

The Arizona Sexual Experience Scale (ASEX): Reliability and Validity

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Although sexual dysfunction is common in psychiatric patients, quantification of sexual dysfunction is limited by the paucity of validated, user-friendly scales. In order to address this problem, the authors have developed the Arizona Sexual Experiences Scale (ASEX), a five-item rating scale that quantifies sex drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm, and satisfaction from orgasm. Possible total scores range from 5 to 30, with the higher scores indicating more sexual dysfunction. This study assesses the internal consistency, test–retest reliability, and convergent and discriminant validity of the ASEX.

Many studies have revealed high prevalence rates of sexual dysfunction in individuals suffering from major depression (Mathew & Weinman, 1982; Howell, Reynolds, Thase, Frank, Jennings, Houck, Berman, Jacobs, & Kupfe,

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1987; Reynolds, Frank, Thase, Houck, Jennings, Howell, Lilienfeld, & Kupfer, 1988; Herman, Brotman, Pollack, Falk, Biederman, & Rosenbaum, 1990; Segraves, 1992; Wise, 1992). Mathew and Weinman (1982) reported a 47% rate of sexual dysfunction among a sample of depressed subjects. More recent studies involving pharmacological treatment of depression suggest that selective serotonin reuptake inhibitors (SSRIs) lead to a significant degree of treatment-emergent sexual dysfunction (e.g., delayed orgasm or anorgasma, decreased libido and interest), with rates ranging from 8% (Herman, Brotman, Pollack, Falk, Biederman, & Rosenbaum, 1990) to as high as 73% (Piazza, Markowitz, Kocsis, Leon, Portera, Miller, & Adler, 1997) compromising treatment compliance (Jacobsen, 1992) and quality of life. These observations have generated considerable interest in improving methods of evaluating and alleviating SSRI-induced sexual dysfunction.

There are several unidimensional self-report measures available for assessing sexual dysfunction, all with some advantages and limitations. The Sexual Evaluation Scale (SES) (Othmer & Othmer, 1987) is a 16-item scale that addresses the global factors of sexual interest, arousal, and performance but does not address the factors of sexual drive and satisfaction. The Brief Index of Sexual Functioning (BISF) (Taylor, Rosen, & Leiblum, 1994) adapted from the Brief Sexual Function Questionnaire (BSFQ) (Reynolds, Frank, Thase, Houck, Jennings, Howell, Lilienfeld, & Kupfer, 1988), which is a revision of the Sexual Function Questionnaire (SFQ) (Howell, Reynolds, Thase, Frank, Jennings, Houck, Berman, Jacobs, & Kupfer, 1987), is more lengthy (22–23 questions). All of these scales may be used during initial assessment and/or other major timepoints in the course of a study (i.e., exit from study). However, they are time-consuming and include clinically irrelevant information for the weekly assessment of sexual dysfunction. These scales also contain sexually explicit questions that could contribute to patient noncompliance (Herman, Brotman, Pollack, Falk, Biederman, & Rosenbaum, 1990).

The Sexual Symptoms Distress Index (SSDI) (Croog, Levine, Testa, Brown, Bulpitt, Jenkins, Klerman, & Williams, 1986), adapted from a questionnaire initially designed by Hogan, Wallin, & Baer (1980) is more brief and less intrusive in its design than the SES, BISF, or the DSFI, yet it does not contain specific measures for sexual drive and sexual satisfaction.

In response to the need for developing a more pertinent, expedient, and less intrusive method for evaluating psychotropic drug-induced sexual dysfunction and changes in sexual dysfunction, the authors have designed a brief five-question scale called the Arizona Sexual Experiences Scale (ASEX) (see Appendix) (McGahuey, Gelenberg, Laukes, Manber, McKnight, Moreno, & Delgado, 1997). The ASEX is designed to assess five major global aspects of sexual dysfunction: drive, arousal, penile erection/vaginal lubrication, ability to reach orgasm, and satisfaction from orgasm. All of these are domains most commonly impaired by psychotropic drugs (Mathew & Weinman, 1982; Howell, Reynolds, Thase, Frank, Jennings, Houck, Berman, Jacobs, & Kupfer, 1987;

Segraves, 1992; Wise, 1992; Othmer & Othmer, 1987; Derogatis & Melisaratos, 1979).

