

Development of a Sex Anxiety Inventory

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The development of an inventory for measuring sex anxiety, defined as a generalized expectancy for nonspecific external punishment for the violation of perceived normative sexual standards, is described. The procedure involved (a) item construction, selection, and subsequent validation through item analysis; (b) a factor analysis of the final scale and the establishment of factorial validity; (c) the collection of test-retest data; (d) the collection of dissimulation data; (e) a factor analysis of items on the Sex Anxiety Inventory and items on the Sex Guilt subscale of the Mosher Forced-Choice Guilt Inventory; and (f) a concurrent validity study in which scores on the Mosher Forced-Choice Guilt Inventory and the Sex Anxiety Inventory were used to predict sexual experiences. Results indicate that the scale is psychometrically sound and has discriminant validity in relation to the Mosher Forced-Choice Guilt Inventory Sex Guilt subscale. The clinical implications of distinguishing between sexual anxiety and sexual guilt are discussed.

Over the past decade research in the area of sexual dysfunction has witnessed the introduction of numerous terms to describe negative attitudes and emotions toward sex. Masters and Johnson (1970) have used the terms *negative sexual value systems* and *performance fears*. LoPiccolo (1978) has discussed the role of *negative attitudes* toward sex and *performance anxiety* in the development of sexual dysfunctions in men and women. In addition to these terms, one finds the terms *sexual conflict* (Eisler, 1968), *sexual guilt* (Mosher, 1965), and *sexual avoidant anxiety* (Galbraith, 1968) in the experimental personality literature. Though all of these terms may be useful, very little effort has been made to clarify their conceptual differences or to demonstrate any potential differential effects on behavior.

Conceptually, the terms appear to fall into two broad categories. Terms such as negative sexual attitudes and negative sexual value systems can be thought of as sexual guilt, whereas terms such as performance

fears and performance anxiety can be viewed as falling under the heading of sexual anxiety. If such a distinction can be made, then it should be possible to distinguish the two terms either psychometrically or experimentally.

Empirical studies of sexual guilt have been accumulating over the past decade, largely in response to the work of Donald Mosher (1965, 1966). He conceptualized guilt within a social learning framework and defined it as "a generalized expectancy for self-mediated punishment (i.e., negative reinforcement) for violating, anticipating the violation of, or failure to attain internalized standards of proper behavior" (Mosher, 1965, p. 162). His conceptualization and his scale for measuring sexual guilt have received considerable empirical support. High-sex-guilt individuals have been shown to have less self-reported sexual experience (Langston, 1973; Mosher, 1973; Mosher & Cross, 1971); to have a higher level of religious activity (Langston, 1973); to orient at a lower stage of moral reasoning (D'Augelli & Cross, 1975); to spend less time viewing sexually explicit material (Love, Sloan, & Schmidt, 1976; Schill & Chapin, 1972) and to find this type of material more offensive (Mosher, 1973; Ray & Walker, 1973); and,

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in general, to display a lower level of sexual responsivity following sexual arousal (Galbraith, 1968; Galbraith & Mosher, 1968; Mosher, 1965; Schill & Chapin, 1972; Schwartz, 1972) than low-sex-guilt individuals. This line of research, however, has not attempted to distinguish sexual guilt from sexual anxiety.

Several researchers have suggested that such a distinction can be made (Galbraith, 1968; Janda & O'Grady, 1976; Klenke-Hamel & Janda, 1979). There are, however, several factors that appear to make such a distinction difficult. First, both sexual guilt and sexual anxiety have similar effects on behavior—they both serve to inhibit sexual behavior. Second, it is probably the case that few people make such a distinction in their own minds. In the debriefing process in our previous research (Janda & O'Grady, 1976; Klenke-Hamel & Janda, 1979), many subjects had difficulty in understanding the distinction, much less applying it in regard to their own behavior. This suggests that making the distinction psychometrically would be difficult, because individuals might not attend to the necessary subtleties in the items.

