

Validity of the Addiction Severity Index (Adapted Version) in a Costa Rican Population Group

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Until recently, no adapted and validated instrument was available for assessing the alcohol and drug problems of individuals in Costa Rica. This article reports the results of a study performed by Costa Rica's Institute on Alcoholism and Drug Dependence in order to test an adapted version of one such instrument, the Addiction Severity Index (ASI), in a Costa Rican setting.

The instrument was used to interview 100 male subjects 18 to 64 years old (51 with diagnosed alcohol or drug problems and 49 controls). In general, the subjects with previously diagnosed alcohol or drug problems were assigned substantially higher scores. More specifically, statistical analysis indicated highly significant correlations ($p < 0.001$) between the type of subject (test subject or control) and the likelihood that noteworthy problems would be found in the areas of alcohol use, family/social relations, work/finances, and psychological status. Overall, the study demonstrated that the instrument was capable of distinguishing between the affected and unaffected populations, and also of gauging the severity of the problems involved and the patients' treatment needs.

Although many statistical tests and scales exist that are applicable to populations with alcohol and drug dependency problems, no adapted and valid instruments of this sort have been available in Costa Rica. For this reason, the Institute on Alcoholism and Drug Dependence (IAFA) in San José, an organization dedicated to preventing, treating, and investigating problems of this nature, decided to adapt an objective instrument for diagnosing and evaluating addiction to the Costa Rican setting.

The instrument selected was the Addiction Severity Index (ASI)—a tool designed to diagnose and gauge the severity of addicts' problems, the most affected areas of their lives, and their consequent treatment priorities by assessing

their answers to a brief list of objective and subjective interview questions (1). This index constitutes the first step in the treatment process and is also used to evaluate the patient's evolution and response to treatment. It covers seven potentially important areas of evaluation, these being the patient's health status, work/financial situation, family/social relations situation, legal situation, alcohol use, drug use, and psychological status.

The index has been found to yield reliable and valid results when applied by several trained interviewers, the degree of agreement between the interviewers being 0.89 (1). Also, studies conducted by the instrument's designers and others have found it to yield valid results when applied to a variety of populations. Specifically, these studies have confirmed that the ASI is highly sensitive in detecting the evaluation areas affected and the existence of a need for treatment (2).

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The aim of the investigation reported here was to assess the instrument's effectiveness when applied to a group of Costa Rican subjects—in terms of both sensitivity (detection of subjects with problems) and specificity (proper classification of subjects without problems)—in order to ascertain its usefulness as a diagnostic tool for facilitating treatment and follow-up of subjects with alcohol or drug dependence problems in Costa Rica.

MATERIALS AND METHODS

One hundred male subjects 18 to 64 years old were interviewed. These included 51 patients using the IAFA's clinical services² for the first time who had been diagnosed as alcoholics or drug addicts by one of the clinic's specialized staff members (a physician, psychologist, or social worker). At the time of the interview, none of these patients had been in treatment more than 14 days.

The other 49 subjects served as controls. None of the control group's members had been identified as alcoholics or drug addicts in their environments; none had a history of alcohol or drug addiction or abuse; and none indicated that they had become intoxicated or had consumed drugs within the three months preceding their selection. These control subjects were chosen from among the employees at two establishments in San José—the National Production Council (Consejo Nacional de Producción, a public institution) and the Gerber Products Company (Compañía Productos Gerber, a private

company)—by health workers at those establishments. The absence of substance dependence among these subjects was affirmed first by their responses to questions when selected and again by their responses at the time of the interview.

Before the ASI was applied, a principal interdisciplinary team was assigned the task of translating and adapting it to Costa Rica. The team also made a pilot application of the resulting instrument to a group of 50 patients. In preparing this version of the ASI, the team employed a previous adaptation made by the Drug Dependency Service of the Mental Hospital of Antioquia, Colombia, as a basic study document (3). The team also trained a group of clinical personnel—including physicians, psychiatrists, psychologists, social workers, and technicians—to apply the completed instrument.

Like the regular ASI, application of this adapted instrument produced a series of whole number scores on a scale of 0 to 9. That is, on the basis of each subject's answers to the objective and subjective questions, the interviewer assigned an overall index of severity to the subject's problems in each of the areas evaluated. The meaning of these index scores was as follows: scores of 0 and 1—no problem found and no treatment indicated; scores of 2 and 3—a problem was found but was deemed insignificant, probably requiring no treatment; scores of 4 and 5—the problem was considered moderate and some treatment desirable; scores of 6 and 7—the problem was major and treatment necessary; and scores of 8 and 9—the problem was severe and treatment absolutely indispensable. After one of these two-point ranges was selected by the interviewer, the upper score was assigned if the patient considered the problem and treatment of it important, while the lower was assigned if the patient considered these matters relatively unimportant.

