

# Sexual Addiction, Sexual Compulsivity, Sexual Impulsivity, or What? Toward a Theoretical Model

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*We critically review the concepts of sexual addiction, sexual compulsivity, and sexual impulsivity and discuss their theoretical bases. A sample of 31 self-defined sex addicts was assessed by means of interview and questionnaires and compared with a large age-matched control group. A tendency to experience increased sexual interest in states of depression or anxiety was strongly characteristic of the sex addict group. Dissociative experiences were described by 45% of sex addicts and may have some explanatory relevance. Obsessive-compulsive mechanisms may be relevant in some cases, and the addiction concept may prove to be relevant with further research. Overall, results suggested that out of control sexual behavior results from a variety of mechanisms. We propose an alternative theoretical approach to investigating these mechanisms based on the dual control model and recent research on the relation between mood and sexuality.*

Increasing attention is being paid to the concept of sexual behavior that is, in some way, out of control. Much of the recent literature has employed two currently fashionable concepts: *compulsive sexual behavior* and *sexual addiction*. At this time, both concepts are of uncertain scientific value. Barth and Kinder (1987) argued for the use of *impulse control disorder* as a description, which in contrast with the compulsivity and addiction labels is consistent with DSM criteria but which has little explanatory value beyond inferring a problem of self-control. In the past, other labels such as *nymphomania*, *satyriasis*, and *hypersexuality* have been used (Rinehart & McCabe, 1997)

A crucial issue that has received little attention is the extent to which out of control sexual behavior can be understood as a behavioral pattern at the extreme of the normal range, or rather a behavioral pattern that is qualitatively different from the norm in ways that are problematic (see Orford, 1978, for earlier discussion of this issue).

The literature on sexual compulsivity and sexual addiction has been preoccupied with issues of definition, particularly pertaining to DSM-IV, and has paid very little attention to possible causal explanations for why, in such cases, sexual behavior becomes problematic. Researchers often make statements about likely mechanisms (e.g., anxiety reduction or mood regulation), but these are more often based on clinical impression than on reported data. This discrepancy led Gold and Heffner (1998) to title their review paper "Sexual Addictions: Many Conceptions, Minimal Data."

Of the few data-based studies to date, three have examined potentially relevant comorbidity. Quadland (1985) compared 30 gay men presenting for treatment for compulsive

sexual behavior with an age-matched group of 24 gay men who were presenting for treatment for nonsexual problems. While he found differences in their patterns of sexual behavior (e.g., number of sexual partners and duration of sexual relationships), he found no group differences in mood or personality disorder. Raviv (1993) found that 32 self-identified sex addicts had higher mean scores than 38 controls on Symptom Checklist-90-R (SCL-90-R) scales for anxiety, depression, obsessive-compulsiveness, and interpersonal sensitivity. In an uncontrolled study of 37 subjects with self-defined "out-of-control" sexual behavior, Black, Kehrberg, Flumerfelt, and Schlosser (1997) found a high prevalence of comorbidity with psychiatric conditions, most notably lifetime histories of substance use disorders (64%), anxiety disorders (50%), and mood disorders (39%).

Researchers are paying more attention to the fact that out of control sexual behavior can be reduced with mood elevating drugs such as the SSRIs (Fedoroff, 1993; Kafka, 2000; Stein et al., 1992). As yet, we do not know the extent to which such pharmacological benefits, when they occur, result from improvement in mood or specific inhibition of sexual response or both.

The best review of the literature in terms of theoretical models is by Goodman (1997); we consider some of his conclusions further in the discussion. However, few of these theoretical ideas have been formulated in ways suitable for testing. In this project we explored the relevance of a new theoretical model to out of control sexual behavior, testing some preliminary hypotheses with a small study of self-defined sex addicts. We followed this with a more detailed discussion of the theoretical possibilities and some further development of our own eminently testable theoretical ideas, particularly relating to the impact of negative mood.

If we assume that anxiety reduction or mood improvement is a key factor in many cases of out of control sexual behavior, we need to reconcile this with the conventional wisdom that most people experience a decline in sexual

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interest and/or responsiveness in negative mood states (Araujo, Mohr, & McKinlay, 2003; Beck, 1967; Cassidy, Flanagan, Spellman, & Cohen, 1957; Kennedy, Dickens, Einfeld, & Bagby, 1999). In addition, we must ask why such behavioral patterns persist and even worsen if the mood-enhancing effects are not only transient but have such negative consequences.

Some evidence exists that the relationship between negative mood and sexuality is paradoxical in some individuals, with increased sexual interest occurring in association with negative mood (Angst, 1998; Mathew & Weinman, 1982; Nofzinger et al., 1993). We have been studying this relationship at The Kinsey Institute using a simple trait measure, the Mood and Sexuality Questionnaire (MSQ, see below), which asks respondents to rate on a bipolar scale what typically happens to (a) their sexual interest and (b) their sexual responsiveness when they are depressed or experiencing anxiety. We have reported our initial findings for 919 heterosexual men (Bancroft, Janssen, Strong, Carnes, et al., 2003a) and 662 gay men (Bancroft, Janssen, Strong, & Vukadinovic, 2003). Whereas the majority in both samples reported a decrease in sexual interest when depressed or anxious, a minority (15-25%) reported an increase, somewhat higher with anxiety than with depression. Qualitative data from these two studies indicate a more complex relationship between depression and sexuality than between anxiety and sexuality. Thus, increased sexual interest when depressed can indicate increased desire for sex or the need for personal contact or validation by another person. Conversely, those with a negative association between depression and sexual interest may experience a simple reduction in sexual interest, or a mood-related need to avoid personal contact because of low self-esteem. With anxiety, the typical patterns are either a preoccupation with the cause of the anxiety or stress, so sex goes "out of mind," or sex emerges as a means for achieving at least transient reduction of anxiety following orgasm. The idea that some individuals may be more likely to pursue sexual interaction or stimulation or to become sexually aroused when in a negative mood state is of considerable potential relevance to understanding out of control patterns of sexual behavior.

