

## Initial evidence for the reliability and validity of a “Lite” version of the Addiction Severity Index

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Received 9 March 2006; received in revised form 1 September 2006; accepted 8 September 2006

### Abstract

**Purpose:** To evaluate the psychometric properties of a shortened version of the baseline ASI-5, the ASI-L-VA.

**Method:** Two samples were recruited from intensive outpatient treatment and a methadone maintenance clinic. For Sample A ( $n = 145$ ), two versions of the Addiction Severity Index (i.e., ASI-5 and ASI-L-VA) were administered several days apart in counterbalanced order by different interviewers. Sample B ( $n = 50$ ) was similarly administered the standard ASI-5 twice.

**Results:** For Sample A, the internal consistency (coefficient alphas) of 11 of 19 summary scores derived from the ASI-5 were good, 4 fair, and 4 unacceptable. The results for the ASI-L-VA summary scores indicated that eight were good, six fair, and five unacceptable. The correlations between ASI problem areas were generally low for both versions (supporting the independence of the ASI areas), and none of the  $t$ -tests comparing corresponding correlations between the ASI-5 and ASI-L-VA approached statistical significance. The Sample A intraclass correlation coefficient (ICC) results evaluating agreement of the summary scores derived from the ASI-5 at one timepoint and those derived from ASI-L-VA at another point (i.e., concurrent validity) revealed at least fair agreement in all but one instance. Additionally, a comparison of the ICC results for Samples A and B (i.e., ASI-L-VA/ASI-5 versus ASI-5/ASI-5, respectively) revealed that in 13 of 26 cases the ICCs were at the same level of agreement. When level of agreement was discordant, in nine cases the ICCs comparing the ASI-5 and ASI-L-VA exhibited greater agreement and in four cases the ICCs comparing two ASI-5 administrations exhibited greater agreement.

**Conclusions:** The ASI-L-VA, a reduced item set from the ASI-5, yielded similar information on problem severity as the standard ASI-5.

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**Keywords:** Addiction Severity Index; Reliability; Validity; Substance abuse

### 1. Introduction

The Addiction Severity Index, now in its fifth edition (ASI-5; McLellan et al., 1992), is a widely used assessment instrument for clinical and research purposes in the substance abuse field. This multidimensional instrument assesses an individual's status in seven domains; alcohol and drug use, medical and psychiatric health, employment/self-support, family–social relations, and illegal activity. Items in each of these seven areas address current (i.e., past 30 days) and lifetime status and functioning. Addition-

ally, the ASI-5 includes a family history section to document alcohol, drug, and psychiatric problems in biological relatives. The ASI is a semi-structured interview; baseline and follow-up versions exist. The baseline ASI-5 contains 227 items that query respondents and takes approximately 45–60 min to administer.

The first published version of the ASI included one measure of problem severity in each domain: an interviewer severity rating (ISR; McLellan et al., 1980). The ISR is the result of the interviewer combining current and lifetime items within a domain to yield a subjective numeric rating of the individual's need for treatment in that domain. There was also a recognized need for summary scores that were more objective than the ISRs, that measured current status, and that with repeat administrations using the follow-up ASI could be used to measure change. To this end, composite scores (CSs) were developed empirically for each domain; computed by approximately equally weighting

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and then summing scores for key items that assess only current functioning (McLellan et al., 1985). The CSs essentially provide a unidimensional summary of current severity in each of the ASI's problem areas. More recently, Alterman et al. used classical psychometric methods to develop two new sets of summary indices, clinical factors (CFs; McDermott et al., 1996) and evaluation factors (EFs; Alterman et al., 1998). The CFs, like the ISRs, are based on items that assess both current and lifetime functioning. However, unlike the ISRs, they are computed by weighting and summing item values and are standardized, thus providing more objective indicators of global severity. The EFs, like the CSs, measure functioning during the past 30 days. Unlike the CSs, they have the advantages of having been derived from both baseline and follow-up data sets and of being standardized. EFs, however, exist for only five domains, as robust indices of current medical and employment status could not be derived using factor analytic methods. Finally, there is evidence that the newer summary scores are more reliable and valid than the original scores (Alterman et al., 2001a; Currie et al., 2004).