²The IAFA's clinical services include a center for outpatient consultation at the San Pedro Institute, two detoxification units (one for men and one for women) at the Dr. Rafael A. Calderón Guardia Hospital, and another detoxification unit at the Rehabilitation Center for Alcoholics and Addicts. All of these facilities are located in San José.

In addition, the interviewer used the subject's answers to the subjective questions to assign him scores of 0 to 4 in each area of evaluation—these latter scores indicating the subject's degree of concern about the particular area involved and the need for treatment.

The information obtained was coded and analyzed by computer, using the Statistical Package for the Social Sciences (SPSS-PC). The χ^2 test was applied, together with the Yates correction, in order to compare the proportions involved.

RESULTS

For purposes of analysis, the assigned index scores were divided into two categories. The first category, consisting of scores from 0 through 3, included non-existent and insignificant problems. The second category, consisting of scores from 4 through 9, encompassed moderate to severe problems.

Each of the evaluated areas was analyzed, and basic data derived from each analysis were included in a table (see Tables 1-7).

Regarding the subjects' health status, 14 (27.5%) of the 51 alcoholics and drug addicts were found to have moderate to severe problems, as compared to only 8% of the controls (Table 1). However, the ASI detected no significant health problems among the remaining 37 test subjects, indicating that its sensitivity in this regard—its ability to detect alcoholics and drug addicts through their health problems—was relatively poor.

In the work/finance area, 55% of the alcoholics and drug addicts appeared to have moderate to severe problems, as compared to only 6.1% of the controls (Table 2). The index thus appeared relatively more sensitive in this area, and by screening out 93.9% of the controls it also appeared quite specific.

Regarding alcohol and drug abuse (Tables 3 and 4), the interviewers found that 50 of the 51 alcoholics and drug addicts in the study population had moderate to severe alcohol use problems, while only three had moderate to severe drug use problems. No alcohol or drug use problems were found among the 49 controls. Overall, the index demonstrated a clear

Table 1. "Health status" ASI scores of the 51 test subjects (cases) and 49 controls, grouped into the 0-3 and 4-9 ranges.^a

Group	Index of severity					
	0 to 3		4 to 9		Total	
	No.	%	No.	%	No.	%
Cases	37	72.5	14	27.5	51	100.0
Controls	45	91.8	4	8.2	49	100.0

^a $\chi^2 = 6.29856$; $p = 0.121$.

Table 2. "Work/financial situation" ASI scores of the 51 test subjects (cases) and 49 controls, grouped into the 0-3 and 4-9 ranges.^a

Group	Index of severity					
	0 to 3		4 to 9		Total	
	No.	%	No.	%	No.	%
Cases	23	45.1	28	54.9	51	100.0
Controls	46	93.9	3	6.1	49	100.0

^a $\chi^2 = 27.79907$; $p < 0.001$.

Table 3. "Alcohol use" ASI scores of the 51 test subjects (cases) and 49 controls, grouped into the 0–3 and 4–9 ranges.^a

Group	Index of severity					
	0 to 3		4 to 9		Total	
	No.	%	No.	%	No.	%
Cases	1	2.0	50	98.0	51	100.0
Controls	49	100.0	0	0	49	100.0

^a $\chi^2 = 96.07843$; $p < 0.001$.

Table 4. "Drug use" ASI scores of the 51 test subjects (cases) and 49 controls, grouped into the 0–3 and 4–9 ranges.^a

Group	Index of severity					
	0 to 3		4 to 9		Total	
	No.	%	No.	%	No.	%
Cases	48	94.1	3	5.9	51	100.0
Controls	49	100.0	0	0	49	100.0

^a $\chi^2 = 2.97150$; $p = 0.084$.

ability to detect addicts in the study population through alcohol use problems (98% sensitivity, 100% specificity), but little ability to detect them through drug use problems—an appropriate finding in view of the fact that most of the test subjects were alcoholics.

As Table 5 shows, six (12%) of the alcoholics and drug addicts were found to

have significant legal problems, as compared to none of the controls—a finding similar to those shown in Tables 3 and 4 in that the controls were not affected. However, the sensitivity of this part of the index in detecting alcoholics and drug addicts was obviously low.

Most of the alcoholics and drug addicts (59%) appeared to have family/social re-

Table 5. "Legal situation" ASI scores of the 51 test subjects (cases) and 49 controls, grouped into the 0–3 and 4–9 ranges.^a

Group	Index of severity					
	0 to 3		4 to 9		Total	
	No.	%	No.	%	No.	%
Cases	45	88.2	6	11.8	51	100.0
Controls	49	100.0	0	0	49	100.0

^a $\chi^2 = 6.13267$; $p = 0.133$.

Table 6. "Family/social relations" ASI scores of the 51 test subjects (cases) and 49 controls, grouped into the 0–3 and 4–9 ranges.^a

Group	Index of severity					
	0 to 3		4 to 9		Total	
	No.	%	No.	%	No.	%
Cases	21	41.2	30	58.8	51	100.0
Controls	46	93.9	3	6.1	49	100.0

^a $\chi^2 = 31.39182$; $p < 0.001$.

