The Same Yet Different: Refocusing the Sexual Addiction Screening Test (SAST) to Reflect Orientation and Gender

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In 1988, the Sexual Addiction Screening Test (SAST) was described as an early assessment tool for clinicians to use with patients who manifested sexually compulsive behavior. Early research acknowledged that while the SAST was very useful with heterosexual males, it did not do well with women or homosexual men. There were subsequent efforts to create instruments with "SAST- like" architecture for women and homosexual men. Called the W-SAST and the G-SAST, these instruments had little research to support their clinical utility. This paper describes the development of a new version of the SAST (SAST-R) which is designed to be clinically relevant across populations. Item selection was based on a clinical population of inpatient sex addicts (N=1604), as well as various contrasting populations. The new instrument has core items that show potential to be viable across gender and orientation. The addition of research scales should help resolve the issues around one instrument serving different populations. Preliminary studies using four separate samples of men, and three separate samples of women, are described which point to further research efforts.

The original Sexual Addiction Screening Test appeared in *Contrary To Love: Helping the Sexual Addict* (1989). Early research indicated good internal consistency and an ability to discriminate between male sex addicts and male control populations. However, with women and homosexual men the instrument was inconsistent and failed to discriminate as well. A number of factors were discussed as possible reasons why the instrument did not provide a more inclusive architecture. Primarily the discussion focused on how perceptions of sexual behavior would vary across gender, orientation, and culture. The twenty-five item instrument for men has since been used in a wide variety of settings including treatment facilities, criminal justice systems, and educational programs (Hueppelheuser, Crawford & George, 1997; Spickard, Swiggart, Manley & Dodd, 2002; Weiss, 2004).

Shortly after the SAST appeared one of the authors used a much more extensive survey and found that there was indeed a great deal of differences between genders across various sexual behaviors (Carnes, 1989). A small task force led by therapist Sharon O'Hara created an instrument called the W-SAST. It was designed using a similar screening format of twenty-five items. A parallel group led by therapist Rob Weiss created another screener for homosexual men

entitled the G-SAST. With very little research to support either screening instrument, they were widely used as screening tools and in the popular press. While they were helpful, three different instruments beg some critical questions. Ideally a screening instrument should be able to tap into constructs that measure a common illness. Also clinically one instrument would be more useful and easier to administer, explain, and research than three. An extensive literature has emerged about gender differences (Carnes, 1989, 1991; Cooper, et al., 2004), women sex addicts (Carnes, 2006; Ferree, 2001; Ferree, 2002; Kasl, 1989) and gay men (Chaney & Dew, 2003; Weiss, 2002; Weiss, 2005). Yet the reality exists that across populations, the literature points to the same issues of preoccupation, loss of control, affect disturbance, unmanageability, high risk behavior, and significant consequences.

This paper describes the construction of the SAST-R (revised). Our goal was to structure an instrument which had the ability to serve as a good screener across all populations that could measure differences that might vary by population, and would identify constructs core to the addictive process. The process included sifting through large amounts of data collected on the internet and in inpatient and outpatient settings. One key data set utilized was a population of inpatients which is the focus of this article. Our process was to derive twenty core items which would work for all patients. In addition we added twenty-five items which created subscales for men, women and homosexual men. The data have never supported measurable differences between homosexual and heterosexual women. A subscale has been added for addictive internet use. Finally, subscales are identified for four constructs that help discriminate components of addictive behavior. All the subscales at this point have to be regarded as research scales until further research confirms their validity and reliability.

The core items, however, are already emerging as a useful screening tool. An early study is provided to illustrate the instrument's potential utility by comparing SAST Core scores across four groups. The first group is of clergy, the second is of college students, and the third and fourth are drawn from clinical populations. Also early reliability results are included. A description of items is provided. Finally, we conclude with a discussion of how to use the instrument provisionally until research is further along.

Development of a New SAST Core and Subscales

The Original SAST

The original SAST consists of 25 items. Previous research demonstrated that the SAST efficiently and effectively discriminated between sex addicts and nonaddicts. Using 13 as a cutoff score, 96.5% of respondents were correctly classified as sexually addicted, while only 3.5% scoring 13 or more were nonaddicted, and thus misclassified using the SAST (Carnes, 1989). Multiple forms of the SAST were subsequently developed for heterosexual men, women, and homosexual men populations. Items were added, dropped or adjusted to create three forms of the instrument, each comprising content tailored to measure sexual addiction in specific

Table 1. Reliability for the Three SAST Scales – Cronbach's Alpha Coefficient for Internal Consistency and Item-Total Correlations for Each Scale Item.

Item#	Heterosexual Men N = 611/Alpha = 0.892	Women N = 385/Alpha = 0.846	Homosexual Men N = 67/Alpha = 0.821
Q1	0.130	0.034	0.295
Q2	0.190	0.178	0.273
Q3	0.162	0.259	0.241
Q4	0.484	0.505	0.433
Q5	0.553	-0.248	0.270
Q6	0.394	0.241	0.335
Q7	0.642	0.629	0.478
Q8	0.553	0.411	0.318
Q9	0.574	0.507	0.394
Q10	0.496	0.370	0.591
Q11	0.571	0.562	0.491
Q12	0.493	0.510	0.478
Q13	0.334	0.232	0.280
Q14	0.659	0.333	0.479
Q15	0.657	0.581	0.084
Q16	0.621	0.598	0.439
Q17	0.643	0.497	0.270
Q18	0.537	0.430	0.060
Q19	0.489	0.599	0.398
Q20	0.469	0.288	0.508
Q21	0.568	0.234	0.589
Q22	0.549	0.526	0.288
Q23	0.090	0.087	0.147
Q24	0.604	0.599	0.455
Q25	0.606	0.632	0.425