Our dual control model of sexual response (Bancroft, 1999; Bancroft & Janssen, 2000) postulates that the occurrence of sexual arousal depends on a balance between sexual excitation and inhibition of sexual response and that individuals vary in their propensity for both excitation and inhibition, with typical inhibition proneness being adaptive across species. That is, in threatening situations where attention needs to be focused on nonsexual coping, inhibition of sexual arousal reduces the likelihood of being sexually distracted. Janssen, Vorst, Finn, and Bancroft (2002a, b) developed a questionnaire to measure these propensities (SIS/SES). It contains three scales, one measuring excitation proneness (SES) and the other two inhibition proneness. Based on the items making up each scale, Janssen et al. labeled the first inhibition factor (SIS1) "inhibition in response to threat of performance failure" and the second

(SIS2) "inhibition in response to threat of performance consequences." Scores on these three scales show close to normal distributions in nonclinical samples of both men and women. This is consistent with the idea that middle range scores in each case reflect adaptive response patterns while more extreme scores reflect maladaptive response patterns. Thus, high SIS1 scores have been shown to be strongly related to vulnerability to erectile dysfunction in men (Bancroft & Janssen, 2000), and low SIS2 scores to certain aspects of sexual risk-taking in both gay (Bancroft, Janssen, Strong, Carnes, et al., 2003b) and heterosexual (Bancroft et al., 2004) men.

We have used our theoretical model to explain paradoxical increase of sexual interest in negative mood states. On the assumption that situations that induce negative mood normally inhibit sexual interest and arousal to allow maximum focus on the coping process, we postulated that paradoxical increase in sexual interest in negative mood states requires unusually low levels of inhibition of sexual response (as measured by SIS2) and relatively high levels of sexual arousability (as measured by SES). In our study of heterosexual men (Bancroft, Janssen, Strong, Carnes, et al., 2003a), we obtained some support for this hypothesis with our SIS/SES measures, together with a trait measure of depression proneness (ZDPR) and anxiety proneness (STAI), accounting for 19% of the variance in MSQ scores. In our parallel study of gay men (Bancroft, Janssen, Strong, & Vukadinovic, 2003), we were only able to account for 4% of the variance in this way. We have also postulated (Bancroft, Janssen, Strong, Carnes, et al., 2003b) that the paradoxical effect of anxiety on sexuality could be an example of *excitation transfer* (Zillman, 1983), which occurs when arousal induced in association with anxiety becomes incorporated into response to sexual stimuli in those with low inhibition of sexual response.

In our studies of high risk sexual behavior, we found some interesting contrasts between the predictive value of SIS2 (sexual inhibition due to the threat of performance consequences) and of MSQ (relation between negative mood and sexuality). In both straight and gay men, low SIS2 was predictive of non-use of condoms; that is, the persistence of sexual arousal in potentially risky sexual interactions reduces the likelihood of using a condom. Our measure of sexual interest when depressed (MS-1) was predictive of the number of casual partners but not of condom use (Bancroft et al., 2004; Bancroft, Janssen, Strong, Carnes, et al., 2003a). In gay men, our measure of sexual interest in states of anxiety (MS-3) was more strongly predictive of masturbation frequency than of frequency of sexual activity with a partner (Bancroft, Janssen, Strong, & Vukadinovic, 2003).

High risk sexual behavior overlaps with but is not the same as out of control sexual behavior. However, on the basis of these findings, we formulated the following hypotheses as relevant to out of control sexual behavior:

1. A tendency to increased sexual interest and responsiveness during negative mood states will be more common in men with out of control sexual behavior.

2. Increased sexual interest associated with anxiety will be principally associated with out of control masturbation.
3. Increased sexual interest associated with depression will be associated with out of control interaction with sexual partners (e.g., increased number of sexual partners).
4. In general, out of control sexual behavior will be more likely in men with a combination of high SES and low SIS2, partly because of the paradoxical association between negative mood and sexuality and partly because of a more direct impact of high arousal and low inhibition on self-regulation.

In this project, we used a combination of interviews and questionnaires with a small sample of self-designated sex addicts to explore these theoretical possibilities, as well as other qualitative descriptions of the out of control sexual experience. We have also used an age-matched control group for evaluation of the questionnaire data.

## METHODS

### Participants

Following distribution of leaflets describing the research project to local Sex Addicts Anonymous (SAA) groups, 22 SAA members volunteered to be interviewed and complete questionnaires (20 male and 2 female). Interviews were recorded and transcribed. Each volunteer signed an informed consent sheet and was paid \$35 for his or her participation. In addition, 11 self-defined sexual addiction patients (all male) attending The Kinsey Institute Sexual Health Clinic were assessed in a similar fashion. These patients were asked to sign an informed consent sheet and were charged only half of the usual clinic fee as compensation. We obtained approval for the study from the Indiana University Bloomington Human Subjects Committee.