The purpose of this study is to test the internal consistency, test-retest reliability, and convergent and discriminant validities of the ASEX in assessing sexual dysfunction among SSRI-treated subjects. Preliminary validity and reliability data were presented at the 150th annual meeting of the American Psychiatric Association (McGahuey, Gelenberg, Laukes, Manber, McKnight, Morena, & Delgado, 1997) and at the 38th annual meeting of the New Clinical Drug Evaluation Unit Program (McGahuey, Gelenberg, Laukes, Manber, McKnight, Morena, & Delgado, 1998).

METHOD

Development of the Measure

The ASEX scale is designed to measure five specific items identified in a comprehensive literature review as the core elements of sexual function: sexual drive, arousal, penile erection/vaginal lubrication, ability to reach orgasm, and satisfaction from orgasm (Mathew & Weinman, 1982; Howell, Reynolds, Thase, Frank, Jennings, Houck, Berman, Jacobs, & Kupfe, 1987; Segraves, 1992; Wise, 1992; Piazza, Markowitz, Kocsis, Leon, Portera, Miller, & Adler, 1997; Othmer & Othmer, 1987; Derogatis & Melisaratos, 1979). It measures them in a relatively nonintrusive bimodal fashion, using a 6-point Likert scale ranging from hyperfunction (1) to hypofunction (6). An open-ended comment line is included for individual concerns and feedback. The male and female versions differ on the third question, which corresponds to penile erection/vaginal lubrication. Three ASEX questions related to arousal, erection/lubrication, and ability to reach orgasm were adapted from previous work (Prisant, Carr, Bottini, Solursh, & Solursh, 1994).

The ASEX was designed to be self- or clinician-administered, and it is for use in heterosexual or homosexual populations, regardless of availability of a sexual partner. Questions addressing frequency/preference of sexual activity were considered unrelated to sexual dysfunction.

The ASEX was designed to be simple in order to enhance the overall accuracy in measuring sexual dysfunction by (a) minimizing patient non-compliance with rating (Prisant, Carr, Bottini, Solursh, & Solursh, 1994), and (b) allowing for rapid quantification and detection of the presence of sexual dysfunction.

Survey Packet

Male and female judges selected from the psychiatry research program at the University of Arizona Health Sciences Center evaluated face validity of all scales to be used in the current study. This led to the selection of the final

instruments. The final survey packet included the ASEX, the modified version of the Brief Index of Sexual Functioning (BISF) (Reynolds, Frank, Thase, Houck, Jennings, Howell, Lilienfeld, Kupfer, 1988; Taylor, Rosen, & Leiblum, 1994), the Beck Depression Inventory (BDI) (Hamilton, 1960), or the Hamilton Depression Rating Scale (HDRS) (Beck, Steer, Ball, & Ranieri, 1996), and a brief eight-item demographic and health questionnaire assessing subjects' age, ethnicity, educational level, health status, use of medications (available on request from authors), and global perception of sexual dysfunction. Patients were administered the HDRS by trained research clinicians who had established reliability on the HDRS. Anonymity of healthy subjects was maintained by replacing the clinician-rated HDRS with the self-rated BDI.

The modified female and male versions of the BISF included all items originally used in factor analyses of the BISF, revealing three major constructs: Factor 1 Sexual Performance/Activity, Factor 2 Satisfaction from Sex Life, and Factor 3 Sexual Interest/Desire (Reynolds, Frank, Thase, Houck, Jennings, Howell, Lilienfeld, & Kupfer, 1988; Taylor, Rosen, & Leiblum, 1994).

The accuracy of patient self-ratings of sexual dysfunction was verified with a four-item Gold Standard Clinician Rating scale (GSR, available on request from authors), which was developed by the authors and administered at each time interval. The GSR was administered during a semistructured brief interview by a research clinician. The interview focused on specific elements of sexual activity and satisfaction, including sexual interest, frequency of arousal, sexual performance and global satisfaction. The clinician was asked to categorically rate the presence of sexual dysfunction and make a determination as to whether, if present, it was due to antidepressants, secondary to depression, or due to other factors.

Subjects

ASEX packets were given to 107 control subjects (hospital employees, staff, residents, and faculty of the University of Arizona) and 58 psychiatric patients participating in one of several ongoing research projects. All subjects were aged 18 years and older. Demographic characteristics for healthy and psychiatric subjects are presented in Table 1.

Procedures

All subjects were provided with a written description of the study and its objectives. Subjects gave informed consent to participate, and the study was approved by the University of Arizona Human Subjects Committee.