populations with more validity than the original, one-size-fits-all SAST. The three resulting scales had many items in common, representing aspects of sexual addiction that are common across populations, as well as unique items intended to be more salient to one of the target populations. Reliability analyses of the three scales, using clinical samples, demonstrated good internal consistency for all three full scales (see Table 1). As can be seen, some of the items do not correlate well with the rest of the scale. Items 1, 2, and 3, for example, are not consistent with any of the scales. Lack of consistency does not necessarily indicate that an item is bad, or cannot be used, but only that it does not correlate well with the bulk of the scale. For example, items such as "Were you sexually abused as a child?" or "Have you been sexual with minors?" do not correlate well with the bulk of the items on any of the scales, but may still be related to sexual addiction. Exploratory principal components analysis (much like factor analysis) helps us to further clarify the utility of the scale items.

The SAST – Men, SAST – Women, and SAST – Gay Men

Inspection of response frequency histograms generated with data from the three forms of the SAST illustrates considerable differences between the three groups. The frequency distribution for the SAST – Men is quite similar to the response frequency for addicts responding to the original SAST (see Figure 1), with a peak near 20, and the majority of addicts scoring above 13. Frequency data from sexual addicts responding to the SAST – Women and SAST – Gay Men (Figures 2 & 3 respectively) are less skewed. The broader distribution of SAST responses by sexually addicted women and gay men suggests that the expression of sexual addiction in those populations may be more varied than in heterosexual men. Conversely, it may be that the SAST items for men are very similar in difficulty, restricting the ability of the SAST – Men to discriminate levels of addiction severity, if such levels exist.

The situation is further complicated by the fact that the SAST – Gay Men has many unique items, not reflected on the SAST – Men or the SAST – Women. The differences in the frequency distributions make two issues clear. There is a need to compare all three groups directly, and there is also a need to examine variations in sexual addiction within each of the three groups. In order to address these issues a common set of sexual addiction scale items were developed, to be applied to all three groups, as well as supplemental scales to examine variations within the three groups. The items on the common scale will reflect the core features of sexual addiction that should be salient to all three groups. The supplemental scales will consist of items that should capture much more variance in one group than the other two. The new form of the SAST, with a Common (or Core) scale and three supplemental scales, was developed through a combination of psychometric analysis and rational analysis.

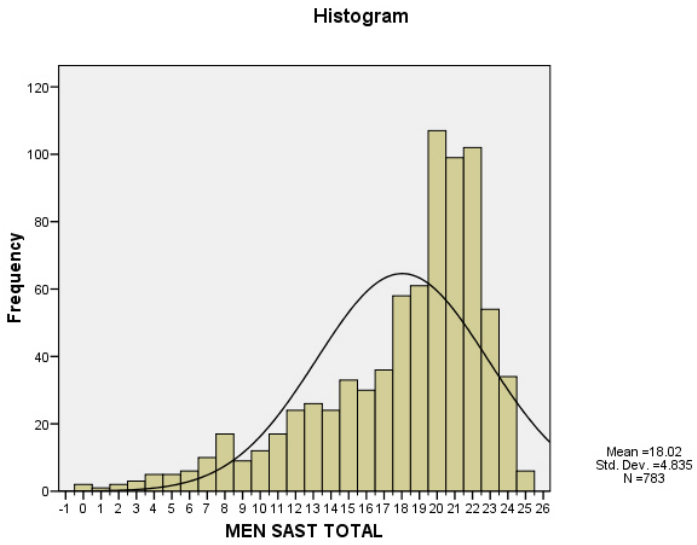

Figure 1. Distribution of scores for a heterosexual male clinical sample on the original SAST.

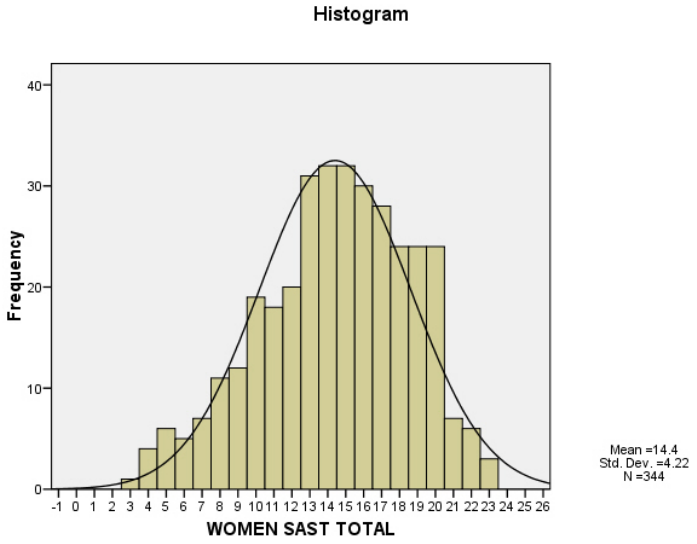

Figure 2. Distribution of scores for a female clinical sample on the W-SAST.