To allow testing of our specific hypotheses with the questionnaire data from the male sample, we derived an age-matched sample from our two studies of mood and sexuality (Bancroft, Janssen, Strong, Carnes, et al., 2003a; Bancroft, Janssen, Strong, & Vukadinovic, 2003). First, we excluded those outside the age range of the sex addicts group (22-66). We then randomly selected a 50% sample from each orientation group. This produced the same mean age for the heterosexual men. The gay men were, however, younger, so we randomly deleted individual cases from the lower part of the age range until the same mean age was achieved. These two subsamples—heterosexual,  $n = 196$ , 57.8%, and homosexual,  $n = 143$ , 42.2%—were then combined ( $n = 339$ ).<sup>1</sup>

### Interviews

Issues covered in the research interviews included the type of behavior involved, the importance of novelty or specificity,

the steps in a typical sequence, whether participants usually attempt to resist the urge to "act out," their state of mind while acting out, the extent to which the participants can exercise control over their behavior, how various mood states affect the acting out behavior, and the extent to which they use acting out to improve mood. We also asked questions about whether the individual had been sexually abused as a child, whether religion was important, whether there was evidence of other types of addictive behavior, and whether there was a family history of addictive disorders. Similar questions were asked of the clinic patients. Volunteer interviews were audiorecorded and transcribed. We then analyzed the content of the transcripts along with the case notes from the clinic patients to identify presence or absence of the key variables reported in this paper.

### Materials

All male participants completed the following two questionnaires.

*The Mood and Sexuality Questionnaire (MSQ;* Bancroft, Janssen, Strong, Carnes, et al., 2003a; Bancroft, Janssen, Strong, Vukadinovic, 2003). This instrument is a trait measure that asks respondents to indicate what typically happens to (a) sexual interest and (b) erectile responsiveness when they are depressed (MS-1 and MS-2) and when they are anxious or stressed (MS-3 and MS-4; e.g., "When you have felt depressed what typically happens to your sexual interest/response?"). Each item is answered on a bipolar scale with 5 indicating no change, 1 marked reduction, and 9 marked increase. The range for each individual item is, therefore, 1 to 9, and for the sum score (MS-total) of the four scales, 4 to 36 (Cronbach's  $\alpha = .85$ ). For each mood state, there is a box to check if the subject has never been depressed (or anxious) enough to find out. Subjects checking this box are excluded from analyses involving this variable. We reported only MS-1 and MS-3 in this paper.

*Sexual Inhibition/Sexual Excitation Scales (SIS/SES;* Janssen et al., 2002a, b). This questionnaire, with 45 items, measures three factors: (a) propensity for sexual excitation (SES; range = 20-80); (b) propensity for sexual inhibition due to the threat of performance failure (SIS1; range = 14-56); and (c) propensity for sexual inhibition due to the threat of performance consequences (SIS2; range = 11-44). The response for each item ranges from 1 = *strongly agree* to 4 = *strongly disagree*. Cronbach alphas for the three scales are .88, .83, and .66, respectively. Scores on each of these scales are close to normally distributed in the approximately 2,500 men we have so far tested. The scales have good discriminant validity with only modest overlap with measures of global traits of behavioral inhibition, harm avoidance, and reward responsiveness.

The following questionnaire was completed by the SAA volunteers and all the age-matched controls, but not the clinic sex addicts.

*Zemore Depression Proneness Ratings (ZDPR;* Zemore, Fischer, Garratt, & Miller, 1990). This is a trait measure of

<sup>1</sup> A comparison of the heterosexual and gay subgroups showed that there were some significant differences in our trait measures. The homosexual group scored higher on SIS1 (30.2 vs. 27.9,  $p < .001$ ), ZDPR (58.3 vs. 50.1,  $p < .001$ ), MS-1 (4.1 vs. 3.6,  $p = .04$ ), and MS-3 (4.6 vs. 4.1,  $p = .03$ ).

propensity for depression in terms of frequency and severity. We used the 13-item version. All questions begin, "Compared to most people you know..." Three of the questions conclude, (a) "...how often do you get depressed?"; (b) "...how long do your depressions last?"; and (c) "...how deeply depressed do you become?" Ten further questions ask how often the participant experiences a variety of depressive symptoms (e.g., feeling discouraged about the future, feeling guilty or unworthy). Each question is answered on a Likert-type scale from 1 (e.g., *much less*) to 9 (e.g., *much more*), with 5 indicating the same "as others you know." The range of scores on this measure is therefore 13 to 117. Zemore et al. (1990) reported on the reliability and validity of the ZDPR. Factor analysis showed a single factor structure accounting for 44% of the variance with a Cronbach alpha coefficient of .90.

## RESULTS

Two SAA volunteers described behavioral patterns (one pedophilic, aged 47, the other exhibitionist, aged 38) that were not described as out of control but rather as behaviors they would want to do if they could "get away with it." Both of these men obtained some benefit from regarding themselves as sex addicts, but as they did not report out of control sexual behavior they were not included in further analyses. This left 29 men, mean age 40.1 years, and 2 women, ages 38 and 41 years.

### *Behavioral Patterns*

Twenty-two men were heterosexual, 1 bisexual, and 6 homosexual in orientation; both women were heterosexual. Ten men reported paraphilic behaviors (6 involving children, 5 voyeurism, and 3 exhibitionism). Five of the gay men were "compulsive cruisers." Nineteen men and both women described "compulsive masturbation" as their principal form of acting out. One of the women told a story reminiscent of persistent sexual arousal disorder (Leiblum & Nathan, 2001), describing herself masturbating as "like a gerbil on a wheel."

*The relevance of mood.* Of the 31 subjects, only 4 men stated that their sexual acting out was not predictably affected by their mood. Seventeen subjects reported being more likely to sexually act out when depressed, and 19 reported this in relation to anxiety or stress. Eleven subjects (9 men and both women) reported an increase in acting out in states of both depression and anxiety. Two men said that they were *less* likely to act out when depressed; no one said this in relation to anxiety. There was no apparent difference between those reporting increased acting out when depressed and those reporting it when anxious in terms of the types of behaviors involved.

