The SSES-E: A Measure of Sexual Self-Efficacy in Erectile Functioning

Eva Libman, PhD, Ian Rothenberg, BA, Catherine S. Fichten, PhD, and Rhonda Amsel, MA

The purpose of this study was to develop and validate the Sexual Self-Efficacy Scale (SSES-E) for erectile disorder. The subjects consisted of 15 heterosexual couples with nonproblematic sexual functioning (normal group) and a sexually dysfunctional sample consisting of nine heterosexual couples and eight heterosexual single males (dysfunctional group). Most of the males in the dysfunctional sample were diagnosed as suffering from erectile disorder. Reliability of the SSES-E, based on test-retest and splithalf correlations and on item analyses, appears to be reasonable. Validity, measured in three different ways, is also acceptably high. Suggestions for the use of this instrument in clinical practice and for future research are made.

It is a common assumption in sex therapy for erectile problems that sexual difficulties are caused by such factors as maladaptive cognitions (e.g., unrealistic expectations, undue emphasis on need for an erection), lack of arousal. anxiety and inappropriate monitoring of sexual performance.¹

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Eva Libman is at Concordia University and the Department of Psychology/Psychiatry, Sir Mortimer B. Davis-Jewish General Hospital. Ian Rothenberg is at Concordia University and at Sir Mortimer B. Davis-Jewish General Hospital. Catherine S. Fichten is at the Department of Psychology/Psychiatry, Sir Mortimer B. Davis-Jewish General Hospital and at Dawson College. Rhonda Amsel is at McGill University, Montréal, Québec, Canada. Address correspondence to: Dr. Eva Libman. Department of Psychology/Psychiatry, 4NE, Sir Mortimer B. Davis-Jewish General Hospital, 3755 Côte Ste-Catherine Road. Montréal, Québec, Canada H3T 1E2.

Although a cognitive-affective model of etiology is assumed, sex therapy for erectile dysfunction places a strong emphasis on behavior change techniques.² This does not necessarily imply an inconsistency since performance accomplishments have been shown to have powerful cognitive and affective consequences.^{3,4} Indeed, Bandura^{3,5} has suggested that all psychotherapeutic techniques work through a common cognitive mechanism: self-efficacy, the belief that one can master a certain task or perform adequately in a given situation. In this model, a central role is ascribed to cognitions in mediating behavioral change. Confidence in being able to perform a specific task is assumed to mediate behavioral enactment; therefore, strong mastery expectations, induced via behavioral, cognitive, or interpretive treatments will instigate behavioral enactment even in the face of disconfirming experiences.

Not only have successful behavioral outcomes been shown to increase one's expectations of personal mastery but strong self-efficacy beliefs have been shown to precede and to predict successful behavior in a variety of areas. The construct of self-efficacy has now been shown to be important in a variety of areas, including: phobias,⁶⁻¹⁰ smoking cessation,^{11,12} alcoholism,^{13,14} social skills,^{15,16} sports and physical fitness,¹⁷⁻²¹ public speaking anxiety,²² and career decision making.²³⁻²⁶

At present, in spite of the assumed cognitive etiology of many of the sexual dysfunctions, there is no measure available to assess self-efficacy beliefs. The present study is concerned with developing and validating such a sexual self-efficacy scale for erectile functioning. The importance of evaluating self-efficacy in the context of sexual dysfunction derives from what is known in other problem areas. When an individual has low selfconfidence, there is avoidance of the target behavior, and under these conditions the problem will persist or progress. There is every reason to believe that low confidence in one's capacity to function competently sexually will lead to a similar pattern. A measure of sexual self-efficacy can have a variety of clinical and research applications, for example, evaluation of the cognitive dimension of successful and unsuccessful erectile functioning and identification of low confidence areas which may then be focused on in treatment.

A unique value of the Sexual Self-Efficacy Scale (Form E) for erectile functioning is that, whereas all of the existing measures of sexual functioning evaluate aspects of sexual *behavior*, the measure under study is designed to assess the level of sexual confidence and *cognitive* changes produced by behavioral sex therapy. The scale may be administered at various points during therapy in order to evaluate cognitive changes, assess the mediational link between cognitive and behavioral events and provide an additional basis for judging when therapy might be appropriately terminated. Such a measure can also be used both as a cognitive measure of sex therapy outcome and as a prognostic variable in the study of the efficacy of sex therapy. The SSES-E

METHOD

Subjects

The sample consisted of 56 individuals (24 heterosexual couples and 8 heterosexual single males). Subjects were divided into two groups. The dysfunctional group consisted of 9 couples and 8 single males; all presented with a male problem at the Sexual Dysfunction Service of the Sir Mortimer B. Davis-Jewish General Hospital. The following were presenting problems: erectile disorder (n = 13 males), lack of interest in sexual activity (n = 2 males), and premature ejaculation (n = 2 males). The normal group consisted of 15 couples who were recruited from evening classes at Concordia University and community groups in Montreal.