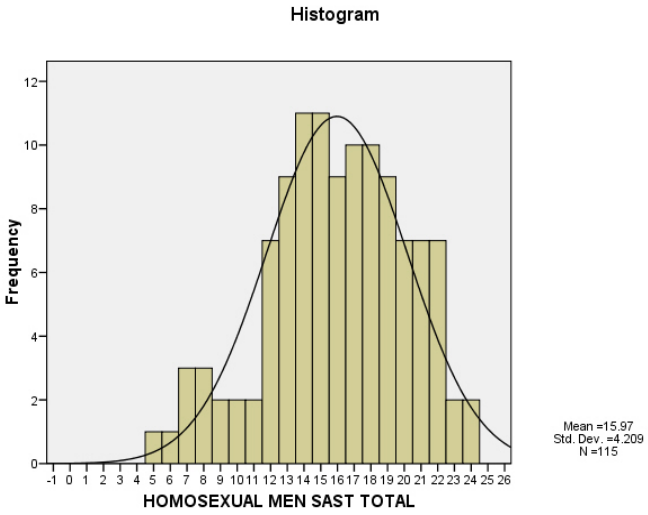

Figure 3. Distribution of scores for a homosexual male clinical sample on the G-SAST.

Items for the SAST-Core scale were chosen based on reliability analysis and principal components analysis of the SAST for heterosexual men and the W-SAST for women, as these scales are the most similar of the three, and contain the most items measuring the central features of sexual addiction. In addition, principal components analysis could only be conducted on the W-SAST and SAST for heterosexual men, as the clinical sample of homosexual men was too small (N = 115). In fact, the analysis of the W-SAST should be considered tentative due to the sample size (N = 344). Principal components analysis of the SAST for heterosexual men (N = 783) produced a solution with four components (or factors): 1) Affect Disturbance; Cannot Stop, 2) Relationship Disturbance, 3) Preoccupation/Loss of Control, 4) Associated Features (see Table 2). Factor 4, containing items regarding history of abuse, sexual problems of parents, and sex with minors, captures a substantial portion of variance, even though the items loading on 4 are not internally consistent with the items constituting the first three factors.

Table 2. Principal Components Analysis of SAST for Sex Addicted Heterosexual Men

Item#	SAST - Heterosexual Men	Factor 1 Affect Disturbance; Cannot Stop	Factor 2 Relationship Disturbance	Factor 3 Preoccupation; Loss of Control	Factor 4 Associated Features
Q1	Were you sexually abused as a child or adolescent?	0.084	-0.052	-0.036	**0.753**

Q2	Have you subscribed or regularly purchased sexually explicit magazines like Playboy or Penthouse?	-0.111	0.127	**0.423**	0.154
Q3	Did your parents have trouble with sexual behavior?	0.147	-0.074	0.120	**0.509**
Q4	Do you often find yourself preoccupied with sexual thoughts?	0.116	0.105	**0.675**	0.045
Q5	Do you feel that your sexual behavior is not normal?	**0.514**	0.193	**0.349**	0.000
Q6	Does your spouse [or significant other(s)] ever worry or complain about your sexual behavior?	0.139	**0.623**	0.131	-0.022
Q7	Do you have trouble stopping your sexual behavior when you know it is inappropriate?	**0.538**	0.236	0.261	-0.062
Q8	Do you ever feel bad about your sexual behavior?	**0.639**	0.183	0.004	0.085
Q9	Has your sexual behavior ever created problems for you and your family?	0.277	**0.734**	0.074	0.046
Q10	Have you ever sought help for sexual behavior you did not like?	**0.407**	0.266	0.146	0.227
Q11	Have you ever worried about people finding out about your sexual activities?	0.541	0.269	0.055	-0.026
Q12	Has anyone been hurt emotionally because of your sexual behavior?	0.140	**0.742**	0.092	0.047
Q13	Are any of your sexual activities against the law?	0.122	0.197	0.234	0.290
Q14	Have you made promises to yourself to quit some aspect of your sexual activity and failed?	**0.725**	0.107	0.151	0.038
Q15	Have you made efforts to quit a type of sexual activity and failed?	**0.733**	0.080	0.147	0.043
Q16	Do you hide some of your sexual behavior from others?	**0.531**	**0.377**	0.100	-0.004
Q17	Have you attempted to stop some parts of your sexual activity?	**0.769**	0.095	0.061	0.048
Q18	Have you ever felt degraded by your sexual behavior?	**0.558**	0.050	0.199	0.150
Q19	Has sex been a way for you to escape your	0.189	0.068	**0.553**	0.116

	problems?				
Q20	When you have sex, do you feel depressed afterwards?	0.335	0.016	0.431	0.277
Q21	Have you felt the need to discontinue a certain form of sexual activity?	**0.533**	0.127	0.181	0.127
Q22	Has your sexual activity interfered with your family life?	0.232	**0.709**	0.118	-0.005
Q23	Have you been sexual with minors?	-0.072	0.097	0.013	**0.506**
Q24	Do you feel controlled by your sexual desire?	**0.329**	0.069	**0.717**	-0.093
Q25	Do you ever think your sexual desire is stronger than you are?	**0.410**	0.100	**0.574**	-0.153
	% Variance per Factor After Varimax Rotation	18.48	10.16	9.73	5.71

Total = 44.01

Note – Component loadings ≥ .300 are in bold.

Principal components analysis of the W-SAST produced a solution with three components (or factors): 1) Relationship Disturbance, 2) Preoccupation; Loss of Control, and 3) Affect Disturbance (see Table 3). The three components extracted are quite similar to the first three components extracted for heterosexual men. One meaningful difference is that Relationship Disturbance is the first, and largest factor for women, but second for men. The largest factor for men is Affect Disturbance; Cannot Stop. Feeling degraded, feeling bad, hiding behaviors, and seeking help, are all tied to inability to stop undesirable behaviors in the male sample. Feeling depressed after sex is associated with preoccupation and loss of control for men. In women dysphoric affect, including depression, constitutes a separate factor, with association to history of abuse, sadomasochistic behavior and periods of celibacy after sexually acting out. Help-seeking in women is tied to Relationship Disturbance. A fourth factor was not called for in the W-SAST data, but may emerge with a larger data set.

