

Substance Abuse Questionnaire Standardization Study

Donald D Davignon, Ph.D.

Abstract

The Substance Abuse Questionnaire (SAQ) was standardized on a sample of 3,184 adult counseling clients. The SAQ has six scales for measuring severity of substance (alcohol and drugs) abuse, aggressiveness, resistance, emotional and mental health problems. Reliability analyses showed that all SAQ scales had reliability coefficient alphas between .85 and .95. The Alcohol and Drugs scales identified respondents who admitted drinking or drug problems, 96% and 97%, respectively. The Aggressiveness Scale correctly identified 96% of respondents who admitted aggressiveness problems. SAQ classification of risk was shown to be within 2% of predicted risk range percentile scores for all SAQ scales. Results show that the SAQ is a reliable, valid and accurate adult assessment test.

Substance Abuse Questionnaire Standardization Study

The present study standardized the Substance Abuse Questionnaire (SAQ) on a sample of adult counseling clients. The SAQ is a brief, easily administered and automated (computer scored) test that is designed for adult counseling client risk and needs assessment. It includes true/false and multiple choice items and can be completed in 30 minutes. The SAQ is an objective test that helps evaluators substantiate their intervention and treatment decisions regarding clients' substance (alcohol and other drugs) abuse. Rising health care costs have placed increasing responsibilities on all persons working with substance abusers. Objective assessment tests lead to standardization of decision-making processes and can be instrumental in placing clients into proper programs. The SAQ helps to contain health care costs.

The SAQ has six scales for measuring alcohol and drug abuse severity (Alcohol & Drugs Scales), emotional or mental health problems (Stress Coping Abilities Scale), attitude and resistance to help (Resistance Scale) and aggressiveness (Aggressiveness Scale). In addition, the Truthfulness Scale measures respondent truthfulness, denial and problem minimization while completing the test. Truthfulness Scale scores are used for truth-correcting other scale scores.

Participants in this study were adult counseling clients. The data for this study was obtained from the community services agencies that used the SAQ. Only data received in the year 2002 are included. Two validation methods were used in this study that validates the SAQ. The first method (discriminant validity) compared scale scores between two participant groups. Group 1 consisted of participants who did not have a conviction for a violent crime. Group 2

consisted of participants who had one or more violent crime convictions. It was hypothesized that violent crime offenders (Group 2) would score significantly higher than participants who had no violent crime conviction (Group 1). Violent crime offenders would be expected to score higher because having a violent crime conviction is indicative of a serious problem.

The second validation method (predictive validity) examined the accuracy at which the SAQ identified problem drinkers, problem drug abusers and clients with aggressiveness problems. In the SAQ, alcohol, drug and aggressiveness problem information is obtained from the participants' responses to test items. Participants who admitted to drinking, drugs and aggressiveness problems would be expected to score in the corresponding scale's problem range. For criteria the following test items were used, "I have been in inpatient (residential) or outpatient (counseling) treatment for alcohol-related problems." "I have been treated in a chemical dependency program for drug-related problems." For the Aggressiveness Scale the criterion item was, "To be honest, I am an aggressive and irresponsible person."

For predictive validity analyses, respondents were separated into two groups, those who admitted to a problem and those who did not admit to a problem. Then, respondent scores on the relevant SAQ scales were compared. It was predicted that respondents who admitted a problem would score in the problem risk range (70th percentile and above). Non-problem was defined in terms of low risk scores (39th percentile and below). The percentage of respondents who admitted to a problem and also scored in the 70th percentile range and above was a correct identification of problems. High percentages of respondents who admit problems and have elevated problem risk scores would indicate the scales are valid.

Method

Subjects

There were 3,184 participants tested with the SAQ. Data for this study was provided by professional community services agencies that use the SAQ. Test data was collected during the year 2002. There were 2,373 males (74.5%) and 811 females (25.5%). The ages of the participants ranged from 19 through 49 as follows: 19 & Under (12.2%); 20-29 (34.3%); 30-39 (31.1%); 40-49 (17.3%); 50-59 (3.8%), 60 & Over (1.3%). Demographic composition of the participants was as follows. Race/Ethnicity: Caucasian (78.5%); Black (2.5%), Hispanic (3.3%), Native American (10.3%) and Other (4.6%). Education: Eighth grade or less (3.2%); Some high school (25.2%); High school graduate/GED (47.9%); Some college (17.4%) and College graduate (6.2%).