The dysfunctional group met the additional criteria of having experienced the sexual dysfunction for at least 6 months in more than 25% of their sexual encounters. Mean problem duration was 7 years. Normal was defined as not having contemplated or sought help for any sexual, marital or emotional problem in the past year.

Selection criteria for both groups included: age 21-65, a minimum education level of grade nine, and married or cohabitating for a minimum of 1 year. Rejection criteria included severe marital discord and severe physical or emotional disorder.

All subjects were English-speaking, Caucasian and of Jewish or Christian religious background. The mean age was 36 years for dysfunctional and 33 for normal males. Dysfunctional and normal males both had an average of 14 years of education. Mean family income for dysfunctional males was \$36,000; mean family income for normal males was \$41,000. Dysfunctional group couples were married for an average of 14 years, while normal group couples were married for 6 years. There were no significant differences between the two groups on any of these variables. According to Marital Adjustment Scale scores, normal group subjects were significantly happier in their marriages than dysfunctional group subjects (normal group males M = 117.47, dysfunctional group males M = 85.42, t(25) = 4.36, p < .001; normal group females M = 115.40, dysfunctional group females M = 87.88, t(21) = 3.96, p < .001).

Measures

Locke-Wallace Marital Adjustment Scale.²⁷ This widely used measure consists of 23 items evaluating marital satisfaction. According to customary usage the measure has a mean of 100-110; a score below 80-90 is usually considered indicative of marital distress.

General Information Form (GIF).²⁸ This structured sexual history form consists of 28 items evaluating satisfaction, frequency and response to a range of sexual activities. Normative data is available²⁹ and provides

standards for comparison. Six items were selected for the present study. These included the three items used by Takefman & Brender,³⁰ which are concerned with erectile functioning (frequency of erectile problems prior to and during coitus and overall satisfaction in the sexual relationship). Three additional items: frequency of sexual contact, degree of sexual arousal during sexual contact, and frequency of sexual desire were also included. Scoring of all items was modified so that the lower the score the better.

Sexual Self-Efficacy Scale-Form E (SSES-E). This 25-item measure is presented in the Appendix. It was designed according to Bandura et al.'s⁷ format. Subjects indicate, for a range of sexual activities, those they feel they can do, and subsequently rate their confidence in this on a 10-point interval scale ranging from 10 to 100. The measure yields a magnitude and a strength score. Magnitude scores are the mean number of sexual activities subjects indicate they can perform with a confidence level $\geq 20\%$. Strength scores are the mean of the summed confidence ratings (including zero confidence for those activities not checked in the "can do" column). Items are based on the Goals for Sex Therapy³¹ and the Erectile Difficulty Questionnaire.³² Instructions on the scale allow females to rate their partner's sexual self-efficacy beliefs according to the same format.

Procedure

Subjects completed the measures in the order listed above. Normal group subjects were informed that the aim of the study was to survey sexual problems in the normal population. Dysfunctional group subjects completed the measures as part of the screening procedure at the Sexual Dysfunction Service of the Jewish General Hospital. Because the GIF is not part of the routine screening process, dysfunctional group subjects' GIF scores were estimated from assessment reports; this was done by an experienced sex therapist. To provide test-retest reliability data, normal group subjects completed the SSES-E on two occasions 2 weeks apart.

RESULTS

SSES-E strength and magnitude scores were found to be closely related (Pearson r = .96 for dysfunctional males; .93 for female partners of dysfunctional males; .94 for normal males and .88 for normal females). Because the two scores are highly correlated and because strength scores are based on continuous rather than dichotomous data, only strength scores were used in most of the analyses.

Reliability

Test-retest SSES-E strength scores were available only for eight normal couples. Pearson product-moment correlation coefficients indicate that the

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test has temporal stability (r = .98, p < .001 for males, and .97, p < .001 for females).