Table 3. Principal Components Analysis of the W-SAST for Sex Addicted Women

Item#	W-SAST version N = 340	Factor 1 Relationship Disturbance	Factor 2 Preoccupation Loss of Control	Factor 3 Affect Disturbance
Q1	Were you sexually abused as a child or adolescent?	-0.093	0.017	**0.339**
Q2	Do you regularly purchase romance novels or sexually explicit magazines?	-0.023	**0.387**	-0.085

Q3	Have you stayed in romantic relationships after they become emotionally or physically abusive?	0.121	0.133	0.013
Q4	Do you often find yourself preoccupied with sexual thoughts or romantic day dreams?	-0.042	**0.702**	0.107
Q5	Do you feel that your sexual behavior is not normal?	-0.188	-0.169	-0.283
Q6	Does your spouse (or significant other(s)) ever worry or complain about your sexual behavior?	**0.519**	0.084	0.060
Q7	Do you have trouble stopping your sexual behavior when you know it is inappropriate?	**0.338**	**0.309**	**0.377**
Q8	Do you ever feel bad about your sexual behavior?	0.290	-0.120	**0.582**
Q9	Has your sexual behavior ever created problems for you and your family?	**0.772**	-0.043	0.003
Q10	Have you ever sought help for sexual behavior you did not like?	**0.386**	0.169	0.051
Q11	Have you ever worried about people finding out about your sexual activities?	**0.482**	0.075	0.301
Q12	Has anyone been hurt emotionally because of your sexual behavior?	**0.692**	0.023	-0.079
Q13	Have you ever participated in sexual activity in exchange for money or gifts?	0.014	0.035	0.234
Q14	Do you have times when you act out sexually followed by periods of celibacy (no sex at all)?	-0.142	0.090	**0.594**
Q15	Have you made efforts to quit a type of sexual activity and failed?	**0.324**	**0.354**	0.257
Q16	Do you hide some of your sexual behavior from others?	**0.469**	0.196	**0.314**
Q17	Do you find yourself having multiple romantic relationships at the same time?	**0.439**	0.233	0.036
Q18	Have you ever felt degraded by your sexual behavior?	0.242	0.054	**0.463**
Q19	Has sex or romantic fantasies been a way for you to escape your problems?	0.287	**0.572**	0.06
Q20	When you have sex, do you feel depressed afterwards?	0.121	-0.052	**0.645**
Q21	Do you regularly engage in sado-masochistic behavior?	-0.065	0.216	**0.396**

Q22	Has your sexual activity interfered with your family life?	**0.751**	0.124	-0.123
Q23	Have you been sexual with minors?	-0.007	0.084	-0.111
Q24	Do you feel controlled by your sexual desire or fantasies of romance?	**0.327**	**0.709**	0.077
Q25	Do you ever think your sexual desire is stronger than you are?	**0.320**	**0.591**	0.214
	% Variance per Factor After Varimax Rotation	13.83	9.3	8.96
	Total = 32.09			

Note – Component loadings ≥ .300 are in bold.

The New Form of the SAST

We developed a new form of the SAST based on our reliability analyses and principal component analyses, as well as the preexisting knowledge base regarding sex addiction. Principal components analyses suggested that the core components of sexual addiction, common across women and men, are preoccupation, loss of control, affective disturbance, and relationship disturbance. Some of these components appear to be multifaceted. Items measuring preoccupation and loss of control tend to load on the same factor, yet the constructs are distinguishable. Preoccupation is primarily cognitive and affective, it does not necessarily convey functional disturbance, and it is typically a precursor to loss of control. Loss of control symptoms are more severe, conveying functional (behavioral) disturbance by definition. Affective disturbance comprises depression, feeling abnormal, and feeling degraded, ashamed, or guilty. Shame is further associated with behaviors, such as trying to hide sexual practices. A history of sexual abuse is also important, as it is associated with affective disturbance in women, and combines with sexual disturbance of the parents and having sex with minors to constitute a fourth component for men. The SAST-R was developed using fewer items to tap each domain of interest, resulting in a shorter scale that should be applicable to heterosexual men, women, and homosexual men. Such an instrument will allow direct comparisons across these groups regarding the core features of sex addiction, as all will respond to the same items.

The current form of the SAST, the SAST-R, with scoring cutoffs, is in the appendix. In order to tap features of sexual addiction that are unique to each group, supplementary scales have been developed to measure features of sexual addiction within groups. At the time of the following analyses we had adequate clinical data for men, but limited outpatient data for women, and no inpatient data for women. Our results will focus on performance of the SAST-R with samples of men, but we will report findings from the samples of women we have collected so far, maintaining that they be considered tentative. We will update our findings when we obtain adequate clinical samples of women and homosexual men. Table 4 gives descriptive statistics for

the SAST Core, Internet, Preoccupation, Loss of Control, Relationship Disturbance, Affect Disturbance, Heterosexual Men, Homosexual Men, and Women scales.

