

Gambler Addiction Index: Gambler Assessment

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Abstract

The Gambler Addiction Index (GAI) is an adult gambler assessment test that accurately measures gambler risk of gambling addiction, suicide, substance (alcohol and drugs) abuse, emotional and mental health problems. There were 190 adult gamblers included in this study. Reliability analyses showed that all seven GAI scales had very high reliability coefficient alphas of between .89 and .98. GAI scales were validated in several tests of validity. Discriminant validity was shown by significant differences on GAI Alcohol and Drugs scales between first and multiple offenders. The Gambler Scale correctly identified 100% of clients who admitted they were problem gamblers. The Alcohol and Drugs Scales correctly identified 100% of the respondents who had alcohol and drug problems. The Suicide Scale correctly identified all of the clients who admitted suicide ideation and the Attitude Scale identified all clients who admitted attitude and resistance problems. GAI classification of gambler risk was shown to be very accurate. All GAI scale scores were within 1.6% of predicted risk range percentile scores. This study demonstrated that the GAI is a reliable, valid and accurate adult gambler assessment test.

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Introduction

With the advent and subsequent increase in casinos on Indian Reservations in this country, gambling addiction has become a social issue and concern. Many states require provisions for programs to aid gambler addiction in gambling pacts with Native American tribes who run casinos. An important step in dealing with increased gambling addiction is screening and assessment of adult gamblers to assess severity of addiction. Gamblers can be screened for problems and directed to appropriate agencies for help, treatment and rehabilitation. The Gambler Addiction Index is an adult gambler assessment or screening test. Screening gamblers to identify problems facilitates placement of clients into appropriate supervision levels, intervention programs and treatment. Accurate and reliable gambler risk and needs assessment is essential for placement of gamblers in programs to help them find the right path to recovery.

The Gambler Addiction Index (GAI) is a multidimensional test that was developed to meet the needs of adult gambler screening and assessment. GAI scales measure problem gambling tendencies (Gambler Scale), alcohol and drug abuse severity (Alcohol & Drugs Scales), suicide potential (Suicide Scale), resistance attitudes (Attitude Scale) and emotional or mental health problems (Stress Coping Abilities Scale). In addition, the Truthfulness Scale measures respondent truthfulness while completing the test. Clients who deny or minimize their problems are detected by the Truthfulness Scale. Truthfulness Scale scores are used to truth-correct other scale scores. The present study investigated the reliability, validity and accuracy of the Gambler Addiction Index.

Resistance, emotional, mental health and stress coping abilities are personality factors that are relevant to gambler risk. These factors are measured by the GAI. Personality, attitude and behavioral factors, often referred to as “dynamic variables,” are capable of change and are amenable to intervention and treatment. Positively changing clients’ personality, attitudes and behavior can lead to behavioral change. Identification of problem prone clients is the first step in directing gamblers to appropriate programs aimed at helping them to positively change their behavior.

For ease in interpreting gambler risk, the GAI scoring methodology classifies respondent scale scores into one of 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 respondents scoring in each risk range (for each scale) is: low risk (39%), medium risk (30%), problem risk (20%), and severe problem risk (11%). Clients who score at or above the 70th percentile are identified as having problems. Clients scale scores at or above the 90th percentile identify severe problems. The accuracy of the GAI in terms of risk range percentages was examined in this study.

This study validates the GAI in a sample of adult gamblers who were tested at court referral programs. Two methods for validating the GAI were used in this study. The first method (discriminant validity) compared first and multiple offenders’ scale scores. Multiple offenders were offenders with two or more arrests and first offenders had one or no arrest. It was hypothesized that statistically significant differences between multiple and first offenders would exist and GAI scales would differentiate between first and multiple offenders. Multiple offenders would be expected to score higher on GAI scales because having a second arrest is indicative of serious problems.

The second validation method (predictive validity) examined the accuracy at which the GAI identified “problem gamblers,” i.e., clients with gambling addiction problems, suicide prone clients, inappropriately resistant and uncooperative clients, problem drinkers and problem drug abusers.

Tests that measure severity of problems should be able to predict if clients have problems by the magnitude (severity) of their scores. Accurate tests differentiate between problem and non-problem clients. An inaccurate test, for example, may too often call non-problem drinkers problem drinkers or vice versa. Responses to test items obtained from the clients' served as criterion measures.