This article describes an attempt to devise a sexual anxiety inventory. Sexual anxiety was defined as a generalized expectancy for nonspecific external punishment for the violation of, or the anticipation of violating, perceived normative standards of acceptable sexual behavior. This generalized expectancy need not be realistic or rational; rather, it reflects the individual's past learning experiences related to sexual issues. Thus, the crucial difference between Mosher's conceptualization of guilt and our conceptualization of anxiety is that guilty individuals are concerned with what they will think of themselves, whereas sexually anxious individuals are concerned with what others will think of them. These are not independent concepts, and, in fact, one would expect that a guilt inventory and an anxiety inventory would have considerable overlap. We predicted, however, that it would be possible to distinguish between the two concepts and that, used together, they could predict sexual behavior more accurately than either used alone.

Method

Subjects

All subjects in the various phases of development of this scale were undergraduate psychology students at Old Dominion University who received course credit for their participation.

Procedure

Initial development of the Sex Anxiety Inventory (SAI) involved six steps. They were (a) item construction, selection, and subsequent validation through item analysis; (b) a factor analysis of the final scale and the establishment of factorial validity; (c) the collection of test-retest data; (d) the collection of dissimulation data; (e) a factor analysis of items on the SAI and items on the Sex Guilt subscale of the Mosher Forced-Choice Guilt Inventory (MFCGI; Mosher, 1966); and (f) a regression analysis using SAI scores and MFCGI Sex Guilt subscale scores to predict self-reported sexual experiences. For the sake of simplicity, the details regarding each of these steps are given in the Results section.

Results

Construction of the Sex Anxiety Inventory

An initial item pool consisting of 40 forced-choice items was created. Although the forced-choice format suffers some drawbacks, such as resistance on the part of the subject that would in this case inflate the relationship between the SAI and the MFCGI Sex Guilt subscale through shared method variance, it has the advantages of minimizing denial and social desirability. In writing the items, attention was paid to presenting pairs of endings for each item that could be considered equally good (or bad) and that we believed would have similar probability of endorsement in the population. As was the case with the MFCGI, no attempt was made to make the endings for each item mutually exclusive. All items were written in accord with the definition of sex anxiety given in the introduction.

These items, along with the MFCGI and the Marlowe-Crowne Social Desirability Scale (SDS; Crowne & Marlowe, 1964), were administered to 95 males and 135 females. The correlations between each item and the total score on the SAI (corrected for spuriousness), the score on the Sex Guilt subscale of the MFCGI, and the

SDS score were thereupon calculated separately for males and females. Criteria for inclusion on the final version of the SAI were (a) that the correlation between the item and the total score of the SAI be significant at the .05 level (two-tailed); (b) that the item-total correlation exceed the correlation between that item and the score on the Sex Guilt subscale of the MFCGI; (c) that the item-total correlation exceed the correlation between that item and the

score on the SDS; and (d) that there be no significant difference between the item-total correlations for males and females. Using these criteria, 25 items were selected for the final version of the inventory. Of these 25, only 4 were significantly correlated with social desirability, 2 in the positive direction and 2 in the negative direction. The final 25 items are listed in Table 1.