The samples of women consisted of college students (n = 158; mean age = 19.87), clergy (n = 60; mean age = not reported), and outpatient women (n = 85; mean age = 37.87). An unexpected finding was that the sample of clergy women produced higher mean scores than women being treated for sex addiction as outpatients on all of the scales except the research scales for women and homosexual men. In fact, clergy women produced mean scores that exceeded those of outpatient men on several scales. In contrast, student women produced very low scores on all scales, and the lowest mean scores on many of the scales. Our samples of men were college students (n = 47; mean age = 21.65), clergy (n = 205; mean age = not reported), outpatient sex addicts (n = 508; mean age = 43.26), and inpatient sex addicts (n = 57, mean age = 41.28). Homosexual men were excluded from the inpatient and outpatient samples of men, but men reporting their orientation as bisexual or unsure were included because there is as yet no empirical basis for expecting their scores to be different from heterosexual patients. Orientation data was not gathered on the clergy or student samples, so no cases were excluded. In examining Table 4 a clear trend emerges with the lowest means for the college sample, higher means for the clergy sample, much higher for the outpatient sex addicts, and highest for the addicts in inpatient

Table 4. Descriptive Statistics for the SAST-R Scales

Scale	College Women (N = 158) Mean/SD	Clergy Women (N = 60) Mean/SD	Outpatient Women (N = 85) Mean/SD	College Men (N = 47) Mean/SD	Clergy Men (N = 205) Mean/SD	Outpatient Men (N = 508) Mean/SD	Inpatient Men (N = 57) Mean/SD
SAST-Core	2.34/2.88	10.65/3.89	9.45/5.91	2.89/3.38	7.64/4.92	10.22/5.42	14.23/4.15
Internet	0.19/0.65	2.75/1.95	1.12/1.77	0.85/1.46	1.69/1.78	2.64/2.16	3.86/1.99
Preoccupation	0.45/0.73	2.03/1.21	1.46/1.10	0.94/0.94	1.15/1.04	1.45/1.20	2.26/1.28
Loss of Control	0.52/0.90	2.82/1.30	1.85/1.59	0.68/1.14	2.09/1.45	2.39/1.54	3.37/1.16
Relationship Disturbance	0.33/0.70	2.03/1.46	1.76/1.36	0.34/0.79	1.35/1.50	2.63/1.31	3.37/0.94
Affect Disturbance	0.93/1.22	3.37/1.45	2.89/1.95	0.83/1.17	2.38/1.65	2.82/1.74	4.07/1.27
Heterosexual Men	0.11/0.41	1.75/1.30	0.56/0.88	0.89/1.08	1.11/1.33	2.13/1.51	2.81/1.51
Homosexual Men	0.29/0.59	1.08/1.37	1.25/1.30	0.32/0.63	0.44/0.89	1.05/1.23	1.72/1.51
Women	0.52/0.87	1.28/1.28	2.08/1.49	0.43/0.62	0.61/0.94	1.19/1.16	1.46/1.35

Comment [BG1]: I would drop the test-retest for now. The original data in this piece cannot be completely reconciled with the current data set I am using. Also, as a screener sensitive to psychopathology, we would want it to change quite a bit over time, and it does, so test-retest is low.

treatment. Finally, the Homosexual Men and Women scales are considerably lower than the Heterosexual Men scale, as would be expected given that there were no women or homosexual men included in the clergy, outpatient or inpatient samples, and the base rate for homosexuality should be rather low in the college men sample. The fact that mean for the Heterosexual Men scale is much higher than the Homosexual Men or Women scales in all four samples suggests that it may perform as intended. That is, it may in fact measure variance in sexual behaviors more characteristic of heterosexual men.

The Men, Women, and Homosexual Men research scales are intended to capture differences in behavior patterns between those groups. In an effort to compare apples to apples, we limited this set of comparisons to outpatients only. The Men scale differentiates non-homosexual men (n = 508; M = 2.13; SD = 1.51) from women (n = 85; M = .56; SD = .88) at $t(84, 507) = 13.43$, $p < .001$. Likewise the Women scale differentiates women (n = 85; M = 2.08; SD = 1.49) from non-homosexual men (n = 508; M = 1.19; SD = 1.16) at $t(84, 507) = 5.28$, $p < .001$. The two groups do not significantly differ on the Homosexual Men scale. Preliminary analyses suggest that homosexual men who are outpatients in treatment for sex addiction produce elevations similar to women in treatment on the Women scale, and similar to men in treatment on the Men scale, but the Homosexual Men scale differentiates homosexual men from both heterosexual men and heterosexual women in the data we have so far. So in a sense, all three scales seem to work. The Men and Women scales are significantly distinguishing heterosexual men and women. Homosexual men are demonstrating overlap in sex related behaviors with both heterosexual men and women, but the Homosexual Men scale significantly distinguishes homosexual men from both of the other groups.

Table 5 provides the current SAST Core items, with reliability coefficients (Alpha) and item-total correlations. The internal consistency of the new SAST Core is good, and compares favorably to the 25-item SAST. In addition, the new form retains items that are not consistent with the rest of the scale, but are still clinically meaningful, which reduces the observed Cronbach's Alpha.