*Resistance to acting out.* Subjects were asked whether they found themselves trying to resist the urge to act out or whether at the time it was something they genuinely wanted to do. Eleven men and one of the women indicated that they tried to resist, but most of them did not give a convincing description of resistance. One man, for example,

said "sometimes I've wanted to, sometimes I've fought it, and sometimes I've done it without thinking." Another gay man with compulsive cruising said, "I tell myself not to do it, but I do it anyway." He went on to say that he devises tactics to avoid cruising and then forgets them. Another man, when asked to explain how he resisted, said, "I want to do it, yet I know it's unhealthy for me."

The two most convincing accounts of resistance were from men with obsessive-compulsive personalities. In both cases the sexual acting out was masturbation. In one case, the participant had intrusive thoughts about teenage boys or a compulsion to look at pictures of them. This led to considerable guilt and resistance, and he obtained a very transient calming effect by masturbating, followed quickly by renewed guilt and depression. It should be noted here that the resistance was to the intrusive thoughts about boys rather than the masturbation. The other man described preoccupation with sexual thoughts, which would lead to masturbation followed by a need to take a shower because of the "dirtiness" of the act.

*State of mind during sexual acting out.* Thirteen men and one woman described a typical state of mind suggestive of some degree of dissociation. The following are illustrative descriptions, each from a different subject: "...just find myself doing it... another voice in my head"; "...an overpowering drive...nothing else is under consideration"; "...numb, completely zoning out, not present, not conscious of reality"; "trancelike...there seems to be a chemical or hormonal difference in me"; "...eyes glazed, numbing...unfeeling...focusing on the pleasure"; "...trancelike state...kills time and pain...numb like a dream"; "I'm not aware of anything else...I block everything out...my preoccupation"; "When I'm sexually aroused, I click out"; "...suspension of reality—nothing else enters your mind"; "...like being taken over—a different person—trancelike, peaceful"; "...feel detached from what is happening"; "...like euphoria—like cocaine"; "I shut myself off to everything and I am oblivious of what I am doing"; "...like a drug to numb out."

*Other addictive patterns.* Ten subjects reported other addictive patterns either currently or in their past: 3 with drugs, 4 with alcohol, and 3 with both drugs and alcohol. One man described overeating, another addiction to computer games, and one of the women described shopping sprees. Fifteen subjects, 4 of them with their own addiction histories, reported addiction problems in other family members.

### *Questionnaire Data in Male Subjects*

Comparison of our measures for the male sex addicts and for the controls is shown in Table 1. The sex addicts reported significantly higher MS-1 (sexual interest when depressed) and MS-3 (sexual interest when anxious) scores than did the controls ( $p < .001$  in each case). They also had higher SES (sexual excitation) scores ( $p = .029$ ), but did not differ from controls in either SIS1 (inhibition due to threat of performance failure) or SIS2 (inhibition

**Table 1. Comparison of Male “Sex Addicts” and Controls for Personality Trait Measures**

Trait	Sex addicts			Controls			p
	M	(SE)	n	M	(SE)	n	
MS-1	6.2	(0.41)	26	3.8	(0.11)	243	< 0.001
MS-3	6.7	(0.35)	27	4.3	(0.11)	282	< 0.001
SES	59.4	(1.17)	29	55.9	(0.45)	338	0.029
SIS1	28.1	(1.05)	29	28.9	(0.31)	338	ns
SIS2	28.0	(0.96)	29	28.3	(0.24)	335	ns
ZDPR	67.0	(5.66)	13	53.5	(1.08)	337	0.016

Note. MS-1 = sexual interest when depressed; MS-3 = sexual interest when anxious/stressed; SES = Sexual Excitation Scale; SIS1 = sexual inhibition due to threat of performance failure; SIS2 = sexual inhibition due to threat of performance consequences; ZDPR = Zemoré Depression Proneness Rating.

due to threat of performance consequences). The subset who completed the ZDPR (our trait measure for depression) scored significantly higher on this measure than did the controls ( $p = .02$ ).

We divided the male sex addicts into subgroups on the basis of several potentially relevant behavioral markers and compared each pair with each other as well as with controls.

**Mood regulators.** Those who reported increased acting out when depressed were compared with the rest and with controls on MS-1 and MS-3 scores. We made a similar comparison with those reporting increased acting out when anxious. These sets of comparisons are shown in Tables 2 and 3.

There was substantial overlap between these two “mood regulating” groups; however, the “depression regulators” were significantly higher than the rest for MS-1 scores. The “anxiety regulators” did not differ from the rest for either measure.

**Compulsive masturbators.** Those whose principal out of control behavior was masturbation ( $n = 17$ ), either using the Internet or other visual material, were compared with those whose acting out involved other types of behavior and other people (e.g., cruising, voyeurism;  $n = 9$ ). These comparisons are shown in Table 4. It is noteworthy that both MS-1 and MS-3 scores were higher in the nonmasturbators, although neither difference was significant. The only significant difference was for SIS2, which was lower in the nonmasturbators than in masturbators ( $p = .03$ ) and controls ( $p = .006$ ).

**Table 2. MSQ Scores in “Depression Regulators” Versus Rest and Controls<sup>a</sup>**

MSQ	Depression regulators ( $n = 14$ )		Rest ( $n = 12$ )		p
	M	(SE)	M	(SE)	
MS-1	7.2	(0.31)	5.0	(0.69)	1 vs. 2 = 0.007 1 vs. controls < 0.001 2 vs. controls = 0.06
MS-3	7.3	(0.32)	6.0	(0.62)	1 vs. controls < 0.001 2 vs. controls = 0.009

<sup>a</sup>Values for controls are given in Table 1.