Scoring of the SAI is accomplished with a simple present-absent system, with one

Table 1
Items on the Final Version of the Sex Anxiety Inventory^a

Item	Item
1. Extramarital sex	14. I would
a. is OK if everyone agrees.	a. feel too nervous to tell a dirty joke in mixed company. ^b
b. can break up families. ^b	b. tell a dirty joke if it were funny.
2. Sex	15. Dirty jokes
a. can cause as much anxiety as pleasure. ^b	a. make me feel uncomfortable. ^b
b. on the whole is good and enjoyable.	b. often make me laugh.
3. Masturbation	16. When I awake from sexual dreams
a. causes me to worry. ^b	a. I feel pleasant and relaxed.
b. can be a useful substitute.	b. I feel tense. ^b
4. After having sexual thoughts	17. When I have sexual desires
a. I feel aroused.	a. I worry about what I should do. ^b
b. I feel jittery. ^b	b. I do something to satisfy them.
5. When I engage in petting	18. If in the future I committed adultery
a. I feel scared at first. ^b	a. it would be nobody's business but my own.
b. I thoroughly enjoy it.	b. I would worry about my spouse's finding out. ^b
6. Initiating sexual relationships	19. Buying a pornographic book
a. is a very stressful experience. ^b	a. wouldn't bother me.
b. causes me no problem at all.	b. would make me nervous. ^b
7. Oral sex	20. Casual sex
a. would arouse me.	a. is better than no sex at all.
b. would terrify me. ^b	b. can hurt many people. ^b
8. I feel nervous	21. Extramarital sex
a. about initiating sexual relations. ^b	a. is sometimes necessary.
b. about nothing when it comes to members of the opposite sex.	b. can damage one's career. ^b
9. When I meet someone I'm attracted to	22. Sexual advances
a. I get to know him or her.	a. leave me feeling tense. ^b
b. I feel nervous. ^b	b. are welcomed.
10. When I was younger	23. When I have sexual relations
a. I was looking forward to having sex.	a. I feel satisfied.
b. I felt nervous. ^b	b. I worry about being discovered. ^b
11. When others flirt with me	24. When talking about sex in mixed company
a. I don't know what to do. ^b	a. I feel nervous. ^b
b. I flirt back.	b. I sometimes get excited.
12. Group sex	25. If I were to flirt with someone
a. would scare me to death. ^b	a. I would worry about his or her reaction. ^b
b. might be interesting.	b. I would enjoy it.
13. If in the future I committed adultery	
a. I would probably get caught. ^b	
b. I wouldn't feel bad about it.	

^a In the actual scale, these items are interspersed with 13 filler items. Copies of the scale are available from the first author.

^b Indicates sexual anxiety.

point awarded for each item on which the respondent selects the ending associated with anxiety. Hence, the scores can range from 0 to 25, with high scores indicating high levels of sexual anxiety.

Internal consistency (using the Kuder-Richardson formula) for the final version of the SAI was .86, indicating a high degree of homogeneity. The correlation with the MFCGI Sex Guilt subscale was .67, indicating that the shared variance, including shared method variance, between the two scales is about 45%. The correlation between the SAI and the SDS was .07, indicating a small degree of correspondence between the two scales. Although there were no differences between males and females for the item-total correlations, there was a significant difference between them on the total score, $F(1, 228) = 27.01, p < .001$. The mean and standard deviation for males were 8.09 and 5.19, and the corresponding figures for females were 11.76 and 5.31.

Factor Analysis of the Sex Anxiety Inventory

To determine the dimensions underlying the SAI, the interitem Pearson product-moment correlations among the final 25 items were subjected to a principal-factor analysis (i.e., communalities estimated by an iterative technique). Three factors with eigenvalues greater than one were retained and were rotated to orthogonal simple structure using the normalized varimax method. The first factor, accounting for 50.8% of the common variance, appeared to reflect feelings of discomfort in social situations in which sexuality is implied. The three items with the highest loadings on this factor were 14, 15, and 19 (see Table 1). The second factor, accounting for 13.0% of the common variance, appeared to deal with socially unacceptable forms of sexual behavior. The three items with the highest loadings on this factor were 1, 12, and 18. The third factor, accounting for 10.2% of the common variance, appeared to be related to sexuality experienced in private. The three items with the highest loadings on this factor were 3, 4, and 16.

In addition, a composite weighted score for each subject on each factor was obtained

by summing the product of the factor score coefficient matrix and the vector of standardized values of each item across all 25 items. These weighted composite scores for each of the three factors were then correlated with scores on the MFCGI Sex Guilt subscale and the SDS. This procedure provided information about the factorial validity of the factors of the SAI.

Results indicated that scores on each of the three factors were significantly related to sex guilt, $r(228) = .37, p < .001$; $r(228) = .15, p < .05$; and $r(228) = .41, p < .001$, respectively. The magnitude of these correlations probably more nearly represents the correlation between the SAI and the MFCGI Sex Guilt subscale with shared method variance eliminated than the overall correlation of .67 and indicates that the overlap between the two scales is not substantial. In terms of the relationship between the SAI factors and the SDS, only the third factor was significantly related to the SDS, $r(228) = .19, p < .05$, indicating that social desirability played some small role in responding.

