, we suggest that a cognitive interference process interacting with anxiety is responsible for sexual dysfunction, specifically, inhibited sexual excitement in men and women and possibly other related forms of sexual dysfunction. The nature of this cognitive process in dysfunctional subjects seems to revolve largely around focusing on or attending to a task-irrelevant context. This focus then becomes driven by the physiological aspects of arousal that clinicians more commonly refer to as anxiety which, in turn, results in further deterioration in sexual performance. Sexually functional subjects, on the other hand, focus on and process erotic cues without difficulty. Anxiety may enhance this processing (up to a point) and therefore may facilitate sexual arousal in sexually functional subjects. These feedback loops for sexually functional and sexually dysfunctional subjects are depicted schematically in Figure 4. For dysfunctional subjects, this inappropriate attentional focus seems to involve attending to the consequence of not performing or some other issue not directly related to the erotic cues. For this reason, neutral distracting stimuli not involving performance-related cues have no inhibiting effect on the sexual arousal of dysfunctional subjects (unlike sexually functional subjects). Dysfunctional subjects are already distracted. The development of these alternative and competing task-irrelevant thoughts seem rooted in one's learning history, perhaps in the developed trait of erotophobia previously described, but

the reasons why some people become dysfunctional with this process, whereas others with similar learning histories may not, is not yet clear. The similarities of this hypothetical psychopathological process to other performance anxieties subsumed under the heading of social phobia, where similar competing cognitions seem responsible for performance deficits, has not escaped us (Beck & Barlow, 1984).

It need not be noted that this model has only preliminary support from data collected thus far. Many conclusions depend on contrasting data sets from different experiments. Some aspects of the model have not yet been tested on clinical subjects, and appropriate comparisons between clinical subjects and volunteer normal subjects are therefore not yet available. Furthermore, most of the data that do exist were collected from men, although experiments with women as subjects provide data that are consistent with this model in each instance (Cerny, 1978; Hoon et al., 1977; Morokoff & Heiman, 1980). But, this model has important assessment and treatment implications if further support is forthcoming. For example, detailed assessment of affective and cognitive functioning in a sexual context may predict degree of improvement as well as long-term outcome. Aspects of treatments successful for clinical phobia and social phobia in particular may become increasingly important (Barlow & Beck, 1984). These treatments may focus increasingly on cognitive change and allocation of attention, although performance-based exercises may still be the most effective way to accomplish this. Emphasizing anxiety reduction operationalized as decreasing physiological arousal may be counterproductive in view of the effects of anxiety on sexually functional subjects. The methodologies now exist to address these questions.

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