**Table 3. MSQ Scores in “Anxiety Regulators” Versus Rest and Controls<sup>a</sup>**

MSQ	Anxiety regulators ( $n = 14$ )		Rest ( $n = 13$ )		p
	M	(SE)	M	(SE)	
MS-1	6.0	(0.51)	6.4	(0.68)	1, 2 vs. controls < 0.001
MS-3	7.0	(0.41)	6.4	(0.57)	1, 2 vs. controls < 0.001

<sup>a</sup>Values for controls are given in Table 1.

**Paraphilics versus nonparaphilics.** This comparison is shown in Table 5. None of the comparisons of the two subgroups was significant, although there was a trend for paraphilics to score higher on SES than controls ( $p = .06$ ), a difference which was not found for nonparaphilics.

**Dissociators.** Those who described a dissociative mental state during acting out ( $n = 13$ ) were compared to the rest ( $n = 16$ ) and these comparisons are shown in Table 6. There were no significant differences between the two groups. However, the dissociators scored higher than controls on SES ( $p = .02$ ).

**History of sexual abuse when a child.** To explore the possibility that a history of child sexual abuse may have accounted for the high MSQ scores, we compared those with such a history ( $n = 9$ ) to those without ( $n = 17$ ) and controls. None of the comparisons was significant.

## DISCUSSION

### What Can We Learn From This Study?

This sample of self-defined sex addicts is too small to draw conclusions about etiology, but it does allow us to explore our theoretical ideas and develop them further. We discuss our four preliminary hypotheses first, followed by some other aspects of the results.

**Hypotheses.** Hypothesis 1 (a tendency to increased sexual interest and responsiveness during negative mood states is more common in men with out of control sexual behavior) was strongly supported by both our questionnaire and interview data. The two subscales of the MSQ that we examined, MS-1 and MS-3, indicated that increased sexual interest in states of both depression and anxiety were characteristics of the sex addict group. Even though our sample was small, the

**Table 4. Comparison of “Compulsive Masturbators” With Rest and Controls<sup>a</sup> for Personality Trait Measures**

Trait	Compulsive masturbators ( $n = 17$ )		Rest ( $n = 9$ )		p
	M	(SE)	M	(SE)	
MS-1	5.7	(0.57)	7.1	(0.35)	1, 2 vs. controls < 0.001
MS-3	6.5	(0.49)	7.1	(0.36)	1, 2 vs. controls < 0.001
SES	58.9	(1.32)	60.3	(2.36)	all comparisons ns
SIS1	28.2	(1.43)	28.0	(1.50)	all comparisons ns
SIS2	29.5	(1.22)	25.1	(1.09)	1 vs. 2 = 0.03 2 vs. controls = 0.07

<sup>a</sup>Values for controls are given in Table 1.

**Table 5. Comparison of Paraphilic and Nonparaphilic "Sex Addicts" and Controls<sup>a</sup> for Personality Trait Measures**

Trait	Paraphilic ( <i>n</i> = 9)		Nonparaphilic ( <i>n</i> = 19)		<i>p</i>
	<i>M</i>	( <i>SE</i> )	<i>M</i>	( <i>SE</i> )	
MS-1	6.6	(0.56)	6.0	(0.56)	1, 2 vs. controls < 0.001
MS-3	7.4	(0.33)	6.4	(0.48)	1, 2 vs. controls < 0.001
SES	61.9	(1.87)	58.0	(1.43)	1 vs. controls = 0.06
SIS1	30.0	(1.52)	27.1	(1.37)	all comparisons <i>ns</i>
SIS2	26.6	(1.30)	28.7	(1.28)	all comparisons <i>ns</i>

<sup>a</sup>Values for controls are given in Table 1.

differences with the controls for both measures were highly significant. Furthermore, the subgroup who completed the ZDPR (the trait measure of depression) had significantly higher scores than the controls, indicating that in addition to displaying this paradoxical relationship between negative mood and sexual interest, they were also more prone to experiencing depression than were controls. With the interview data, all but 4 of the 29 men and both women reported an increased likelihood of acting out in states of either depression or anxiety or both.

Hypothesis 2 (increased sexual interest associated with anxiety rather than depression is more associated with out of control masturbation than with sexual behavior involving another person) and Hypothesis 3 (increased sexual interest associated with depression is associated with out of control interaction with sexual partners) were not supported by our results. We did, however, find depression to have a clearer role than anxiety. MS-1 scores (sexual interest when depressed) were significantly higher in the depression regulators than the rest and the controls. MS-3 (sexual interest when anxious) was higher in the anxiety regulators but not significantly so, and in fact MS-3 was slightly higher in the depression regulators than in the anxiety regulators. This raises the possibility, which we have discussed elsewhere (Bancroft, Janssen, Strong, Carnes, et al., 2003b), that some of the sexual enhancing effect of depression may result from concurrent anxiety, a pattern which our simple MSQ trait measure does not identify. The relevance of such an association was shown by Nofzinger et al. (1993), who found that depressed men who did not respond to cognitive behavioral therapy had higher anxiety levels as well as higher sexual interest than

**Table 6. Comparison of "Dissociators" With the Rest and Controls<sup>a</sup> for Personality Trait Measures**

Trait	Dissociators ( <i>n</i> = 13)		Rest ( <i>n</i> = 16)		<i>p</i>
	<i>M</i>	( <i>SE</i> )	<i>M</i>	( <i>SE</i> )	
MS-1	6.2	(0.76)	6.2	(0.47)	1, 2 vs. controls < 0.001
MS-3	6.7	(0.60)	6.7	(0.42)	1, 2 vs. controls < 0.001
SES	62.3	(1.86)	57.0	(1.25)	1 vs. controls = 0.016
SIS1	29.8	(1.61)	26.7	(1.33)	all comparisons <i>ns</i>
SIS2	27.5	(1.49)	28.4	(1.28)	all comparisons <i>ns</i>

<sup>a</sup>Values for controls are given in Table 1.

those who did respond and the nondepressed controls. A mixture of depression and anxiety is not uncommon in affective disorders and needs to be carefully assessed in further studies of sex addicts.