Test-Retest Reliability

The test-retest reliability of the SAI was determined by administering the scale on two occasions to 66 males and 72 females who had not taken the scale previously. The time interval between the two testings was 10–14 days. The reliability coefficients were .85 for males and .84 for females (both $ps < .001$).

Dissimulation

To determine the effects of instruction or motivational set on the SAI, 20 males and 20 females who had not completed the scale previously were administered the scale under three sets of instructions: answer honestly, attempt to create a favorable impression, and attempt to create an unfavorable impression. The order of presentation was counterbalanced to minimize the possibility of order effects. A 2 (sex of subject) \times 3 (instructions) mixed analysis of variance yielded a significant main effect for instructions, $F(2, 76) = 67.13, p < .001$, and a significant interaction effect, $F(2,$

76) = 5.33, $p < .01$. The main effect resulted from both males' and females' having higher scores in the "fake good" condition ($M_s = 15.90$ and 19.20 , respectively) than in the normal condition ($M_s = 8.15$ and 8.45 , respectively, both $p_s < .001$) or in the "fake bad" condition ($M_s = 7.35$ and 3.55 , respectively, both $p_s < .001$). Female scores in the fake bad condition were also significantly lower than in the normal instruction condition ($p < .01$). The interaction effect was a result of females' having significantly higher scores than males in the fake good condition ($p < .01$).

The relatively restricted mean scores of males in the fake good and fake bad conditions appeared to result from some variability in perceptions of whether it is good or bad to be sexually anxious. Although all of the women and a majority of the men had considerably higher scores in the fake good condition than in the fake bad condition, several men reversed this pattern. They had high scores when asked to fake bad and low scores when asked to fake good. It is of interest to note that a majority of these subjects appeared to believe that it is socially desirable to have higher levels of sexual anxiety than they actually had. Thus, the results indicate that instructional and motivational variables are an important consideration when using the SAI.

Factor Analysis of the Sex Anxiety Inventory and the Mosher Forced-Choice Guilt Inventory

To determine if items on the SAI and the MFCGI Sex Guilt subscale tended to load on separate factors, the interitem Pearson product-moment correlations among the 25 SAI items and the 28 MFCGI Sex Guilt subscale items garnered from 228 of the initial subjects were subjected to a principal-factor analysis. Seven factors with eigenvalues greater than one were retained and were rotated to orthogonal simple structure using the normalized varimax method. These seven factors accounted for 100% of the common variance. To determine if the two scales have discriminant validity, we looked at which of the seven factors each of the 53 items loaded highest on. If there is, in fact, discriminant validity, one would expect

a tendency for the MFCGI sex guilt items and the SAI items to load on different factors. The results were encouraging. The first factor clearly emerged as a sex anxiety factor, with 12 of the 25 SAI items loading highest on this factor and only 3 of the MFCGI sex guilt items loading on it. Three factors (second, fourth, and seventh) emerged to represent sex guilt, with 17 of the 28 MFCGI Sex Guilt subscale items loading on these three factors and only 1 SAI item loading on them. The remaining three factors (third, fifth, and sixth) represented the remaining items from each of the scales about equally.

Concurrent Validity

To determine the relationship between sex guilt, sex anxiety, and sexual experiences, the MFCGI, the SAI, and the Sexual Experiences Inventory (Zuckerman, 1973) were administered to 72 females and 113 males who had not taken any of the scales previously. A regression analysis was performed using MFCGI sex guilt and SAI scores to predict sexual experiences. For women, both the MFCGI, $\beta = -.36$, $F(1, 69) = 7.64$, $p < .01$, and the SAI, $\beta = -.41$, $F(1, 69) = 9.76$, $p < .01$, contributed significantly to the prediction of sexual experiences, $R = .72$, $F(2, 69) = 37.29$, $p < .001$. For men, only the SAI, $\beta = -.28$, $F(1, 110) = 5.92$, $p < .05$, contributed significantly to the overall prediction of sexual experiences, $R = .41$, $F(1, 110) = 11.09$, $p < .001$. This lower multiple correlation for males resulted from a restriction in the range of sexual experience scores for males as compared with females. The mean score for males was 9.59, with a ceiling of 12.