Having been in alcohol treatment identifies clients as having an alcohol problem. It is acknowledged that there are some clients who have an alcohol problem but have not been in treatment. Nevertheless, clients who have been in alcohol treatment would be expected to score in the Alcohol Scale's problem range. Similarly, having been in drug treatment identifies clients who have drug problems. In regards to gambling addiction, suicide and resistance, clients direct admissions of problems were used as the criteria.

For the predictive validity analyses clients were separated into two groups, those who had treatment or admitted problems (problem group) and those who did not have treatment or did not admit to problems (no problem group). Then, client scores on the relevant GAI scales were compared. It was predicted that problem group clients would score in the problem risk range (70th percentile and above) on the relevant GAI scales. Non-problem was defined in terms of low risk scores (39th percentile and below). The percentage of problem group clients who scored in the 70th percentile range and above is a measure of how accurate GAI scales are. High percentages (above 90%) of problem group clients who had problem risk scores would indicate the scales are accurate. Because criterion measures were gotten from the GAI database, a lack of suitable criterion measures prevented carrying out predictive validity analyses on the other two GAI scales. The test items used in these analyses were, "I have been attended Alcoholics Anonymous (AA) or Rational Recovery (RR) meetings because of my drinking." "I have been in a chemical dependency program for my drug problem." "I go to Gamblers Anonymous (GA) meetings because of my gambling." "I am resentful of authority and resistant to people in general." and "To be honest, I am suicidal."

Method

Subjects

There were 190 adult gamblers tested with the GAI. There were 142 males (74.7%) and 48 females (25.3%). The ages of the participants ranged from 19 through 40 as follows: 20 & under (12.8%); 21-30 (41.4%); 31-40 (27.6%); 41-50 (12.2%); 51-60 (4.3%) and 60 & over (1.6%). The demographic composition of participants was as follows. Race/Ethnicity: Caucasian (80.9%); Black (6.9%), Hispanic (2.1%), Native American (8.5%) and Other (1.6%). Education: Eighth grade or less (1.6%); Some high school (14.8%); High school graduate/GED (43.8%); Some college (25.8%) and College graduate (3.8%). Marital Status: Single (51.6%); Married (21.8%); Divorced (20.2%) and Separated (6.4%).

Over 79 percent of the participants were arrested two or more times. Over 43 percent of the clients had five or more arrests. Two-thirds (66.3%) of the clients had been placed on probation one or more times. One-thirds (34.7%) of the participants had two or more alcohol arrests and 20.9 percent had two or more drug arrests.

Procedure

Participants completed the GAI as part of gambler screening and assessment in court referral settings. The GAI contains seven measures or scales. These scales are briefly described as follows. The Truthfulness Scale measures the truthfulness, denial and problem minimization of the respondent while taking the GAI. The Gambler Scale measures gambler interest and involvement in gambling. This scale extends from normal to pathological. The Alcohol Scale measures severity of alcohol use or abuse. The

Drugs Scale measures severity of drug use or abuse. The Attitude Scale measures the gambler’s outlook (cooperative versus resistant) toward help and assistance. The Suicide Scale identifies suicide prone gamblers and measures the severity of their distress. The Stress Coping Abilities Scale measures ability to cope with stress. A score at the 90th percentile or higher on this scale identifies established emotional and mental health problems.

Results and Discussion

The inter-item reliability coefficient alphas for the seven GAI scales are presented in Table 1. All scales were highly reliable. Reliability coefficient alphas for all GAI scales were at or above 0.90. These results demonstrate that the GAI is a very reliable adult gambler assessment test.

Table 1. Reliability of the GAI (N=190)

<u>GAI SCALES</u>	<u>Coefficient Alphas</u>	<u>Significance Level</u>
Truthfulness Scale	.90	p<.001
Gambler Scale	.97	p<.001
Suicide Scale	.91	p<.001
Alcohol Scale	.95	p<.001
Drugs Scale	.94	p<.001
Attitude Scale	.90	p<.001
Stress Coping Abilities	.98	p<.001

Discriminant validity results are presented in Table 2. In these analyses the answer sheet items “Number of alcohol arrests” and “Number of drug arrests” were used to define first offenders (one or no arrest) and multiple offenders (2 or more arrests). T-test comparisons were used to study the statistical significance between the offender groups. “Number of alcohol arrests” was used for the Alcohol Scale, which had 125 first offenders and 65 multiple offenders (2 or more arrests). “Number of drug arrests” was used for the Drugs Scale, which had 151 first offenders and 39 multiple offenders (2 or more arrests).

Table 2. Comparisons between first offenders and multiple offenders (N=190).