Utility of the SAST Core Scale

As a test of the utility of the SAST Core we assessed the ability of the scale to correctly classify clinical and non-clinical cases. We created the non-clinical sample of men (n = 145) by combining the college sample (n = 47) with clergy who indicated that they did not have any problems with their sexual behaviors (n = 98). The clinical sample of men (n = 655) consisted of the inpatient sample (n = 64), the outpatient sample (n = 562) and the clergy who self-identified as sex addicted (n = 29). For the purpose of classification analysis all sexual orientations were included. Receiver Operating Characteristic Curve (ROC) analyses index performance of a classification scheme in terms of sensitivity (detecting true positive cases) and specificity (detecting true negative cases). Accuracy of a classification scheme is given in percentage of the total potential area (100% or 1.00) captured under the classification curve created by the

Table 5. Internal Consistency (Alpha) and Item-Total Correlations for SAST Core Items

	College Women (N = 159) Alpha = .812	Clergy Women (N = 60) Alpha = .777	Outpatient Women (N = 85) Alpha = .919	College Men (N = 47) Alpha = .849	Clergy Men (N = 205) Alpha = .880	Outpatient Men (N = 508) Alpha = .904	Inpatient Men (N = 57) Alpha = .868
1	.260	.002	.270	.471	.120	.168	.125
2	.140	.211	.482	.202	.195	.317	.074
3	.408	.427	.677	.264	.516	.634	.654
4	.403	.483	.682	.308	.578	.638	.581
5	.582	.503	.769	.551	.653	.723	.733
6	.385	.269	.613	.446	.613	.495	.733
7	.127	.319	.705	.362	.413	.541	.389
8	.446	.231	.567	.181	.559	.439	.286
9	.298	.158	.244	.229	.203	.261	.270
10	.533	.566	.709	.607	.580	.700	.609
11	.493	.441	.629	.567	.589	.657	.733
12	.658	.441	.677	.655	.617	.650	.690
13	.533	.343	.727	.726	.595	.579	.505
14	.388	.364	.568	.299	.385	.486	.444
15	.280	.394	.577	.514	.616	.696	.582
16	.248	.465	.684	.502	.595	.628	.666
17	.388	.358	.651	.546	.509	.703	.679
18	.227	.181	.296	.502	.340	.335	.365
19	.411	.476	.569	.405	.592	.641	.671
20	.198	.120	.299	.456	.301	.384	.363

classification scheme. The SAST Core captured an estimated 86.0% (or .860) of the potential area, with a 95% Confidence Interval of .833 to .887 (see Figure 4). Examination of the coordinates of the curve indicate that maximum classification accuracy is achieved using a cutoff score of 6, yielding sensitivity of .817 and specificity of .778. Although our achieved sensitivity

of .817 in the present sample is lower than the .965 reported for the original SAST, consider that 117 of the outpatients and 3 of the inpatients, all being treated for sex addiction, turned in scores below 6 on the SAST-R, suggesting that they under reported their symptoms. With regard to specificity, recall that all college men were included in the nonclinical sample, though it is likely

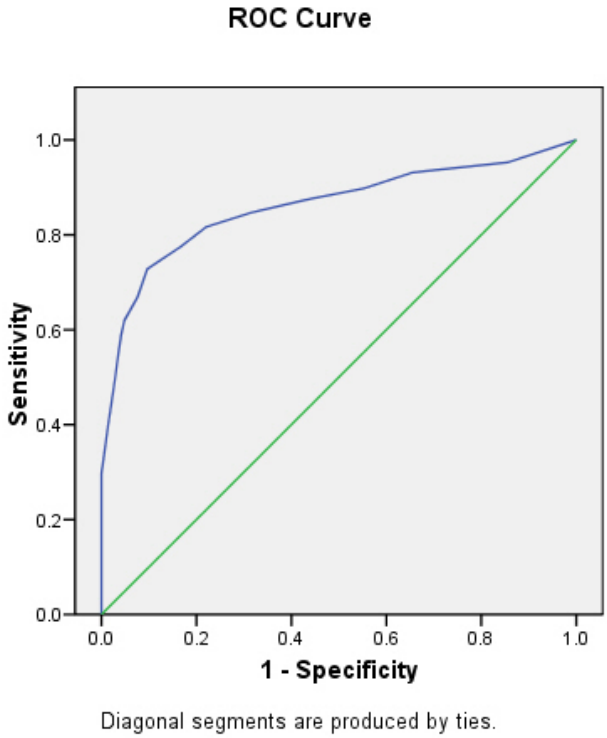

Figure 4. ROC Curve for the SAST Core classifying clinical and non-clinical cases of men.

that symptoms of sex addiction would be present in that group, and clergy who do not consider themselves to have a problem with sex addiction may also be symptomatic. The Addictive Dimension scales (Preoccupation, Loss of Control, Relationship Disturbance, and Affect Disturbance) and Internet scale also performed well in ROC analyses, but space does not permit detailing of those results here.

We used the same method for assigning women to clinical (n = 99) and non-clinical (*n* = 175) groups, we ran ROC again. The SAST Core obtained 83.8% (or .838) overall accuracy, within a 95% confidence interval of .786 to .891 (See Figure 5). Again, maximum classification accuracy is achieved using a cutoff score of 6, yielding in this case sensitivity of .737 and

specificity of .792. As stated earlier, the findings for the women's samples have to be considered tentative until larger samples have been gathered, so we will not further interpret these results here.

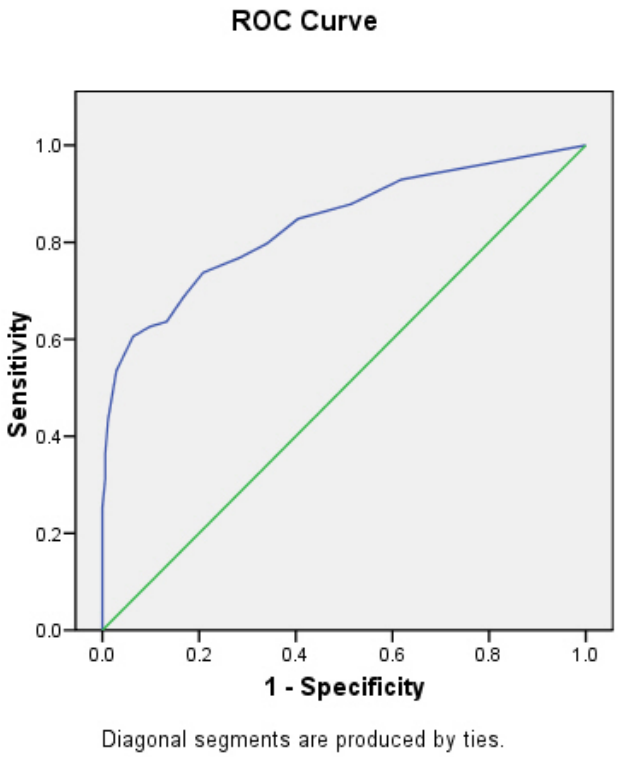

Figure 5. ROC Curve for the SAST Core classifying clinical and non-clinical cases of women.