Healthy subjects received a set of two survey packets of numbered rating scales corresponding to each time interval. Anonymity was maintained through a random labeling process to ensure that the investigators would not know which specific person received a particular study number.

TABLE 1. Subject Demographic Characteristics

	Age	% College Educated	% Caucasian	% Diagnosed with MDE	% Diagnosed with Anxiety	% Receiving Antidepressant Therapy	% with Sexual Difficulty
PATIENTS	Female N = 35 (14.01)	45 49%	66%	80%	20%	94%	69%
	Male N = 23 (13.03)	50 65%	70%	86%	13%	96%	74%
CONTROLS	Female N = 22 (10.88)	38 68%	91%	18%	0%	4%	18%
	Male N = 16 (10.81)	38 88%	63%	6%	0%	6%	0%

Note. Values in parentheses represent standard deviations from the mean. MDE = Major Depressive Episode.

Psychiatric patients were asked to fill out rating packets at initial entry into the research program and again 1 to 2 weeks later.

Statistical Methods

Internal consistency of the ASEX scale, a measure of scale reliability, was assessed using Cronbach's alpha analysis. Cronbach's alpha is an index of correlation among items on a scale. To determine the test-retest reliability of the ASEX, bivariate correlations were performed of total ASEX scores obtained at an initial administration and again 1 to 2 weeks later. In order to assess the convergent validity of the ASEX, bivariate correlations were performed between ASEX item scores and the BISF factor scores as well as selected BISF items having similar face value with the ASEX items. Discriminant validity of the ASEX was assessed by performing bivariate correlations between ASEX scores and ratings of depression on the HDRS or BDI.

The literature suggests that psychiatric patients report more sexual dysfunction than healthy controls (Mathew & Weinman, 1982; Howell, Reynolds, Thase, Frank, Jennings, Houck, Berman, Jacobs, & Kupfe, 1987; Reynolds, Frank, Thase, Houck, Jennings, Howell, Lilienfeld, & Kupfer, 1988; Herman, Brotman, Pollack, Falk, Biederman, & Rosenbaum, 1990; Segraves, 1992; Wise, 1992), and that there could be gender differences in the responses to individual ASEX items (Piazza, Markowitz, Kocsis, Leon, Portera, Miller, & Adler, 1997). If the ASEX has strong concurrent validity, then significant differences in ASEX scores between these groups would be expected. To determine the concurrent validity of the ASEX, analyses of variance (ANOVAs) were performed to compare patients to controls on total ASEX score and females to males on individual ASEX item scores.

Based on preliminary experience with the ASEX, as well as on predictions based on the actual design of the scale, we hypothesized that a subject

with a total ASEX score of ≥ 19 , any one item with a score of ≥ 5 , or any three items with a score of ≥ 4 would have sexual dysfunction. These criteria were used in subsequent analyses to define whether subjects met ASEX criteria for sexual dysfunction.

In order to determine whether the ASEX criteria accurately reflect sexual dysfunction (determined by GSR rating or self-report), positive and negative predictive value (PPV and NPV), and sensitivity and specificity were measured (Hennekens & Buring, 1987). PPV reflects the percentage of individuals who meet ASEX criteria for sexual dysfunction and actually self-report sexual dysfunction. NPV reflects the percentage of individuals who do not meet ASEX criteria for sexual dysfunction and do not self-report sexual dysfunction.

In order to determine how well the total ASEX score would separate individuals with sexual dysfunction from those without, a Receiver Operating Characteristic (ROC) analysis was performed. This involved a plot of the true-positive and false-positive values resulting from the use of various ASEX total score categories (e.g., ASEX total score 5, 7, 9, 11, and so forth) to define presence of sexual dysfunction. In all cases, the subjects' self-report of sexual dysfunction or GSR was used to define the true rate of sexual dysfunction. The area under the curve (AUC) of this plot was calculated. A ROC analysis of the BISF also was performed (for this analysis the BISF factors were used) (Reynolds, Frank, Thase, Houck, Jennings, Howell, Lilienfeld, & Kupfer, 1988; Taylor, Rosen, & Leiblum, 1994), and AUC values for both scales then were compared. All statistical tests were two-tailed, and results were considered significant when $p \leq .05$. The cutoff categories for both ASEX and BISF ROC analyses were arbitrarily determined.