Procedure

Participants completed the SAQ as part of their clinical evaluation. The SAQ contains six measures or scales. These scales are briefly described as follows. The Truthfulness Scale measures truthfulness, denial and minimization of the respondent's problems while completing the SAQ. The Alcohol Scale measures severity of alcohol use or abuse. The Drugs Scale measures severity of drug use or abuse. The Stress Coping Abilities Scale measures how well the respondent handles stress, pressure and anxiety. The Aggressiveness Scale identifies respondents who are irresponsibly aggressive. The Resistance Scale measures respondent cooperation and willingness to accept help.

Results and Discussion

The inter-item reliability coefficients (alpha) for the six SAQ scales are presented in Table 1. All scales were highly reliable. Reliability coefficient alphas for all SAQ scales were at or above 0.85. These results demonstrate that the SAQ is a reliable test for adult assessment. All coefficient alphas exceed the professionally accepted standard of .75 and all are significant at the $p < .001$ level.

Table 1. Reliability of the SAQ

SAQ Scale	Coefficient Alpha	Significance Level
Truthfulness Scale	.88	p<.001
Alcohol Scale	.92	p<.001
Drugs Scale	.91	p<.001
Aggressiveness Scale	.86	p<.001
Resistance Scale	.85	p<.001
Stress Coping Abilities	.95	p<.001

Discriminant validity results are presented in Table 2. Group 1 (no violent crime conviction) consisted of 2,469 participants and Group 2 (violent crime offenders) consisted of 715 participants. In the comparisons of SAQ scale scores, Group 2 respondents scored significantly higher than Group 1 respondents on the Alcohol, Drugs, Aggressiveness and Stress Coping Abilities Scales. Higher scores on these SAQ scales are associated with more severe problems. The Resistance Scale showed that there was no significant difference between the two groups. Both groups were equally cooperative concerning help from staff. The Truthfulness Scale indicated that Group 1 scored significantly higher than Group 2. This means that, on average, the participants who had no violent crime conviction minimized their problems more than did the violent crime offenders. The offender group participants may be aware of the availability of their records and to fake good serves no useful purpose.

Table 2. Comparisons between Group 1 (no conviction) and Group 2 (convicted of a violent crime).

SAQ Scale	Group 1			Group 2			T-value
	Mean	SD	Max	Mean	SD	Max	
Truthfulness Scale	9.90	5.43	21	8.68	5.14	21	t = 5.52*
Alcohol Scale	13.95	10.20	48	18.01	11.54	46	t = 8.50*
Drugs Scale *	12.04	8.01	44	13.31	8.94	38	t = 3.43*
Aggressiveness Scale	7.43	3.87	30	10.80	4.53	24	t = 18.03*
Resistance Scale	12.32	6.04	38	11.90	6.19	31	t = 1.64**
Stress Coping Abilities	120.37	44.83	232	106.07	42.06	235	t = 7.89*

* Significant at the $p < .001$ level. ** not significant.

Note: The Stress Coping Abilities Scale is reversed in that the higher the score the better one copes with stress.

As expected, violent crime offenders scored significantly higher on the Alcohol, Drugs

and Aggressiveness Scales than did participants who had no violent crime conviction. The Alcohol, Drugs and Aggressiveness Scales results support the discriminant validity of the SAQ Alcohol, Drugs and Aggressiveness Scales. The participants who were believed to have more severe problems (violent crime offenders) scored significantly higher on these scales than participants who had no violent crime conviction. These results demonstrate that violent crime offenders have many problems that contribute to their violent tendencies. The Stress Coping Abilities Scale results show that offenders also have more emotional and mental health problems than clients who do not have histories of violent crime.

Predictive validity results for the correct identification of problems (drinking, drug abuse and aggressiveness) are presented in Table 3. Table 3 shows the percentage of respondents who admitted to having problems. They also scored in the problem risk range on the Alcohol, Drugs and Aggressiveness scales. “Problem behavior” meant the respondent admitted to having a drinking, drug or aggressiveness problem. The other SAQ scales are not included in this analysis because of a lack of criterion items.

For the Alcohol Scale comparisons between problem risk and low risk participants, there were 619 respondents who admitted to drinking problems. These respondents were considered problem drinkers. Indeed, 592 of these 619 participants, or 95.6 percent, had Alcohol Scale scores at or above the 70th percentile. The Alcohol Scale correctly identified nearly all (95.6%) of the respondents classified as problem drinkers. These results support the validity of the Alcohol Scale.

Table 3. Predictive Validity of the SAQ

<u>SAQ Scale</u>	<u>Correct Identification of Problem Behavior</u>
Alcohol	95.6%
Drugs	96.5%
Aggressiveness	96.0%

The Drugs Scale accurately identified respondents having drug problems. There were 347 respondents who admitted to drug problems. Of these 347 respondents, 335 individuals, or 96.5 percent, had Drugs Scale scores at or above the 70th percentile. These results support the validity of the Drugs Scale.

The Aggressiveness Scale accurately identified respondents having aggressiveness problems. Of the 248 respondents who admitted to aggressiveness problems, 238 individuals, or 96.0 percent, had Aggressiveness Scale scores at or above the 70th percentile. These results support the validity of the Aggressiveness Scale.

For ease in interpreting risk, SAQ scale scores were divided into four risk ranges: low risk (zero to 39th percentile), medium risk (40 to 69th percentile), problem risk (70 to 89th percentile), and severe problem risk (90 to 100th percentile). By definition the expected percentages of applicants scoring in each risk range (for each scale) is: low risk (39%), medium risk (30%), problem risk (20%), and severe problem risk (11%). Scores at or above the 70th percentile would identify respondents as having problems.

The above predictive validity results lend support for using these particular percentages. The 70th percentile cut off for problem identification correctly classified 95 percent or more of problem respondents. The low risk level of 39 percent avoids putting a large percentage of respondents into a “moderate” range.

Risk range percentile scores were derived by adding points for test items and then converting them to percentages. These results are presented in Table 4. Risk range percentile scores represent “degree of severity.” Analysis of the SAQ risk range percentile scores involved comparing the respondent’s obtained risk range percentile scores to predicted risk range percentages as defined above. These percentages are shown in parentheses in the top row of Table 4. The actual percentage of respondents scoring in each of the four risk ranges was compared to these predicted percentages. The differences between predicted and obtained are shown in parentheses.

As shown in Table 4, the objectively obtained percentages of participants falling in each risk range were very close to the expected percentages for each risk category. All of the obtained risk range percentages were within 1.5 percentage points of the expected percentages and many (21 of 24 possible) were within one percentage point. Only three obtained percentages were more than one percent from the expected percentages. These results demonstrate that risk range percentile scores are very accurate.

Table 4. Accuracy of SAQ Risk Range Percentile Scores

Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	38.9	(0.1)	30.2	(0.2)	20.8	(0.8)	10.1	(0.9)
Alcohol Scale	38.5	(0.5)	30.2	(0.2)	21.2	(1.2)	10.1	(0.9)
Drugs Scale	38.9	(0.1)	30.0	(0.0)	20.4	(0.4)	10.7	(0.3)
Aggressiveness Scale	37.3	(1.3)	31.5	(1.5)	20.6	(0.6)	10.6	(0.4)
Resistance Scale	38.2	(0.8)	30.7	(0.7)	20.7	(0.7)	10.4	(0.6)
Stress Coping Abilities	38.7	(0.3)	30.1	(0.1)	20.2	(0.2)	11.0	(0.0)

Conclusions

This study demonstrated that the SAQ is a reliable and valid adult counseling client assessment instrument or test. Reliability results showed that all six SAQ scales are highly reliable. Reliability is necessary for accurate measurement of risk. This study supports the reliability, validity and accuracy of the SAQ.

Discriminant validity analyses demonstrated that violent crime offenders (had been convicted of a violent crime) scored significantly higher than did participants who had no conviction. Predictive validity analyses demonstrated that the SAQ identified participants having substance abuse problems. The Alcohol and Drugs Scales correctly identified participant who admitted having drinking or drug problems. The Aggressiveness Scale identified nearly all

participants who admitted aggressiveness problems. Furthermore, obtained risk range percentages on all SAQ scales very closely approximated predicted percentages. These results further support the validity of the SAQ.

The SAQ provides objective assessment for adult counseling client risk of substance (alcohol and other drugs) abuse, aggressiveness, cooperation and emotional or mental health problems. The SAQ can be used to make decisions regarding intervention or treatment based upon assessment results. Low scale scores are associated with low levels of intervention and treatment, whereas high scale scores relate to more intense intervention/treatment recommendations. Placing counseling clients in appropriate levels of treatment can enhance the clients' experience and increase the likelihood they will complete treatment, benefit from program participation and change their substance abuse and/or aggressive behavior. The SAQ provides a wealth of information toward expediting evaluation and placement both of which result in cost savings for mental health organizations.