Split-half (odd-even) reliability coefficients for SSES-E strength scores were calculated for both normal and dysfunctional group males and females. These indicate that the test has reasonably high internal consistency (t = .88, p < .001 for dysfunctional males; .94, p < .001 for dysfunctional group females; .62, p < .01 for normal males; .75, p < .001 for normal group females).

Item analysis was performed on SSES-E strength scores for both normal and dysfunctional group males and females. For dysfunctional males, 80% of the items were significantly correlated with the total score; for their partners, 68% of items were significantly related. In the normal group, the corresponding values are 68% and 48%. Significant correlation coefficients ranged from .42 to .88. It therefore appears that most items contribute to the total score; this seems particularly true for dysfunctional males.

Validity

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Concurrent validity estimates were obtained by correlating SSES-E strength scores with scores on the six General Information Form (GIF) items. This procedure was done in order to determine the degree to which SSES-E scores are related to existing measures of sexual behavior and functioning.

The GIF scores of dysfunctional and of normal males (see Table 1) in this sample closely resemble those found by others.^{28,29} Furthermore, all GIF scores of dysfunctional group and normal group subjects were significantly different (with the exception of the item on frequency of sexual desire, which only approached significance for females). Thus GIF scores appear to provide a reasonable criterion measure of sexual and erectile functioning.

Results for dysfunctional males indicate significant correlations between SSES-E strength scores and the following GIF items: difficulty obtaining an erection r = .68, p < .01; maintaining it during intercourse, r = .49, p < .05; and degree of arousal during a sexual encounter, r = .47, p < .05. Dysfunctional males' satisfaction with the sexual relationship, frequency of sexual contact and of sexual desire were not significantly related to SSES-E scores. The correlations for female partners of dysfunctional males were generally low and not significant. It was not possible to calculate correlations for normal group subjects due to lack of variability and ceiling effects on GIF scores. Since SSES-E scores for dysfunctional males appear to be related to the arousal item as well as to both erection items of the GIF, the results suggest some concurrent validity for the SSES-E.

An additional index of validity is the ability of the SSES-E to differentiate dysfunctional group from normal group subjects. Two sets of tests were conducted to assess this aspect of validity.

Comparisons of dysfunctional and normal group subjects' SSES-E

TABLE 1

GIF Scores

| | FE Normal Group | MALES Dysfunctional Group | ť | N Normal Group | 1ALES Dysfunctional Group | l ² | Erectile Dysfunction ³ Only Males |
|--|-----------------------|---------------------------------|---------|----------------------|---------------------------------|----------------|--|
| Frequency of sexual contact | 4.13 | 7.25 | 5.36*** | 4.00 | 6.07 | 2.88** | 5.67 |
| Satisfaction with sexual | | | | | | | |
| relationship | 2.40 | 5.85 | 6.48*** | 2.20 | 5.27 | 6.82*** | 5.10 |
| Erectile problems prior to coitus | 1.33 | 3.29 | 4.40*** | 1,60 | 3.73 | 4.27*** | 4.60 |
| Erectile problems during coitus | 1.00 | 3.71 | 5,73*** | 1.13 | 3.79 | 5.72*** | 4.30 |
| Frequency of sexual desire | 2.67 | 4.42 | 1.82† | 2.07 | 4.08 | 2.55* | 4.71 |
| Degree of sexual arousal | 1.27 | 2.71 | 3.73*** | 1.13 | 2.50 | 3.53*** | 2.67 |
| Note: The higher the score, the worse | | | | $t_{\rm P} < .10$ | | | |
| 'df ranges from 20 to 21. | | | | *p<.05 | | | |
| ² df ranges from 25 to 28. | | | | **p<.01 | | | |
| ³ Scores for the crectile dysfunction sul | bset of the c | lysfunctional sam | ple. | ***p<.001 | | | |

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TABLE 2

SSES-E Strength Scores

| | FF | MALES | MALES | | | |
|-----------|-----------------|------------------------|-----------------|------------------------|--------------------------------------|--|
| | Normal Group | Dysfunctional Group | Normal Group | Dysfunctional Group | Erectile Dysfunction ¹ | |
| Mean | 89.45 | 47.15 | 88.03 | 53.60 | 46.80 | |
| Deviation | 10.36 | 26.65 | 9.96 | 21.12 | 21.79 | |

Note: The lower the score, the worse.