RESULTS

Demographic Characteristics

For the controls, 107 packets were distributed and 38 were returned. All patients filled out the ASEX and were administered the Hamilton Depression Rating Scale (HDRS). Of the healthy subjects, four women self-reported a current major depressive episode (MDE), however, their depression ratings did not reflect this ($\text{BDI} \leq 11$). One male control self-reported a substance-abuse disorder. One female and one male control currently were using antidepressants. Of the psychiatric subjects, 86% of men and 80% of women had been currently diagnosed with an MDE. Thirteen percent of men and 20% of women were currently diagnosed with Panic Disorder. One male patient (measures were taken anonymously) did not disclose his type of psychiatric disorder.

Reliability

Results from Cronbach's alpha analysis indicated that the ASEX demonstrated excellent internal consistency and scale reliability ($\alpha = .9055$). The ASEX also demonstrated strong test-retest reliability (for patients, $r = .801$, $p < .01$, for controls, $r = .892$, $p < .01$).

Validity

The items on the ASEX correlated with BISF factors and related items on the BISF as reported in Tables 2 and 3, but not with depression score.

ANOVAs revealed significant differences on total ASEX scores between patients and controls (for males $F = 18.1$, $p < .000$; for females $F = 31.71$, $p < .000$) and between females and males (for patients $F = 5.22$, $p = .026$; for controls $F = 5.05$, $p = .031$). ANOVAs further revealed significant gender differences for patients on ASEX items drive and arousal ($F = 4.69$, $p = .035$ and $F = 5.88$, $p = .019$, respectively) and a trend on ASEX item ability to reach orgasm ($F = 3.72$, $p = .059$). For controls, there were trends for gender differences on ASEX items drive, arousal, and ability to reach orgasm ($F = 3.57$, $p = .067$; $F = 3.51$, $p = .069$; and $F = 3.83$, $p = .058$, respectively). In all cases, women scored higher than men (Figure 1).

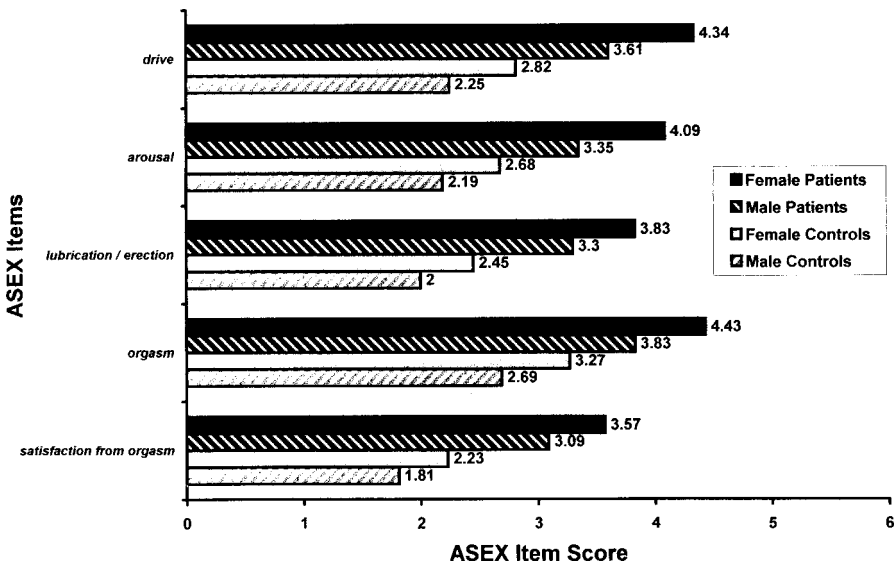


FIGURE 1. Comparison of ASEX item scores between subjects (ASEX = Arizona Sexual Experiences Scale). Possible scores for each item range from 1 (hyperfunction) to 6 (hypofunction). Each of the four variably shaded bars represents one of the four subject groups (female patients, male patients, female controls, male controls). Values shown at the ends of the bars represent mean ASEX item scores for each subject group.