In addition to the ROC analysis of the ability of the SAST-R to correctly classify sex addicts and non-addicts, we conducted a univariate analysis of variance (one way ANOVA) to determine whether the SAST Core scale could distinguish between all four of our groups of men with varying levels of sex addiction symptomatology. The SAST Core did detect differences between the four groups (college students, clergy, outpatients and inpatients) at $F(3, 874) = 59.69$, $p < .001$. Power was estimated to be 1.00 and the effect was estimated to be Adjusted $R^2 = .167$. Although the assumption of homogeneity of variance was not met, the magnitude of the F statistic, the small p (4.17 e-35), the general robustness of ANOVA to violations of homogeneity

of variance assumption, an the fact that the largest group variance (28.65) was only marginally greater than three times the smallest (9.13) all support confidence in this finding. Post hoc analysis found that the SAST Core significantly distinguished each group from all others whether using the Tukey HSD (a conservative post hoc comparison) or Tamhane's T2 (a conservative post hoc comparison specifically for unequal groups). Power was estimated to be 1.00 and the effect was estimated to be Adjusted R^2 = .167. This finding suggests that the SAST Core is not only efficient at screening for sex addiction, but also may provide an useful index of severity of symptomatology.

A univariate ANOVA comparing the three groups of women on the SAST Core scale found a significant effect ($F(2, 298) = 128.18$; $p < .001$), and a Tukey HSD (and Tamhane's T2) post hoc found the student women to be significantly different from both outpatient women and clergy women, but outpatients and clergy did not differ from each other. Again, power was estimated to be 1.00. The effect was estimated to be Adjusted R^2 = .459, or roughly 46% of the variance. The assumption of homogeneity of variance was again violated, and with the samples of women the largest group's variance was more than three times that of the smallest, but considering the magnitude of the *F* statistic and the miniscule *p* (6.82 e-41) there is reason to trust the finding of an effect.

Summary

The new version of the SAST was designed to allow direct comparison of the expression of sexual addiction core features across different populations, while also measuring unique patterns within specific populations of interest, using item content with particular salience to the given population of interest. Results of our preliminary analyses, comparing inpatient and outpatient sexually addicted men, clergy men, and college men, suggest that the common, or core items of the new SAST perform very well, judged by the ability to correctly categorize clinical and non-clinical cases. The reduction to 20 items did not result in any significant loss of reliability or validity in these preliminary analyses. Our results with women also show promise in spite of the unexpected finding that the clergy women, as a group, produced rather high scores on the SAST-R. Preliminary results also support the utility of the Men, Women, and Homosexual Men scales in capturing variance unique to those populations. The task now is to gather data on clinical and non-clinical women and homosexual men so the supplementary scales can be adequately tested, and so the SAST Core, Core components, and Internet scales can be tested in those populations.

Discussion

The original SAST appeared in *Contrary to Love* which had as a common theme that addictive behavior was often hidden. The author pointed to the character “Gollum” who appeared first in Tolkein’s Hobbit and then was a key player in the trilogy, *The Lord Of The Rings.* It was Gollum who learned that to wear the ring would make one invisible. The only way

to detect the wearer's presence was that in sunlight a shadow would still be cast. The analogy was that sex addiction by its nature was often invisible. Only by careful observation at times does it become clear. In the book, the SAST was presented as one of the ways to pick up on the shadow.

The need for a good screening instrument continues twenty years later. With the advent of cybersex, the cultural shifts in behavior, and with increasing awareness of sex addiction as a problem, clinicians need a practical useful instrument that can be used in all situations. The SAST-R is a promising start. Clinically start with the core items. Scores above six indicate the likely presence of sex addiction. As in all screening instruments, false positives and false negatives will occur. A formal diagnosis goes far beyond the use of a screening instrument. But the SAST-R will be useful as an adjunct confirmatory of your assessment process.

Similarly, the research subscales will often help the clinician make sense of what the core item scale is indicating. The internet scale is an early warning of internet problems. The gender and orientation scales can add further confirmation of the core items. They simply add to the profile consistent with men, women, and gay men who struggle with sex addiction. The four components of the SAST Core are addiction dimensions designed to be early indicators of the basic areas of addiction in which there is the most distress:

- Preoccupation: obsessive thinking about sexual behavior, opportunities, and fantasies
- Loss of Control: inability to stop behavior despite commitments to self and others and despite problems caused by the behavior
- Relationship Disturbance: sexual behavior has created significant relationship problems
- Affect Disturbance: significant depression, despair, or anxiety over sexual behavior.

Use these scales as markers to assist in talking with patients about the problems presented. While the subscales are research scales, they are still useful to clinicians as additional markers to help make sense of patient behavior. Combined with more classical assessments including diagnostic criteria and collateral indicators that have more research support, good clinical decisions can be facilitated using these subscales.