<u>GAI Scale</u>	<u>First Offenders Mean</u>	<u>Multiple Offenders Mean</u>	<u>T-value</u>	<u>Level of significance</u>
Alcohol Scale	6.97	26.38	t = 25.40	p<.001
Drugs Scale	10.44	24.78	t = 17.48	p<.001

Table 2 shows that mean (average) scale scores of first offenders were significantly lower than scores for multiple offenders on GAI Alcohol Drugs Scales. As expected, multiple offenders scored significantly higher than did first offenders. GAI substance abuse severity measurement scales differentiated between first offenders and multiple offenders. These results support the validity of the GAI Alcohol and Drugs Scales. The other GAI scales did not have relevant criterion measures to define offender groups and were not included in this analysis.

Correlation coefficients between respondents’ criminal history and related GAI scales are presented in Table 3. Statistically significant correlation coefficients between GAI Alcohol and Drugs scales and alcohol and drug arrests also validate GAI scales. GAI scales that measure alcohol

and drug problems were expected to be correlated with alcohol and drug arrests. Participants' criminal histories were obtained from GAI answer sheets that were completed by the participants.

Table 3. Relationships between Criminal History Variables and Related GAI Scales

	Alcohol Scale	Drugs Scale
Total number of arrests	.21*	.33**
Times on probation	.35**	.33**
Alcohol arrests	.63**	.10
Drug arrests	.12	.58**

Note: Significance level * p<.01, ** p<.001.

Total number of arrests and number of times on probation are significantly correlated with the Alcohol and Drugs scales. The Alcohol Scale is significantly correlated with alcohol-related arrests. The Drugs Scale is significantly correlated with drug-related arrests. These results are in agreement with the discriminant validity results reported above. Significant correlations with alcohol and drug arrests support the validity of the Alcohol and Drugs Scales, respectively. The correlations with alcohol and drug arrests suggest that gamblers use either alcohol or drugs by not both. The magnitude of the correlation coefficients are moderate and suggest that criminal history variables alone do not predict gambler problems. GAI scales, that measure problem-prone behaviors, are needed for accurate prediction of gambler problems.

Predictive validity results for the correct identification of problem behavior (gambling addiction, suicide tendencies, drinking and drug abuse problems) are presented in Table 4. Table 4 shows the percentages of respondents who had or admitted to having problems and who scored in the problem risk range. For the Alcohol and Drugs Scales criteria, problem behavior means the client had alcohol or drug treatment. For the Gambler, Suicide and Attitude Scales the client attended Gamblers Anonymous, admitted suicide ideation and admitted resistance problems, respectively. In these analyses scale scores in the Low risk range (zero to 39th percentile) represent “no problem,” whereas, scores in the Problem and Severe Problem risk ranges (70th percentile and higher) represent gambling, suicide, resistance, alcohol and drug problems.

The Alcohol Scale is very accurate in identifying respondents who have alcohol problems. There were 49 clients who had attended Alcoholics Anonymous and these clients were classified as problem drinkers. All 49 clients, or 100 percent, had Alcohol Scale scores at or above the 70th percentile. The Alcohol Scale correctly identified all of the clients categorized as problem drinkers. This result validates the Alcohol Scale. It is likely that some clients have alcohol problems but have not attended Alcoholics Anonymous. For these individuals scoring at or above the 70th percentile on the Alcohol Scale alcohol treatment is recommended.

The Drugs Scale was also very accurate in identifying respondents who have drug problems. There were 32 clients who had been in drug treatment, all 32 clients, or 100 percent, had Drugs Scale scores at or above the 70th percentile. This result strongly substantiates the accuracy of the Drugs Scale.

Table 4. Predictive Validity of the GAI

<u>GAI Scale</u>	<u>Correct Identification of Problem Behavior</u>
Alcohol	100%
Drugs	100%
Gambler	100%
Suicide	100%
Attitude	100%

The Gambler Scale accurately identified clients (100%) who admitted gambling problems. Clients who attended Gamblers Anonymous scored in the problem range. The direct admission of a gambling problem validates the Gambler Scale. The Suicide Scale identified all 8 client (100%) who admitted being suicidal. The Attitude Scale identified all (10 individuals or 100%) of the clients who admitted they were resistant to authority and staff help. The Alcohol and Drugs Scale accurately identified clients who had alcohol and drug problems. These results strongly support the validity of the GAI Gambler, Suicide, Attitude, Alcohol and Drugs Scales. The other two GAI scales were not included in these analyses because of a lack of direct admission or other criterion measure within the GAI database.