Scores for the erectile dysfunction subset of the dysfunctional sample.

strength scores indicate that dysfunctional group subjects have significantly lower scores than normals. Significance tests for these analyses consist of *t*-tests which were used instead of analysis of variance because (a) the data of almost 50% of the dysfunctional sample would have had to be excluded from an ANOVA since the subjects consisted of 17 males but only 8 female partners, and (b) male and female partners' scores are not independent.

As the means presented in Table 2 show, dysfunctional males' SSES-E scores are significantly lower than those of normal males, t(29) = 5.74, p < .001; the scores of the subset of males presenting with erectile dysfunction are also significantly lower than those of normal males, t(24) = 6.49, p < .001. Females' scores show the same relationship, t(21) = 5.50, p < .001.

A stepwise discriminant analysis was also conducted. SSES-E strength and magnitude scores, Locke-Wallace Marital Adjustment scores as well as the six GIF scores were entered as predictor variables. The two variables which accounted for most of the variance were, in descending order of discriminating power, SSES-E strength and SSES-E magnitude scores. Three comparisons were examined: normal vs. dysfunctional males, female partners of normal vs. dysfunctional males and normal vs. erectile problem only males. The percent correct classifications into the dysfunctional category were 88%, 75%, and 100% respectively; χ^2 (2) = 36, 19, and 41, respectively; p < .001 for all comparisons. Thus, SSES-E strength and magnitude scores were able to discriminate dysfunctional and erectile problem subjects from normals with high accuracy (see Table 3).

Properties of the SSES-E

In order to ascertain which SSES-E items were easy or difficult, all items were rank ordered in terms of their degree of perceived difficulty. Ranks were based on SSES-E strength scores and were done separately for each

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TABLE 3

Comparison of Actual Group with Predicted Group

| | | PREDICTED GROUP | | | |
|-------------------|-------|-----------------|--------------|--|--|
| Actual Group | n | Normal | Dysfunctiona | | |
| Males - Normal v | s. Dy | sfunctional | | | |
| Normal | 15 | 14 | 1 | | |
| | | (93.3%) | (6.7%) | | |
| Dysfunctional | 16 | 2 | 14 | | |
| | | (12.5%) | (87.5%) | | |
| Females - Normal | vs. L | Dysfunctional | | | |
| Normal | 15 | 14 | 1 | | |
| | | (93.3%) | (6.7%) | | |
| Dysfunctional | 8 | 2 | 6 | | |
| | | (25.0%) | (75.0%) | | |
| Males - Normal v. | s. Er | ectile Dysfund | tion | | |
| Normal | 15 | 14 | 1 | | |
| | | (93.3%) | (6.7%) | | |
| Dysfunctional | 11 | 0 | 11 | | |
| | | (0.0%) | (100.0%) | | |

group. The rank order for males with erectile problems are provided in the Appendix.

Rank order correlation coefficients were computed to assess whether the item ranks were similar or different in the normal and dysfunctional subjects and in the male and female partners. None of these correlation coefficients was significant; this indicates that the item ranks for the various groups were dissimilar.

To determine whether SSES-E items formed distinct categories, a principal components analysis was conducted on normal and dysfunctional male scores. Only a preliminary idea of the clusters could be obtained because of the small sample size. The pattern of factor loadings that emerged suggests that the items cluster into three components: an erection component, an orgasm component, and an interpersonal component. These clusters suggest that the SSES-E, in spite of its high internal consistency. is a multidimensional measure.

DISCUSSION

Results indicate that the Sexual Self-Efficacy Scale for erectile functioning (SSES-E) has reasonable reliability and validity. While many of the

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principles and much of the format of the SSES-E follows Bandura's³ measure, an important feature is included which allows one to obtain corroborative information from the female partner in addition to information provided by the male.

Test-retest reliability data for normal couples yielded very high correlations: this suggests that the SSES-E has reasonable stability. No test-retest stability estimate was calculated for the clinical sample due to difficulties in collecting the data; of course, it would be important to obtain test-retest data on this measure with a clinical sample.

Split-half reliability estimates were significant for both the normal and dysfunctional samples which indicates that the SSES-E is internally consistent. The finding that correlations were higher for dysfunctional group than for normal group subjects suggests that the SSES-E is particularly appropriate for a dysfunctional population.