By including early results, we are showing the directions further research must take. We need to gather data across larger, varied populations. Further research must contrast large non-clinical populations with both outpatient and inpatient groups. Hopefully now we are one step closer to a model that works across populations. The epidemiology of sex addiction will not be complete without a sound discriminatory instrument.

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Appendix

SAST - R 2.0

The Sexual Addiction Screening Test (SAST) is designed to assist in the assessment of sexually compulsive or "addictive" behavior. Developed in cooperation with hospitals, treatment programs, private therapists and community groups, the SAST provides a profile of responses which help to discriminate between addictive and non-addictive behavior. To complete the test, answer each question by placing a check in the appropriate yes/no column.

□ YES □ NO 1. Were you sexually abused as a child or adolescent?

□ YES □ NO 2. Did your parents have trouble with sexual behavior?

□ YES □ NO 3. Do you often find yourself preoccupied with sexual thoughts?

□ YES □ NO 4. Do you feel that your sexual behavior is not normal?

□ YES □ NO 5. Do you ever feel bad about your sexual behavior?

□ YES □ NO 6. Has your sexual behavior ever created problems for you and your family?

□ YES □ NO 7. Have you ever sought help for sexual behavior you did not like?

□ YES □ NO 8. Has anyone been hurt emotionally because of your sexual behavior?

□ YES □ NO 9. Are any of your sexual activities against the law?

□ YES □ NO 10. Have you made efforts to quit a type of sexual activity and failed?

□ YES □ NO 11. Do you hide some of your sexual behaviors from others?

□ YES □ NO 12. Have you attempted to stop some parts of your sexual activity?

□ YES □ NO 13. Have you felt degraded by your sexual behaviors?

□ YES □ NO 14. When you have sex, do you feel depressed afterwards?

□ YES □ NO 15. Do you feel controlled by your sexual desire?

□ YES □ NO 16. Have important parts of your life (such as job, family, friends, leisure activities) been neglected because you were spending too much time on sex?

□ YES □ NO 17. Do you ever think your sexual desire is stronger than you are?

□ YES □ NO 18. Is sex almost all you think about?

□ YES □ NO 19. Has sex (or romantic fantasies) been a way for you to escape your problems?

□ YES □ NO 20. Has sex become the most important thing in your life?

□ YES □ NO 21. Are you in crisis over sexual matters?

□ YES □ NO 22. The internet has created sexual problems for me.

□ YES □ NO 23. I spend too much time online for sexual purposes.

□ YES □ NO 24. I have purchased services online for erotic purposes (sites for dating, pornography, fantasy and friend finder).

□ YES □ NO 25. I have used the internet to make romantic or erotic connections with people online.

□ YES □ NO 26. People in my life have been upset about my sexual activities online.

□ YES □ NO 27. I have attempted to stop my online sexual behaviors.

□ YES □ NO 28. I have subscribed to or regularly purchased or rented sexually explicit materials (magazines, videos, books or online pornography).

□ YES □ NO 29. I have been sexual with minors.

□ YES □ NO 30. I have spent considerable time and money on strip clubs, adult bookstores and movie houses.

□ YES □ NO 31. I have engaged prostitutes and escorts to satisfy my sexual needs.

□ YES □ NO 32. I have spent considerable time surfing pornography online.

□ YES □ NO 33. I have used magazines, videos or online pornography even when there was considerable risk of being caught by family members who would be upset by my behavior.

□ YES □ NO 34. I have regularly purchased romantic novels or sexually explicit magazines.

□ YES □ NO 35. I have stayed in romantic relationships after they became emotionally abusive.

□ YES □ NO 36. I have traded sex for money or gifts.

□ YES □ NO 37. I have maintained multiple romantic or sexual relationships at the same time.

□ YES □ NO 38. After sexually acting out, I sometimes refrain from all sex for a significant period.

□ YES □ NO 39. I have regularly engaged in sadomasochistic behavior.

□ YES □ NO 40. I visit sexual bath-houses, sex clubs or video/bookstores as part of my regular sexual activity.

□ YES □ NO 41. I have engaged in unsafe or "risky" sex even though I knew it could cause me harm.

□ YES □ NO 42. I have cruised public restrooms, rest areas or parks looking for sex with strangers.

□ YES □ NO 43. I believe casual or anonymous sex has kept me from having more long-term intimate relationships.

□ YES □ NO 44. My sexual behavior has put me at risk for arrest for lewd conduct or public indecency.

□ YES □ NO 45. I have been paid for sex.

Scoring the SAST-R

Scales	Items	Cutoff	
Core Item Scale	Items 1-20	(6 or more)	_____
Subscales:			
Internet Items	Items 22-27	(3 or more)	_____
Men's Items	Items 28-33	(2 or more)	_____
Women's Items	Items 34-39	(2 or more)	_____
Homosexual Men	Items 40-45	(3 or more)	_____
Addictive Dimensions:			
Preoccupation	Items 3, 18, 19 and 20	(2 or more)	_____
Loss of Control	Items 10, 12, 15 and 17	(2 or more)	_____
Relationship Disturbance	Items 6, 8, 16 and 26	(2 or more)	_____
Affect Disturbance	Items 4, 5, 11, 13 and 14	(2 or more)	_____
Associated Features (not rated as a subscale)	Items 1, 2, 7, 9 and 21		

Relative Distributions of Addict & Nonaddict SAST Scores

This instrument has been based on screenings of tens of thousands of people. This particular version is a developmental stage revision of the instrument, so scoring may be adjusted with more research. Please be aware that clinical decisions must be made conditionally since final scoring protocols may vary**.**