Although the ASI has been implemented in numerous research projects and substance abuse treatment systems/programs, there have been requests by users of the ASI to decrease the time and cost associated with conducting the assessment. To this end, shortly after the introduction of the ASI-5, we considered the family history section (36 items) to be optional. Additionally, two general strategies have been employed to reduce the time and cost associated with administering the ASI. One is the development of client self-administered versions of the ASI either in paper and pencil or computer-driven formats. For the most part, these efforts have yielded satisfactory reliability and validity compared to the interview-based ASI (Butler et al., 2001; Cacciola et al., 1998; Rosen et al., 2000). A second approach to reduce time and costs, but still maintain a personal interview, is to abbreviate the ASI. In this regard, several variants of an ASI-“Lite” (McLellan et al., 1997, 1999) interview have been developed and widely used, including in large and national treatment systems and studies [e.g., Department of Veterans Affairs (VA) health system (Moos et al., 2000); Drug Evaluation Network System (DENS; Carise et al., 1999); Treatment Outcomes and Performance Pilot Studies Enhancement (TOPPS II; Ahmed et al., 2003)]. Nonetheless, the psychometric properties of these shortened versions have not been evaluated.

A first iteration of the ASI-Lite was created prior to the development of the newer ASI summary indices (McLellan et al., 1997). It was constructed to include the CS items and other current and lifetime items that our experience indicated were more widely used for treatment planning or other clinical purposes, or for reporting research results. Less widely used items, the family history section and the ISRs, were eliminated resulting in a 160-item instrument. We subsequently developed a second iteration to include the additional items necessary to calculate the two newer sets of summary scores (ASI-Lite-CF; McLellan et al., 1999). Items were added to the original ASI-Lite to construct the ASI-Lite-CF thus lengthening it to 169 items. Finally, with funding from the Department of Veterans Affairs, we developed and tested the ASI-Lite-Veterans Administration version (ASI-L-VA). A goal was to reduce the number of items, to that of the

original ASI-Lite, yet still retain those items that are included in the summary scales and, in our opinion, provide the minimum necessary information for clinical and research purposes. We also reinserted the ISRs as they are still requested and applied by some ASI users.

Shorter versions of an instrument may not possess the same psychometric qualities as the original. It is well established that the meaning of questions may be altered when the context in which they are embedded differs (Schwartz, 1999; Tourangeau and Rasinski, 1988). This can result in different reliability and validity estimates for summary measures. It is noteworthy that reducing the number of items in an instrument in most cases results in reductions in validity (Smith et al., 2000). For these reasons, it is important to determine the equivalence of standard and briefer versions of instruments (Smith et al., 2000).

In the current study, the ASI-L-VA and the standard ASI-5 were compared at a baseline time point (i.e., shortly after admission to treatment). Our study examines the psychometric properties of the major ASI summary indices, as derived from this shortened version of the ASI-5 interview, compared to those derived from the standard ASI-5. Our approach included several related strategies. First, we examined and compared coefficient alphas for the summary indices obtained for the ASI-5 versus the ASI-L-VA in order to establish whether those for the two ASI versions exhibited approximately equal internal consistency/reliability. Second, we compared the intercorrelations between the summary indices for the seven dimensions of the two versions of the ASI in order to determine whether the independence of dimensions typically found for the ASI-5 similarly existed for the ASI-L-VA (McLellan et al., 1981). Third, we examined the relationships between independently administered ASI-5s and ASI-L-VAs in an initial effort to ascertain concurrent validity of the ASI-L-VA. Finally, we compared the level of relationship obtained between the ASI-5 and ASI-L-VA, as just described, with that obtained when the gold standard ASI-5 was administered twice. Demonstration of equivalent concurrent validity results in comparing the ASI-5 and ASI-L-VA to the test–retest reliability results for two ASI-5 administrations can provide even more convincing evidence for validity of the ASI-L-VA. The hypothesis tested was that the equivalence of the baseline ASI-L-VA and the standard baseline version of the ASI-5 would be supported. [Note: The follow-up version of the ASI-5 is already brief and most of its items are necessary for the calculation of the two sets of follow-up summary indices (i.e., CSs and EFs) and for a reasonable portrayal of an individual's status at follow-up. Thus, there was no need to develop a follow-up version of the ASI-Lite.]

## 2. Method

### 2.1. Overview of procedures

The authors developed the ASI-L-VA by adding the ISRs and by reviewing the earlier ASI-Lite for further modifications to make it maximally useful and minimally burdensome. The resultant ASI-L-VA developed and used in this study contains 161 items that query respondents, one item more than the original ASI-Lite. The participants in this study were 195 patients with psychoactive substance use disorders entering substance abuse treatment. Two samples were

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