Hypothesis 4 (in general, out of control sexual behavior is more likely in men with a combination of high SES and low SIS2) was partially supported. Overall, our sex addicts scored higher on SES than our controls, but they did not differ on SIS2. There was an interesting exception to this general pattern: The sex addicts who did not use masturbation as their principal form of sexual acting out—a small group of 9 men—fit our hypothetical profile in having significantly lower SIS2 than both the compulsive masturbators and the controls, as well as having relatively high SES.

We thus found little support for the idea that low inhibition as measured by SIS2 is a prerequisite for excitation transfer and the conditioning of sexual arousal in states of negative mood. There are at least two interpretations that might protect our hypothesis from refutation, apart from the inadequate power of this small sample. First, low inhibition may only be relevant in some cases, with other mechanisms playing a crucial role in the remainder. Second, the questions making up our SIS2 scale may not be addressing the most appropriate situations.

Apart from our preliminary hypotheses, there were other findings in this study worthy of comment.

**Dissociation.** Fourteen of the 31 sex addicts (45%) described a state of mind during their acting out which could be regarded as a form of dissociation from reality. We had not anticipated this pattern and, therefore, did not include any appropriate trait measure of dissociative tendency. We also found no obvious association between this dissociative pattern and other aspects of the acting out (e.g., mood regulation, compulsive masturbation), nor any significant difference between the dissociators and the other participants on our various trait measures. It is possible that a dissociative tendency has an enabling effect on the establishment of out of control patterns of sexual behavior, reducing the self-regulatory component that would be expected in most people. We should also consider the possibility that this self-description may be reinforced through the culture of sex addicts groups (e.g., SAA), providing a form of excuse, if not justification, for their inappropriate behavior. However, 6 of the 14 dissociators had little or no experience of such groups. Future research should more systematically investigate this tendency (e.g., using the Dissociative Experience Scale or DES; Carlson & Putnam, 2000).

**Obsessive-compulsive disorder?** The concept of compulsivity warrants consideration. A few studies have looked for evidence of obsessive-compulsive disorder (OCD) among sex addicts, usually finding a small minority in this category (e.g., Black et al., 1997, 15%; Shapira, Goldsmith, Keck, Khosia, & McElroy, 2000, 15%). The compulsivity approach to conceptualizing out of control sexual behavior is usually criticized because it conflicts with the DSM-IV, which excludes such behaviors from the obsessive-compul-

sive category on the grounds that "the person usually derives pleasure from the activity and may wish to resist it only because of its deleterious consequences" (American Psychiatric Association, 2000, p. 422). Compulsive thoughts of the OCD type often do have sexual content, but they are typically accompanied by negative mood and no sexual arousal. We would anticipate that most people with obsessive-compulsive personalities and a propensity for mood disorders would experience a decline in sexual arousability during negative mood states, as is the case for most people. Warwick and Salkovskis (1990) described two men whose obsessive-compulsive symptoms included intrusive sexual thoughts accompanied by penile erection. The awareness of the erection intensified the anxiety and, hence, reinforced the process. Is it possible that occasionally there is a combination of obsessive-compulsive tendencies and a low propensity for inhibition and/or high propensity for excitation of sexual response, with an atypical, sexualized type of compulsive behavioral pattern resulting? If so, one would expect to find evidence of other obsessive-compulsive phenomena in such individuals. In this study, we found two men with such personalities combined with what could be described as compulsive and sexually arousing behavior patterns. Both had high SES scores (69 and 63), but one SIS2 score was elevated (35) and the other normal (28). This pattern is clearly not relevant to the majority of individuals with out of control sexual behavior, but may be relevant to a minority. Future research should aim to assess this pattern more systematically, both in terms of the specific acting out sequence and in other aspects of obsessive-compulsive personality.

### *Toward a Theoretical Model*

Our data, together with our understanding of the literature, suggest that in striving to understand out of control sexual behavior, we should be expecting a range of etiological mechanisms associated with different behavioral patterns that share the two key features of addictive behavior as described by Goodman (1997): a recurrent failure to control the sexual behavior and continuation of the behavior in spite of harmful consequences.

Goodman's (1997) integrated theoretical model has three principal components: (a) impaired affect regulation, (b) impaired behavioral inhibition, and (c) aberrant function of the motivational reward system. This provides a reasonable framework for our theoretical discussion.