Item analysis results indicate that the proportion of items which correlated with the total score was moderate for normal subjects and for female partners of dysfunctional males and very high for the dysfunctional men. In addition, an interesting pattern of findings emerged in that only in the dysfunctional male sample did all the erectile items in the measure correlate significantly with the total score. This pattern corroborates that the SSES-E is an appropriate measure for male sexual disorder and also indicates that items measure what the SSES-E was designed to assess: selfefficacy beliefs concerning erectile functioning. Some of the SSES-E items showed low correlations; however, it would be too early to discard such SSES-E items before an analysis on a larger sample of men with sexual dysfunction is carried out. Such analysis may reveal that these items are measuring some other important dimensions of male sexual functioning.

Concurrent validity estimates were calculated by correlating the SSES-E strength scores with six selected items from the GIF, a measure of reported sexual behavior. While this did not yield significant correlations for female partners of dysfunctional males, three of the six correlations for dysfunctional males were significant. Normal subjects have few sexual problems, therefore there was little variation and strong ceiling effects in their responses to the GIF which did not permit calculation of meaningful correlations. The three GIF items which did correlate with the SSES-E strength scores for dysfunctional male subjects consisted of the two erection items and a sexual arousal item. That these items were significantly related to SSES-E scores suggests that the SSES-E is measuring erectile ability specifically, rather than other aspects of male sexual functioning.

The two other analyses of validity yielded much more conclusive results. First, normal and dysfunctional subjects' SSES-E scores were significantly different; this was true both for the males and for their female partners. The results indicate that normal subjects gave functional responses to all of the measures in contrast to the dysfunctional group subjects, who gave problematic responses. Second, the stepwise discriminant analysis strongly indicated that normal subjects and dysfunctional subjects could be classified accurately into their respective groups based on their SSES-E strength and magnitude scores only. Adding scores from other measures did not increase discriminating power. This is a dramatic demonstration that the measure under study was, by itself, sufficient to differentiate the normal from the dysfunctional subjects in this study. When the data from only males with erectile dysfunction, rather than the range of male sexual disorders, were used in the analysis subjects were correctly classified with 100% accuracy. The percentage of subjects correctly classified was even higher for normal vs. erectile dysfunction only males than for normal vs. the total dysfunctional sample; this suggests that the SSES-E is a measure of erectile disorder specifically, and not of male dysfunctions generally. This could be verified in future research by including sufficient numbers of males with dysfunctions other than erectile problems.

The principal components analysis suggested that the SSES-E consists of three main factors. These deal with erection, orgasm, and interpersonal sexual behavior. Since this was a preliminary investigation, one would not be prepared to make a definitive decision concerning the nature of these factors. Studies using a larger sample are now proceeding in our laboratory; these will permit an investigation of just what factors the SSES-E measures.

When the strength values of SSES-E items were ranked for the various groups, it was clear that for males with erectile dysfunction, items loading on the erection factor were the most difficult. The finding that rank order correlation coefficients were low indicates that the rank order of difficulty for the dysfunctional subjects was different from that for normals. Since the measure under study was developed for erectile problems, it is not surprising that confidence in being able to obtain erections would be reasonably high in normals and low in dysfunctional group subjects. The finding that no significant negative correlation was obtained between the dysfunctional and normal males' SSES-E scores on the rank order of difficulty of items suggests that good sexual functioning is not simply the absence of disorder. Good sexual functioning is different from disordered functioning and itself needs further investigation. It would be interesting if a measure for normal sexual functioning were developed in order to investigate what the components of good functioning might be. This would be useful in order to better understand the nature of erectile problems and could serve to refine and direct existing therapeutic techniques and goals.

There were some methodological problems with this study. Test-retest stability data were available only for the normal group and the GIF scores of dysfunctional subjects were unavailable and had to be estimated. More importantly, the sample size, especially of couples in which the presenting complaint was erectile disorder, was very small and the dysfunctional group was not homogeneous (although all males included in the dysfunc-

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tional sample shared some of the symptomatology with those who presented with erectile disorder). In future studies, it would be necessary to increase the sample size, including nonerectile dysfunction problems, in order to determine whether the SSES-E distinguishes between males with erectile problems and those with other dysfunctions.

In spite of the limitations noted above, it appears that the SSES-E is a reasonably reliable and generally valid measure of self-efficacy beliefs concerning erectile functioning. While the findings of this investigation should be considered preliminary and interpreted conservatively, the SSES-E merits further and more extensive study.

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