TABLE 2. Correlations Between ASEX Items, BISF Items, and Depression Scores for Females

FEMALES		RELATED BISF ITEMS								
Patients / Controls (N=34) ¹ / (N=22) ²		BISF FACTORS								
ASEX Items	Activity/ Frequency	Satisfaction From Sex Life	Interest/ Desire	Thoughts	Desire	Arousal	Vaginal Lubrication	Frequency of Orgasm	Sexual Pleasure	HDRS/BDI
Drive	-.561 **, N=34 -.376, N=22	-.032, N=34 -.082, N=22	-.251, N=34 -.082, N=22	-.663 **, N=33 -.365, N=22	-.697 **, N=34 -.388, N=22	-.562 **, N=34 -.428 *, N=22	.084, N=34 -.026, N=22	-.342 *, N=34 -.377, N=22	-.254, N=34 -.164, N=21	-.075, N=30 -.001, N=22
Arousal	-.485 **, N=34 -.504 *, N=22	.031, N=34 .123, N=22	-.297, N=34 .039, N=22	-.507 **, N=33 -.520 *, N=22	-.577 **, N=34 -.525 *, N=22	-.448 **, N=34 -.519 *, N=22	.179, N=34 -.077, N=22	-.318, N=34 -.501 *, N=22	-.253, N=34 -.318, N=21	-.099, N=30 -.031, N=22
Vaginal Lubrication	-.457 **, N=34 -.213, N=22	.254, N=34 .252, N=22	-.079, N=34 -.046, N=22	-.359 *, N=33 -.219, N=22	-.508 **, N=34 -.298, N=22	-.411 *, N=34 -.099, N=22	.265, N=34 .117, N=22	-.358 *, N=34 -.226, N=22	-.307, N=34 -.236, N=21	.250, N=30 -.287, N=22
Orgasm	.041, N=34 -.472 *, N=22	-.064, N=34 .102, N=22	-.270, N=34 .073, N=22	-.119, N=33 -.503 *, N=22	-.082, N=34 -.442 *, N=22	.013, N=34 -.452 *, N=22	.179, N=34 .084, N=22	-.024, N=34 -.521 *, N=22	.032, N=34 -.612 **, N=21	-.076, N=30 .073, N=22
Satisfaction from Orgasm	-.044, N=34 -.335, N=22	.021, N=34 -.057, N=22	.049, N=34 .238, N=22	.213, N=33 -.448 *, N=22	-.026, N=34 -.349, N=22	.047, N=34 -.289, N=22	.094, N=34 -.147, N=22	-.218, N=34 -.396, N=22	-.138, N=34 -.464 *, N=21	-.034, N=30 -.038, N=22
ASEX Total										.952, N=30 -.071, N=22
HDRS / BDI	-.085, N=29 -.162, N=22	.381 *, N=34 -.179, N=22	.381 *, N=34 -.279, N=22							

Note. Values in bold print correspond to patients. Values in normal print correspond to controls. ASEX = Arizona Sexual Experiences Scale; BISF = Brief Index of Sexual Functioning Scale; HDRS = Hamilton Depression Rating Scale; BDI = Beck Depression Inventory.

** = Correlation is significant at the 0.01 level (2-tailed).

* = Correlation is significant at the 0.05 level (2-tailed).

1 = For BISF item *Thoughts*, $N = 33$, and for HDRS with BISF Factor *Activity*, $N = 29$, and for HDRS with ASEX items and total, $N = 30$.

2 = For BISF item *Sexual Pleasure*, $N = 21$.

TABLE 3. Correlations Between ASEX Items, BISF Items, and Depression Scores for Males

MALES		BISF FACTORS			RELATED BISF ITEMS						
Patients / Controls (N=20) ¹ / (N=16) ²		Performance /Activity	Satisfaction From Sex Life	Interest/ Desire	Thoughts	Desire	Degree of Penile Erection	Ability to Maintain Erection	Frequency of Orgasm	Sexual Pleasure	HDRS/BDI
ASEX Items											
Drive											
Arousal											
Penile Erection											
Orgasm											
Satisfaction											
ASEX TOTAL											
HDRS / BDI											

Note. Values in bold print correspond to patients. Values in normal print correspond to controls. ASEX = Arizona Sexual Experiences Scale; BISF = Brief Index of Sexual Functioning Scale; HDRS = Hamilton Depression Rating Scale; BDI = Beck Depression Inventory.

** = Correlation is significant at the 0.01 level (2-tailed).

* = Correlation is significant at the 0.05 level (2-tailed).

1 = For HDRS with BISF factors, N = 16, and for HDRS with ASEX items and total, N = 19.

2 = For BISF item *Ability to Maintain Erection*, N = 14.

Sensitivity, Specificity, Positive and Negative Predictive Values

Female and male patients demonstrated higher scores on the ASEX (mean = 20.3 ± 4.8 and 17.2 ± 5.4 , respectively) than did the controls (mean = 13.5 ± 3.9 and 10.9 ± 2.6 , respectively). GSR scores correlated 100% with the patient's belief of the presence of sexual dysfunction. The sensitivity and specificity of the ASEX at identification of sexual dysfunction were 82% and 90%, respectively, PPV was 88%, and NPV was 85%.