Discussion

The results indicate that the SAI is psychometrically sound. The item content, item analysis, factor analysis, internal consistency, and test-retest reliability provide evidence that the SAI is a potentially useful instrument. The most crucial results are those concerned with the factor analysis of the MFCGI Sex Guilt subscale items and the SAI items and the regression

analysis, since these are indicative of the validity of the scale. The factor analysis indicates that items from the two scales tend to load on different factors. Perhaps more important, the regression analysis demonstrates that both scales make a significant contribution in predicting sexual experiences for females and that the SAI is valid for predicting the sexual behavior of males. Indeed, it appears that if a less experienced male population or a more sensitive instrument for measuring sexual experiences had been available, the results for males would probably have been similar to those for females. Taken together, these results strongly suggest that the two scales measure different constructs.

Perhaps the most crucial issue with regard to the development of the Sex Anxiety Inventory is that of discriminant validity. There was a moderate degree of overlap between this scale and the Sex Guilt subscale ($r = .67$). It would have been surprising if the overlap had been much smaller. First, sex anxiety and sex guilt can both be thought of as negative attitudes toward sex. Although there are important theoretical and practical differences between the two concepts, one would expect them to covary for the reasons discussed earlier. Second, method variance undoubtedly accounts for some of the overlap. Mosher (1966) reported similar correlations between his Sex Guilt subscale and his measures of hostility guilt ($r = .61$) and morality-conscious guilt ($r = .70$), which were also presented in a forced-choice format. Third, although Mosher constructed his scale in accord with a psychodynamic conceptualization of guilt, he did not appear to be concerned with the distinction between sexual guilt and sexual anxiety. In fact, a few items on the MFCGI appear to pertain to external consequences of sexual behavior (e.g., "Sex relations before marriage . . . ruin many a happy couple") or are ambiguous as to whether they refer to external or internal consequences (e.g., "Unusual sex practices . . . don't interest me"). Hence, it is possible, if not likely, that the Sex Guilt subscale taps sex anxiety as well as sex guilt (Klenke-Hamel & Janda, 1979).

Although it seems to be extremely difficult to distinguish between sexual guilt and sexual anxiety, as pointed out by Galbraith (1968), the construction of the SAI appears to be a step in this direction. It seems that such a measure would have important implications in clinical settings. For example, many experts in the field of sexual behavior (e.g., Masters & Johnson, 1970) believe that both guilt and anxiety are important etiological factors in the development of sexual dysfunctions. The choice of treatment might vary depending on the relative importance of guilt versus anxiety. For a client whose dysfunction seems to be associated with guilt, an approach directed at changing the belief system might be most appropriate. Cognitive-restructuring therapies, rational-emotive therapy, or group discussions of sexual values could be used to this end. For clients who have high levels of sexual anxiety, reconditioning therapies such as *in vivo* desensitization might be most effective.

If one can assume that the distinction made here between sexual guilt and sexual anxiety is meaningful, several questions remain to be answered. For instance, are sexual anxiety and sexual guilt elicited by the same type of situational cues? Perhaps sexual guilt is more likely to be associated with situations such as initiating a premarital affair, whereas sexual anxiety is more likely to be associated with sexual behavior within the context of a relationship. Case histories provided by Masters and Johnson (1970) and others suggest that the converse may be equally plausible. At any rate, the situations that are associated with each underlying mechanism merit further attention.

A second unanswered question concerns additional conceptual distinctions. For example, *moral shame* may be related to both guilt and anxiety. Moral shame has been defined as the concern for the negative moral judgment of others about behavior that may or may not be immoral in the view of the offender (Ausubel, 1955). Thus, moral shame may be related to anxiety, since both constructs place importance on the reactions of others. Izard (1977) has

suggested that an association between guilt and shame may also exist. He has suggested that guilty individuals may experience shame when they imagine others' censure of the perceived transgression. It would be fruitful for future research to explore the interrelationships between the three constructs of sexual guilt, sexual anxiety, and moral shame.

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