



### ***Estimates of the Reliability and Criterion Validity of the Adult SASSI-4***

This summary provides information on the reliability and validity of the *Substance Abuse Subtle Screening Inventory-4* (SASSI-4). The SASSI-4 is a psychological questionnaire designed to screen individuals for substance use disorders (SUD). This instrument is used by many diverse types of organizations including substance use treatment centers, criminal justice programs, behavioral health centers, other health care organizations, social service programs, and private practitioners. The research conducted to develop and evaluate the effectiveness of the SASSI-4 is reported in an article published in the *European Journal of Psychological Assessment* (Lazowski and Geary, 2016). The primary findings of this research are as follows:

- 1) Test-retest stability coefficients for the SASSI-4 scale scores ranged from .78 to .99, and findings indicated overall internal consistency (coefficient omega) of .97.
- 2) The overall accuracy of the SASSI-4 in distinguishing respondents with mild, moderate, or severe substance use disorders from those diagnosed as not having a substance use disorder was 92%.
- 3) The accuracy of SASSI-4 screening results was found not to differ significantly across six diverse types of assessment settings. Overall accuracy in these settings ranged from 91% to 95%.
- 4) Logistic regression was used to evaluate whether SASSI-4 accuracy was affected by client gender or demographic variables. The accuracy of SASSI-4 screening results was found not to be significantly affected by respondents' gender, ethnic group, age, educational level, marital status, or employment status.

Lazowski and Geary (2016) described research on the development and validation of the SASSI-4 with a sample of 1,245 participants from all nine US Census Bureau regions and two Canadian provinces. Clinical assessment professionals administered a research version of the SASSI-4 to clients via the SASSIOnline.com web application and provided an independent DSM-5 diagnosis regarding the presence or absence of a substance use disorder (SUD) as well as diagnoses of other psychological disorders (e.g., depression, anxiety, ADHD, bipolar disorder, PTSD). Client history data including prior alcohol or drug treatments, arrest history, and blood alcohol levels were also provided. The criterion measure used to develop and evaluate the accuracy of the SASSI-4 was a DSM-5-based (APA, 2013) diagnosis concerning the lifetime or past year presence or absence of a substance use disorder. The study sample was divided randomly into two subsamples, with the provision that each contain an equal number and proportion of cases diagnosed with and without a substance use disorder. One of the subsamples (the development sample) was used to develop the SASSI-4 scoring rules; the other (the validation sample) was reserved to validate their accuracy.

### ***Reliability***

Eight to sixty-day ( $M = 22.8$  days,  $SD = 12.3$ ) test-retest stability coefficients for SASSI-4 scale scores obtained with a sample of 40 respondents ranged from .78 to .99, and the internal consistency coefficient (i.e., “coefficient omega”) for the SASSI-4 inventory (based on the larger sample;  $n = 1,245$ ) was found to be .97.

### ***Accuracy of SASSI-4 Screening Outcomes for Substance Use Disorder***

The results of the SASSI-4 were compared to the diagnoses obtained from clinicians. Table 1 displays the results obtained with the overall sample. The levels of accuracy obtained were 93% for the development sample, and 92% for the validation sample, for an overall accuracy of 92%. The sensitivity of SASSI-4 screening outcomes (i.e., the percentage of respondents diagnosed as having a substance use disorder who screened test positive on the SASSI-4) was 94% in the development sample and 93% in the validation sample, for an overall sensitivity of 93%. Specificity of screening outcomes (i.e., the percentage of respondents diagnosed as not having an SUD, who screened test negative on the questionnaire) was 88% in the development sample and 90% in the validation sample, for an overall specificity of 89%.

### ***Estimates of SASSI-4 Screening Accuracy across Types of Assessment Settings***

Evaluations of the accuracy of SASSI-4 screening outcomes was conducted on client data from six primary types of assessment settings. Forty-six percent of the validation study respondents were from substance use treatment programs, 18% from criminal justice programs, 16% from private practices, 9% from behavioral health centers, 6% from DWI and DOT screening and education, and 5% from government and community social service programs. Overall levels of accuracy (i.e., accuracy in identifying those diagnosed with and without a substance use disorder) were 92%, 95%, 94%, 94%, 91%, and 92% respectively, and did not differ significantly across these six diverse types of settings.