ROC analysis revealed an AUC value of $.929 \pm .029$ (Figure 2). The plotted true-positive and false-positive values for the scoring criteria (total ASEX score ≥ 19 , any one item with and individual score ≥ 5 , or any three items with individual scores ≥ 4) fell near the ideal point on the ROC curve (Figure 2). ROC analysis of the BISF revealed an AUC value of $.786 \pm .050$ (Figure 3). The independent area test revealed a significant difference between the two ROC curves ($F = 2.4752$, $p = .0133$).

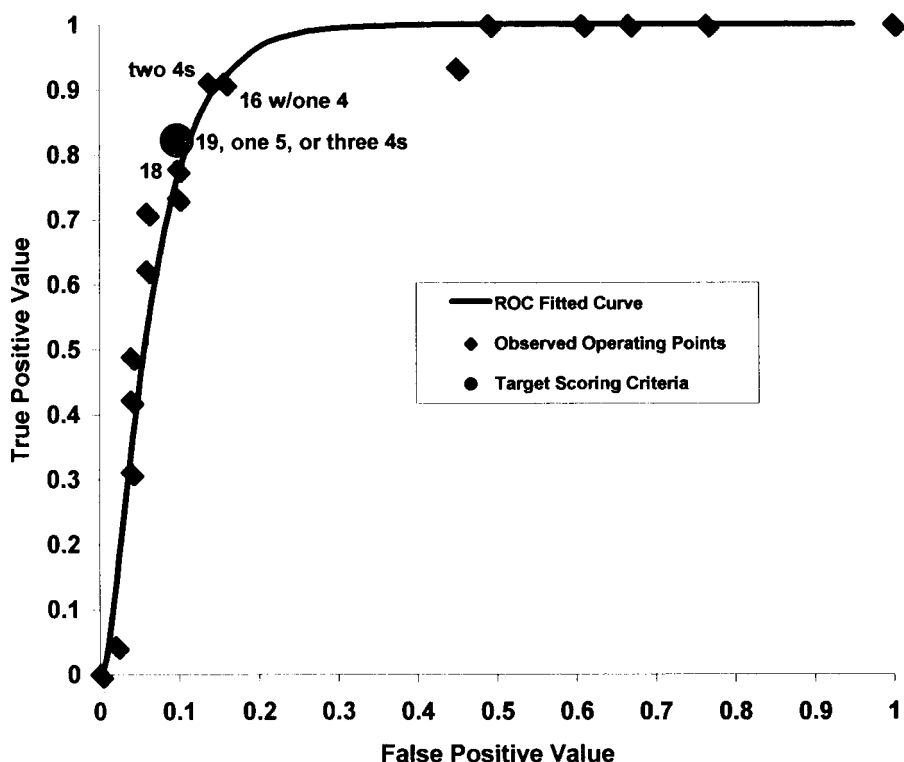


FIGURE 2. ASEX ROC analysis (ROC = Receiver Operator Characteristics). Area under the curve (AUC) = $.929 \pm .029$; two 4s = at least two ASEX items with scores ≥ 4 ; 16 with one 4 = a total ASEX score of ≥ 16 , with at least one ASEX item with a score ≥ 4 ; 18 = a total ASEX score of ≥ 18 ; 19, one 5, or three 4s = a total ASEX score ≥ 19 , any one item with an individual score ≥ 5 , or any three items with individual scores ≥ 4 . • = The point corresponding to the paired true and false positive values for the ASEX target scoring criteria determined to be most discriminative. The higher the ROC fitted curve (smooth line), the closer the AUC value is to 1. Higher AUC values predict greater discrimination capacity of the scale.