Table 7. "Psychological status" ASI scores of the 51 test subjects (cases) and 49 controls, grouped into the 0-3 and 4-9 ranges.^a

Group	Index of severity					
	0 to 3		4 to 9		Total	
	No.	%	No.	%	No.	%
Cases	24	47.1	27	52.9	51	100.0
Controls	45	91.8	4	8.2	49	100.0

^a $\chi^2 = 23.42519$; $p < 0.001$.

lations problems, as compared to only 6% of the controls (Table 6).

Finally, the ASI scores indicated psychological problems in over half the alcoholics and drug addicts (53%), as compared to only 8% of the controls (Table 7). In terms of being able to detect alcoholics and drug addicts, this area of the index demonstrated a sensitivity of 52.9% and a specificity of 91.8%.

Figure 1 shows the average ASI scores for the test and control subjects in each area evaluated. Overall, the test subjects' tendency to receive higher average scores is evident, the areas where the test subjects received the highest average scores being "use of alcohol," "family/social re-

lations situation," "work/financial situation," and "psychological status." In all of these areas a highly significant correlation ($p < 0.001$) was found between the percentage with moderate to severe problems and the type of subjects (test subjects or controls) examined.

The high average "use of alcohol" score appears reasonable because the test subjects consisted largely of alcoholic patients. It is also reasonable that the ASI scores for drug abuse should be very low, because alcoholics have generally predominated among those seeking help at IAFA clinics (IAFA's priority task over the last 35 years has been to provide treatment for patients with alcohol problems).

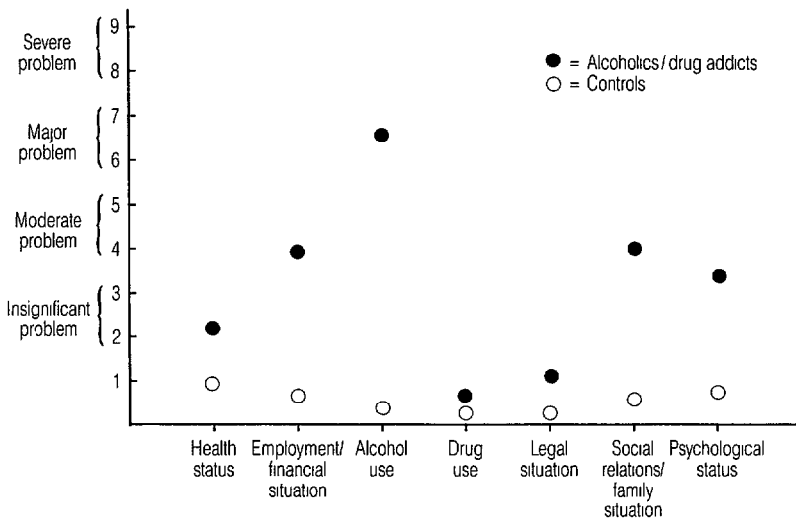


Figure 1. Average ASI scores received by the 51 test subjects (dots) and 49 controls (circles) in each of the areas evaluated; Costa Rica, 1988.

CONCLUSIONS

The study found that the adapted ASI was a valid instrument for differentiating between the affected and unaffected populations tested. It also found the instrument to be a good indicator of the detected problems' severity and the patients' relative need of treatment.

However, in this particular study certain drawbacks emerged with respect to effective application of the instrument. For one thing, both the patients and the health workers who dealt with them felt that the interview excessively limited their first contact and prevented development of a fluid and open relationship that could lead to resolution of the immediate conflict and establishment of a therapeutic link. Furthermore, since the IAFA is a specialized center, the patients were referred to it from other centers and arrived with expectations of initial treatment that might have been frustrated by a lengthy, structured interview of the sort involved.

In general, the areas most affected by the patients' alcohol (or drug) use appeared to be their family/social relations situation, work/financial situation, and psychological status. This finding reinforces the clinical perception that alcoholism, especially in its initial and intermediate phases, looms larger as a psychosocial problem' than a medical one.

Application of the ASI did not produce significant results with respect to drug addicts because there were so few of them among the study subjects (the IAFA facilities involved had only begun working with drug addicts a year before the study started). Despite this, our impression is that the ASI does appear to be a practical instrument for making diagnostic assessments and for determining the treatment needs of possible alcoholics and drug addicts attending unspecialized health institutions.

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The XIII Annual World Drug Conference will be held in Orlando, Florida, U.S.A., from 26 to 28 April 1990. It is sponsored by the National Parent's Resource Institute for Drug Education, Inc. (PRIDE). Persons interested in attending or obtaining more information can contact PRIDE, The Hurt Building, Suite 210, Atlanta, GA 30303, U.S.A.

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