### ***SASSI-4 Screening Accuracy with Criminal Offenders***

Many clients served in behavioral health and substance use treatment programs have histories of involvement with the criminal justice system in addition to mental health and substance use disorders. Samples in the SASSI-4 validation study included assessments in community corrections, probation and parole, and drug courts as well as cases from DWI and DOT education and screening programs. SASSI-4 overall screening accuracy in criminal justice settings was 95%; in DWI and DOT education programs SUD screening accuracy was 91%, and these accuracy levels were found not to differ significantly from the overall accuracy rate for all settings (92%). In addition, many cases included routine information on clients' number and types of arrests and blood alcohol levels. Analyses revealed that SASSI-4 screening accuracy was 92% for clients with a history of criminal offenses, and 90% for clients who had no such histories.

### ***The Influence of Demographic Factors on Accuracy***

The influence of demographic factors on the accuracy of the SASSI-4 was also explored. Using logistic regression analysis, it was found that the accuracy of the SASSI-4 was not significantly affected by gender, racial or ethnic group membership, employment status, marital status, age, and educational level. Overall screening accuracy for males and females was 92% and 93% respectively. Accuracy rates ranged by racial or ethnic group from 88% to 100%, by employment status from 87% to 93%, by marital status from 90% to 100%, by age group from 87% to 96%, and by educational level from 91% to 96%.

### ***The Influence of Other Psychological Disorders on SASSI-4 Screening Accuracy***

Screening instruments for substance use disorders are often used in human service settings in which individuals may have psychological disorders in addition to, or other than, those associated with the abuse of substances. Therefore, the effects of other psychiatric conditions on SASSI-4 screening accuracy was examined with a subsample of 380 respondents who were diagnosed with a psychiatric disorder in addition to SUD (dual diagnosis clients) or with only a psychiatric disorder other than SUD. Findings indicated 98% SASSI-4 sensitivity in detecting the presence of SUD in dual diagnosis clients and 93% specificity in producing test negative SASSI-4 screening outcomes for individuals diagnosed with non-SUD conditions only. These findings speak to the construct validity of the SASSI-4 by indicating that its screening outcomes accurately identify the presence and absence of SUD, even when other psychological symptoms are present.

### ***Identifying Likely Prescription Drug Abuse***

The SASSI-4 includes a brief new scale, Rx, to assist practitioners in identifying individuals who are likely abusing prescription drugs, in addition to the overall SUD screening result. Validation findings indicated 97% positive predictive value in Rx screening outcomes, and 93% negative predictive value in producing test negative prescription drug abuse screening results, with an overall Rx screening accuracy rate of 94%. These findings indicate that the SASSI-4 prescription drug screening outcome is accurate in identifying individuals in need of specific evaluation and treatment planning related to the abuse of prescription medications.

### ***Conclusion***

These results provide evidence that the SASSI-4 is a reliable and valid measurement tool and support its use as a clinical screening instrument for SUD. The SASSI-4 demonstrates high reliability using both test-retest and internal consistency methodologies and was found to correspond closely with clinical diagnoses. Although the accuracy of screening outcomes may be affected when applied to new samples, SASSI-4 screening outcomes were found to be highly accurate in six diverse types of assessment settings, and with criminal offenders, and the influence of a number of client demographic characteristics on the accuracy of the SASSI-4 was found to be negligible.

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### ***References***

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5<sup>th</sup> ed.). Washington, DC: Author.
- Lazowski, L. E. & Geary, B. B. (2016). Validation of the Adult Substance Abuse Subtle Screening Inventory-4 (SASSI-4). *European Journal of Psychological Assessment*. Advance online publication. doi: <http://dx.doi.org/10.1027/1015-5759/a000359>
- Lazowski, L.E. and Kimmell, K. S., & Baker, S.L. (2016). *The Adult SASSI-4 User Guide & Manual*. Springfield, IN: The SASSI Institute.

Table 1

*Correspondence between SASSI-4 screening outcomes and DSM-5 SUD diagnoses*

Diagnosis	SASSI-4 Screening Outcome		Total
	High Probability of SUD	Low Probability of SUD	
<b>Substance use disorder</b>	883	62	945
<b>No substance use disorder</b>	33	267	300
Total	916	329	1245

*Note.*

$$\text{Overall Accuracy} = \frac{883+267}{1245} = 92\%$$

$$\text{Sensitivity} = \frac{883}{945} = 93\%$$

$$\text{Specificity} = \frac{267}{300} = 89\%$$

$$\text{Positive Predictive Value} = \frac{883}{916} = 96\%$$

$$\text{Negative Predictive Value} = \frac{267}{329} = 81\%$$

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