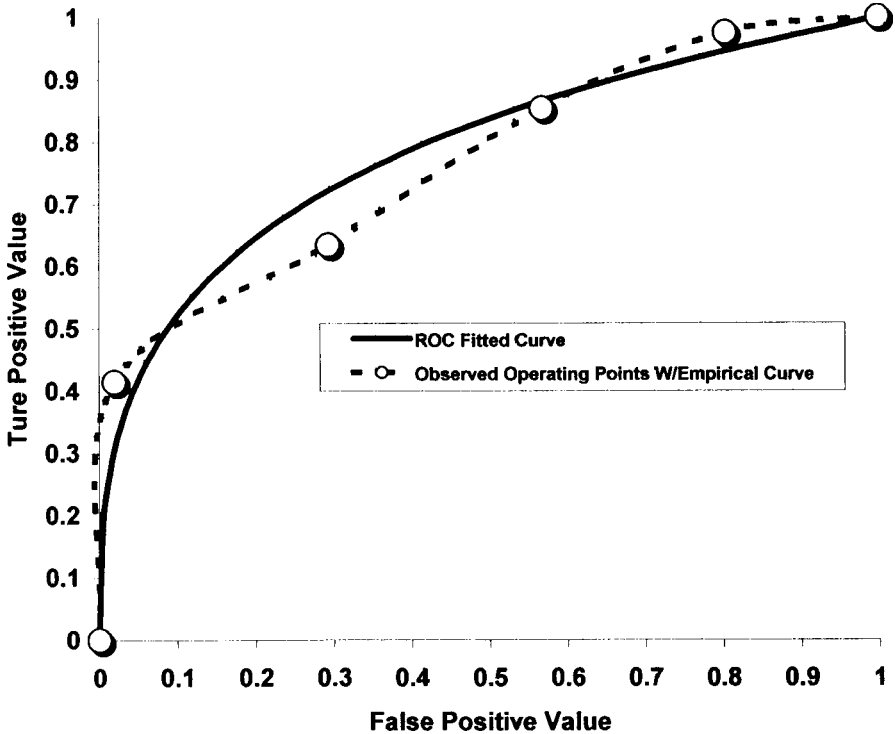


FIGURE 3. BISF ROC analysis (ROC = Receiver Operator Characteristics). Area under the curve (AUC) = $.786 \pm .050$. The higher the ROC fitted curve (smooth line), the closer the AUC value is to 1. Higher AUC values predict greater discrimination capacity of the scale. Target scoring criteria for the BISF were not determined in this analysis.

DISCUSSION

The current study demonstrates that the ASEX has internal consistency and is a reliable, valid, and sensitive tool for measuring sexual dysfunction. In addition, the ASEX has certain advantages over other, more lengthy, scales. The questions are short, easy to understand, and less intrusive than questions typically found in more traditional tools (Reynolds, Frank, Thase, Houck, Jennings, Howell, Lilienfeld, Kupfer, 1988; Taylor, Rosen, Leiblum, 1994; Derogatis & Melisaratos, 1979; Clayton, Owens, & McGarvey, 1995). The 6-point Likert design makes the ASEX extremely easy to score and interpret. Although the ASEX does not establish the etiology of sexual dysfunction, it does accurately measure sexual dysfunction when it is present. The ASEX is simple because only basic core elements of sexual dysfunction are addressed rather than every level of every aspect of sexual activity (Mathew & Weinman, 1982; Howell, Reynolds, Thase, Frank, Jennings, Houck, Berman, Jacobs, & Kupfe, 1987; Segraves, 1992; Wise, 1992; Othmer & Othmer, 1987; Derogatis & Melisaratos, 1979; Clayton, Owens, & McGarvey, 1995). Once the core

elements have been identified, measurement of sexual dysfunction is simplified. In summary, the high positive and negative predictive values of the ASEX—along with its internal consistency, reliability, and validity—support the theory that measurement of only the core aspects may be sufficient for clinical detection of sexual dysfunction.

Traditional sexual dysfunction rating scales, such as the BISF (Reynolds, Frank, Thase, Houck, Jennings, Howell, Lilienfeld, & Kupfer, 1988; Taylor, Rosen, & Leiblum, 1994) contain many additional items relevant to the measurement of overall sexual function; however, they may not be as effective as the ASEX in determining sexual dysfunction (see Figures 2 and 3). Furthermore, the scoring of scales with a large number of items is complicated and can be difficult to interpret, making it harder to quantify the degree of sexual dysfunction. It should be noted that since the cutoff categories for both the ASEX and BISF ROC analyses were arbitrarily determined, it is reasonable to assume that modification of the categories could result in ROC curves differing from the ones presented in Figures 2 and 3. However, given the high correlation between total ASEX score and the presence of sexual dysfunction, the ASEX seems to quantify the core elements of sexual dysfunction quite well, suggesting that any additional items may not be required.