*The role of affect.* We regard the role of affect to be important in most, if not all, cases of out of control sexual behavior. For most people whose capacity for sexual interest and response goes down in states of depression and anxiety, such mood-related mechanisms are not relevant, and indeed this may explain why their sexual behavior is less likely to get out of control. We should be cautious, however, in interpreting the association between negative mood and sexual acting out as a form of mood regulation, or the deliberate use of acting out to improve mood. In some circumstances, when sexual connection with another person is

motivated by the need to make personal contact or the need for self-validation or improvement of self-esteem, mood improvement may be the driving force. However, an alternative pattern possibly relevant to much of sexual acting out is that the negative mood, particularly if associated with increased arousal (i.e., anxiety), leads to sexual arousal by means of excitation transfer. Once sexual arousal is established, there will be an intrinsic drive toward sexual release through orgasm, which will have the incentive of transient pleasure and post-orgasm calming. Such a sequence may then become reinforced and established by conditioning, with the individual learning to think sexual thoughts (or seek out sexual stimuli) when feeling such negative mood. This explanation is consistent with the fact that more often than not the individual knows in advance, as a result of experience, that the transient reward will be outweighed by the longer term negative consequences. We would therefore move beyond a simple notion of the sexual behavior as a mood regulator to define three affect-related patterns, each of which requires a certain relationship between affect and sexuality. The possibility of such different patterns underlines the likely variability of etiological determinants in out of control sexual behavior.

Pattern 1 involves the capacity to retain one's sexual interest or responsiveness in states of depression, which allows the pursuit of sexual contact with another person to meet depression-related emotional needs. Such needs may include establishing personal contact through sex, feeling validated by another person, or enhancing one's self-esteem by feeling desired by another person. Pattern 2 involves the use of sexual stimulation to distract one's attention from issues that when thought about induce negative mood. This assumes that negative affect is being kept at bay by the distraction. As Baumeister and Heatherton (1996) put it, "the source of emotional distress is not present in the immediate situation, but is highly available in memory (e.g., just after a major rejection or failure experience). Under such circumstances, people will seek to distract themselves to prevent themselves from thinking about the upsetting event" (p. 5).

Pattern 3 involves the tendency for sexual interest and arousability to be increased in negative mood states that are characterized by increased arousal, that is, states of anxiety or stress. This pattern, we are postulating, is based on an excitation transfer mechanism made possible by a below-normal level of inhibition of sexual arousability in the face of threat or other situations which elicit anxiety or stress. Our nonclinical data indicate that this pattern is far from rare, but for most people so affected it is not associated with out of control sexual behavior. Although we found no clear support for this hypothesis in our small sample of sex addicts, we would still postulate, on the basis of our much larger nonclinical samples, that this pattern is most likely to be manifested in solitary or masturbatory patterns of behavior. In this pattern, we do not see the sexual behavior as primarily determined by mood regulation, but as resulting from sexual arousal, which



becomes a conditioned response to certain types of high arousal negative mood. Once the arousal has been transferred into sexual arousal, there is a strong intrinsic need to pursue sexual release through orgasm, which, once this is recognized as a recurring and out of control pattern, induces further negative mood.

An important qualification of these patterns is the possibility that in some individuals, depression can be associated with anxiety, allowing for a blending of Patterns 1 and 3.

A key and as yet unanswered question is why some individuals have the capacity for these atypical and potentially problematic interactions between mood and sexuality. In our study of heterosexual men, we found a negative correlation between MSQ score and age, indicating that such paradoxical patterns are more common in younger men and presumably change for most individuals as they get older. We did not find the association with age in our gay men. This may be because our gay sample covered a different age range or because gay men typically have a different developmental history regarding the relationship between mood and sexuality. Nevertheless, the potential negative association with age begs the question of when such an association becomes established. One obvious hypothesis, which remains to be adequately tested, is that the paradoxical mood-sexuality relationship is developed during childhood or early adolescence as a consequence of early experiences which combine sexual response with negative mood, such as child sexual abuse (CSA) or induced guilt about masturbation. We found no support for this in the current study; those with a history of child abuse did not differ in their MSQ scores from those without such histories. But because this sample was very small and we performed only limited assessment of the childhood factors, these results cannot be regarded as definitive. A better test of this hypothesis would be to identify relatively large samples with and without the trait of increased sexuality in negative mood states and compare them on various aspects of their developmental history, including CSA. Coleman (1986) has postulated that the predisposition to use substances or behaviors to alleviate emotional pain may reflect an "intimacy dysfunction" which could result from child sexual abuse or neglect. It would not be surprising if an early established pattern of increased sexual arousal and interest in association with negative mood could become a barrier to the normal incorporation of one's sexuality into close, intimate sexual relationships. In our study of sexual risk taking in heterosexual men (Bancroft et al., 2004), we found that men in monogamous relationships had lower MSQ scores.

Clearly, assessment of the relationship between mood and sexuality should be carried out in future studies of out of control sexual behavior. Our MSQ has the advantage of being brief, with, by now, a substantial amount of normative data from both men and women. However, this is a very simple trait measure which does not pick up the complexities of the relationship between depression and sexuality, nor the potential admixture of depression and anxiety.

We are in the process of developing a more sophisticated instrument for these purposes. But in addition, further research should not rely only on cross-sectional studies such as that reported here but should also use prospective methodology, such as daily diaries.

*The role of inhibition.* Goodman's (1997) second theoretical concept is impaired behavioral inhibition. Inhibition of sexual response is, according to our theoretical model (Bancroft, 1999; Bancroft & Janssen, 2000), an adaptive mechanism across species, and we have developed a psychometrically well validated measure of the propensity for such a mechanism (Janssen et al., 2002a). The concept of low propensity for sexual inhibition has already proved useful in explaining some aspects of high risk sexual behavior (Bancroft, Janssen, Strong, Carnes, et al., 2003b; Bancroft et al., 2004). It is also central to our theoretical model of out of control sexual behavior, both as mediator in the paradoxical relationship between negative mood and sexual arousability and as a factor enabling sexual responses in risky or problematic situations. However, we only found partial support for our inhibition-based hypothesis with our small sample of sex addicts, and mainly with those who did not use masturbation as their principal form of sexual acting out. As discussed above, we may be missing some of the key aspects of inhibition with our SIS/SES questionnaire, and should certainly be prepared to explore other inhibition-related situations with different questions.

The neurobiology and psychopharmacology of sexual inhibition is complex, with an array of mediators and neuromodulators involved (Bancroft, 1999). However, serotonin does appear to play a crucial role. Kafka (1997) has proposed that a dysregulation of central monoamine function underlies out of control sexual behavior. Goodman (1997) reminds us of the difficulties in locating complex effects within the central nervous system or particular neurotransmitters, and the case has been made for formulating "conceptual systems" in the brain based on function rather than specific neurotransmitter mediation or anatomic location (Bancroft, 1999). There is a clear need for well-designed, controlled studies of selective serotonin reuptake inhibitor (SSRI) treatment for men and women with out of control sexual behavior, in which groups are carefully selected and matched for indicators of impaired inhibition as well as other behavioral characteristics.

While direct investigation of serotonergic mechanisms in the central nervous system is difficult in humans, development in the genetics of neurotransmitters offers a new and potentially informative approach for explaining individual differences. Do individuals who develop out of control patterns of sexual behavior have lower levels of serotonin transporter gene markers (Lesch et al., 1996)? Another new approach to the study of central inhibitory mechanisms is the use of brain imaging (e.g., Redouté et al., 2000; Stoléru et al., 1999), by which certain areas of the brain are shown to be deactivated during response to sexual stimuli with arousal. Brain imaging, particularly for the study of complex processes such as sexual arousal, is



at an early stage of development, but there is considerable potential here for future research.

*The motivational reward system.* Goodman's (1997) third theoretical concept is aberrant function of the motivational reward system. So far, we have little to say about how reward and incentive mechanisms may help to explain out of control sexual behavior. However, we are open to the possibility that some changes in sensitivity of the incentive reward system may occur as part of the establishment of an out of control pattern, changes comparable to those associated with chronic use of addictive drugs (Robinson & Berridge, 1993) and that may be relevant to "behavioral addictions" of various kinds (Holden, 2001). Once again, such mechanisms are difficult to study in humans, but brain imaging offers possibilities for the future (e.g., Breiter, Aharon, Kahneman, Dale, & Shizgal, 2001). However, until we have further understanding of such mechanisms, we should regard the concept of sexual addiction as no more than an analogy that may have beneficial effects, at least for some individuals, in therapeutic programs.

*Self-regulatory failure.* In addition to Goodman's three components, general issues of behavioral regulation deserve attention. To what extent is out of control or unregulated sexual behavior similar to other out of control behaviors like binge eating or overspending? Baumeister and Heatherton (1996) provided a useful theoretical approach to failure of self-regulation, which they described as a multifaceted process that can break down in several different ways. They paid little attention to sexual behavior in this article, but their theoretical analysis is relevant in several respects. They described three ingredients of self-regulation: (a) standards, (b) monitoring, and (c) the operative phase of regulation. Standards are of interest for our study, in particular the dilemma of conflicting or incompatible standards, which can undermine regulation. For five of our male sex addicts, religion was very important. It is not difficult to see how, in such cases, the unquestionable moral unacceptability of most types of sexual behavior would conflict with one's sexual impulses to undermine any sensible pattern of regulated sexual behavior. Thus, an individual who believes masturbation is evil and who has strong impulses to masturbate using the Internet will be unable to see that a regulated pattern of masturbation can be a responsible way of dealing with one's sexual needs. Coleman (1986) proposed that highly restrictive attitudes about sexuality result in inability to conform, starting off the cycle of guilt, pain, and compulsivity. We would suggest that such mechanisms might be important in some cases.

Monitoring is clearly important to effective self-regulation, and Baumeister and Heatherton (1996) suggested that alcohol as well as fatigue and stress can impair normal monitoring. Sexual arousal may also have this effect, and we have examined this closely in heterosexual and gay men in relation to sexual risk management (Strong, Bancroft, Carnes, Davis, & Kennedy, 2003). On the other hand, our theoretical model discussed above proposes that inhibition of sexual arousal may be an adaptive mechanism

that could facilitate self-regulation. If correct, this could set sexual behavior apart from other types of behavior requiring self-regulation. Nevertheless, the individual with low propensity for inhibition of sexual arousal will be faced with the same self-regulatory challenge posed by other behaviors, such as eating.

An important aspect of monitoring, discussed by Baumeister and Heatherton (1996), is *transcendence* or focusing one's awareness beyond the immediate situation so that more distal concerns or consequences are kept in mind. The dissociative tendency, discussed earlier, could be directly relevant to out of control behavior by undermining, if not eliminating, this transcendence.

These more general aspects of self-regulation, about which a substantial literature exists (Baumeister, Heatherton, & Tice; 1994), deserve systematic attention in future research into out of control sexual behavior.

### Conclusions

While acknowledging the importance to both the individual and society of patterns of sexual behavior that are out of control and have problematic consequences, we think it likely that such patterns are varied in both their etiological determinants and how they are best treated. For that reason, we consider it to be premature to attempt some overriding definition relevant to clinical management until we have a better understanding of the various patterns and their likely determinants. The concepts of compulsivity and addiction may prove to have explanatory value in some cases, but are not helpful when used as general terms for this class of behavior problem. Until we have a better understanding of the subtypes, we prefer the general descriptive term out of control to describe sexual behavior that is unregulated for a variety of possible reasons. In the meantime, we have postulated some testable, clinically relevant hypotheses and have developed or identified a number of measures suitable for their testing.

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