GAI risk range percentile accuracy is presented in Table 5. Risk range percentile scores are derived from scoring equations based on clients' pattern of responding to scale items and criminal history, when applicable. There are four risk range categories: Low Risk (zero to 39th percentile), Medium Risk (40 to 69th percentile), Problem Risk (70 to 89th percentile) and Severe Problem or Maximum Risk (90 to 100th percentile). Risk range percentile scores represent degree of severity. The higher the percentile score is the higher the severity of the respondent's problems.

Analysis of the accuracy of GAI risk range percentile scores involved comparing the client's obtained risk range percentile scores to predicted risk range percentages as defined above. The percentages of clients expected to fall into each risk range are: Low Risk (39%), Medium Risk (30%), Problem Risk (20%) and Severe Problem or Maximum Risk (11%). These percentages are shown in parentheses in the top row of Table 5. The actual percentage of clients falling in each of the four risk ranges, based on their risk range percentile scores, was compared to these predicted percentages. The differences between predicted and obtained are shown in parentheses.

Table 5. Accuracy of GAI Risk Range Percentile Scores

Scale	Low Risk (39% Predicted)	Medium Risk (30% Predicted)	Problem Risk (20% Predicted)	Severe Problem (11% Predicted)
Truthfulness	39.5 (0.5)	30.5 (0.5)	19.7 (0.3)	10.3 (0.7)
Gambler	38.5 (0.5)	32.0 (2.0)	19.0 (1.0)	10.5 (0.5)
Alcohol	37.2 (1.8)	31.7 (1.7)	19.5 (0.5)	11.6 (0.6)
Drugs	38.9 (0.1)	30.0 (0.0)	19.5 (0.5)	11.6 (0.6)
Attitude	37.4 (1.6)	31.0 (1.0)	20.5 (0.5)	11.1 (0.1)
Suicide	38.7 (0.3)	32.3 (2.3)	18.2 (1.8)	10.8 (0.2)
Stress Coping	38.9 (0.1)	30.0 (0.0)	20.0 (0.0)	11.1 (0.1)

As shown in Table 5, GAI scale scores are very accurate. The objectively obtained percentages of participants falling in each risk range are very close to the expected percentages for

each risk category. All of the obtained risk range percentages were within 2.3 percentage points of the expected percentages and most (22 of the 28) were within 1.0 percentage points. These results demonstrate that the GAI scale scores accurately classify gambler risk.

Conclusion

This study demonstrates that accurate gambler assessment is achieved with the Gambler Addiction Index (GAI). Results corroborate and support the GAI as an accurate assessment or screening test for adult gamblers. The GAI accurately measures gambler risk of gambling addiction, suicide, substance (alcohol and drugs) abuse, resistance behavior, emotional and mental health problems. In short, the GAI provides a wealth of information concerning gamblers' adjustment and problems that contributes to understanding the gamblers.

Reliability results demonstrated that all seven GAI scales are highly reliable. Reliability is necessary in gambler assessment or screening tests for accurate measurement of gambler risk. Tests cannot be valid or accurate without being reliable. Validity analyses confirm that the GAI measures what it purports to measure, that is, gambler risk. Results demonstrate that repeat offenders exhibit more problem-prone behavior than first offenders. Multiple offenders (having 2 or more arrests) scored significantly higher than first offenders (discriminant validity). The GAI accurately identified gamblers who have problems. And, obtained risk range percentages on all GAI scales very closely approximated predicted percentages. These results strongly support the validity of the GAI.

GAI results provide important risk/needs assessment for courts to make informed decisions regarding gambler sentencing options. Problem-prone individuals exhibit many characteristics that are identified with the GAI. Relationships between gamblers' criminal history variables and GAI scale scores demonstrate that the GAI measures relevant behaviors that identify gamblers as problem-prone. Identification of these problems and prompt intervention can reduce a gambler's risk of gambling addiction. The GAI facilitates understanding of gambling addiction, suicide tendencies, substance abuse, resistant behavior, and emotional and mental health problems. GAI results also provide an empirical basis for recommending appropriate supervision level, intervention and treatment programs.

Many of the exacerbating conditions that act as problem-prone triggering mechanisms are also identified by the GAI. The Alcohol and Drugs Scales measure substance abuse problems. The Stress Coping Abilities scales measure emotional and mental health problems. The GAI is an important tool for decision making regarding gambler supervision level, rehabilitation, and treatment. Courts can direct gamblers to appropriate programs to affect behavioral change. Positively changing gambler behavior can lead to recovery from gambling addiction.