Recent studies involving mirtazapine substitution show that the ASEX can also effectively measure change in sexual function over time (Gelenberg, Laukes, McGahuey, Okayli, Moreno, Bologna, & Delgado, 1998; Delgado, 1998). The brief (it takes less than 5 minutes for patients to complete) and nonintrusive qualities of the ASEX allow for repeated and frequent measurement of sexual dysfunction, causing minimal discomfort and embarrassment for the patient. The ASEX allows the clinician to quickly identify which core elements of sexual dysfunction are affected and treat those symptoms accordingly. In addition, the ASEX is a bimodal scale that is capable of measuring reduced or enhanced sexual function.

There were important limitations of this study that should be considered when interpreting the results. First, the sample size was relatively small and may not be representative of the general population. For example, we did not test subjects younger than 18 years, and there were few elders in the study. Although we included subjects with a history of MDE or Anxiety, all were on antidepressants. Although we would expect the ASEX to show comparable reliability and validity in unmedicated depressed patients and other groups, future studies should be conducted in other populations, including people from other cultures and those with other concurrent problems (e.g., drug abuse or medical illness).

Only high ASEX scores initially were considered to reflect sexual dysfunction. However, we subsequently realized that subjects suffering from premature ejaculation or spontaneous orgasm (reflected in extremely low ASEX scores) could also be considered to have sexual dysfunction. In the future, analyses should focus both on extremely low and extremely high

ASEX scores, given that sexual dysfunction can involve both hyperfunction and hypofunction.

Another limitation of the study design was in the choice of scales with which to compare the ASEX. At the time of the study, the BISF was the best choice of the available validated scales, but correlating the BISF to the ASEX was less than ideal. This is due in part to the fact that the BISF is more inclusive of the construct of sexual dysfunction, requiring numerous computations to derive the factor scores.

Another inherent limitation in studies of sexual dysfunction is that the definition of sexual dysfunction can be subjective. A lack of sexual activity, for example, is not always perceived as sexual dysfunction. Personal views (i.e., religious or other) often bias interpretation. Who or what ultimately decides when sexual dysfunction is present? Is the patient's self-report the deciding factor, or should it be left up to the clinician or a score on a questionnaire? Clearer guidelines defining the boundaries of sexual dysfunction for use in clinical and research studies should be developed.

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ARIZONA SEXUAL EXPERIENCES SCALE (ASEX)-MALE

For each item, please indicate your **OVERALL** level during the **PAST WEEK**, including **TODAY**.

1. How strong is your sex drive?

1	2	3	4	5	6
extremely strong	very strong	somewhat strong	somewhat weak	very weak	no sex drive

2. How easily are you sexually aroused (turned on)?

1	2	3	4	5	6
extremely easily	very easily	somewhat easily	somewhat difficult	very difficult	never aroused

3. Can you easily get and keep an erection?

1	2	3	4	5	6
extremely easily	very easily	somewhat easily	somewhat difficult	very difficult	never

4. How easily can you reach an orgasm?

1	2	3	4	5	6
extremely easily	very easily	somewhat easily	somewhat difficult	very difficult	never reach orgasm

5. Are your orgasms satisfying?

1	2	3	4	5	6
extremely satisfying	very satisfying	somewhat satisfying	somewhat unsatisfying	very unsatisfying	can't reach orgasm

COMMENTS:

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APPENDIX A: The Arizona Sexual Experiences Scale (ASEX), Male and Female versions

ARIZONA SEXUAL EXPERIENCES SCALE (ASEX)-FEMALE

For each item, please indicate your **OVERALL** level during the **PAST WEEK**, including **TODAY**.

1. How strong is your sex drive?

1	2	3	4	5	6
extremely strong	very strong	somewhat strong	somewhat weak	very weak	no sex drive

2. How easily are you sexually aroused (turned on)?

1	2	3	4	5	6
extremely easily	very easily	somewhat easily	somewhat difficult	very difficult	never aroused

3. How easily does your vagina become moist or wet during sex?

1	2	3	4	5	6
extremely easily	very easily	somewhat easily	somewhat difficult	very difficult	never

4. How easily can you reach an orgasm?

1	2	3	4	5	6
extremely easily	very easily	somewhat easily	somewhat difficult	very difficult	never reach orgasm

5. Are your orgasms satisfying?

1	2	3	4	5	6
extremely satisfying	very satisfying	somewhat satisfying	somewhat unsatisfying	very unsatisfying	can't reach orgasm

COMMENTS: