The Short Inventory of Problems – Revised (SIP-R): Psychometric Properties in English and Spanish-speaking Populations

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Abstract

One of the most commonly used measures for assessing adverse consequences of substance use, the Short Inventory of Problems (SIP), has been adapted in multiple languages, but evidence of its reliability and validity across broader samples of persons with substance use disorders, as well as with Spanish-speaking populations, is needed. This study evaluated the psychometric properties of a revised version of the SIP (SIP-R) used in a multisite study to evaluate an English version used in a large combined sample of alcohol and drug use disorder treatment seekers (N=886), with participants pooled from two national, multisite randomized clinical trials (1) and two Spanish versions used in a separate, randomized trial conducted for Spanish-speaking substance users (N=405). Results supported the 5-factor structure of both the English and Spanish-speaking samples. Construct validity was evident through strong correlations with the ASI drug composite (English version, r = .49; Spanish version, r = .53). There were consistent differences in both populations, with females reporting greater consequences than males, and those legally mandated to treatment reporting fewer consequences than those not mandated. Also, baseline SIP scores were associated with fewer days retained in treatment in both samples. Overall, the results support the use of the SIP as a reliable and valid measure of adverse consequences in diverse English and Spanish-speaking populations.

Introduction

Assessing the negative consequences of substance use is important for the evaluation of treatments in both research and treatment for several reasons. However, there are few universally accepted instruments for measuring the adverse consequences associated with alcohol and drug use. The Short Inventory of Problems (SIP) is a brief, 15-item version commonly used to assess the self-reported consequences of substance use; however, it has never been evaluated psychometrically in a large diverse sample of outpatient substance users. Also, although the SIP was originally developed on a Spanish version of this instrument, despite the high rates and high coverage of Hispanics in the United States, language issues have been identified as a key barrier to substance abuse treatment for U.S. Hispanics, thus indicating a need for more validated assessments in Spanish.

Methods

Data on the English version were drawn from two independent, multisite randomized trials implemented within outpatient treatment settings associated with the National Drug Abuse Treatment Clinical Trials Network (CTN). Data were pooled from one of the first multisite randomized clinical trials conducted entirely in Spain. A common baseline assessment battery was used in the trials, which included a revised version of the SIP (SIP-R), the Addiction Severity Index (ASI) and the University of Rhode Island Change Assessment Tool (URICA), as well as urban use data. Confirmatory factor analysis (CFA) and correlations were used to evaluate construct validity. ANOVAs were used to examine baseline differences according to demographic characteristics, and regression analysis evaluated the predictive validity in terms of association with treatment retention and substance use.

Results

A total of 886 participants completed the English-version SIP-R. Of these, the majority were male (65%), Caucasian (66%), and never married (53%). Less than half (48%) were legally mandated to treatment. Alcohol was the most common primary substance of abuse (37%), followed by marijuana (18%), cocaine (16%), methamphetamine (11%), other drugs (11%), and opioids (7%). For the Spanish-version SIP-R, 405 participants completed the assessment at baseline. Of the 405, 72% were male, 85% primary alcohol users (64%), and 75% were legally mandated to treatment (71%). The other most common substance of abuse was cocaine (22%), followed by marijuana (9%), opioids (1%), methamphetamine (3%), and benzodiazepines (1%). Both the English and the Spanish versions demonstrated excellent internal reliability (English, α = .98; Spanish, α = .96). Also, CFA results indicated a 5-factor model with communality estimates for each of the 25 items in both samples (in Spanish, CFI = .93, RMSEA = .09; English, CFI = .94, RMSEA = .09). Table 1 displays correlations for items in both samples to demonstrate construct validity. Both versions demonstrated strong relationships with the ASI drug composite, with more moderate relationships with the ASI family/social, and medical composites. The Spanish SIP-R showed a strong relationship with the ASI psychiatric composite. Also, both versions were strongly correlated with the URICA readiness scores in terms of discriminant validity, both versions had relatively weak relationships with the ASI legal and employment composites, which were less emphasized on the SIP-R. Differences in these results relative to baseline characteristics are displayed in Figure 1. In both samples, there were significant differences in baseline SIP scores across gender and legal status, with females and those not legally mandated to treatment reporting more adverse consequences. There were also significant differences according to primary substance of abuse, with marijuana and alcohol use reported as having more severe consequences than cocaine and opioid users. In terms of convergent validity, SIP scores predicted retained in treatment in both samples, with higher scores associated with fewer days retained in treatment. These relationships held even after controlling for the ASI composite and URICA readiness scores (SIP-R version, r = .14, p=0.05). However the SIP was associated with days of substance use during treatment only in the Spanish sample, with higher scores associated with less abstinence (r = .17, p<0.01).

Conclusion

Taken together, those findings support the reliability and validity of the SIP for use in both diverse English and Spanish-speaking samples. The measure demonstrated an acceptable factor structure, excellent internal consistency, and sound evidence of construct validity as an assessment of consequences associated with alcohol and drug use. Also, this measure displayed evidence of predictive validity, with higher baseline SIP scores associated with fewer days retained in treatment in both samples, as well as with less abstinence in the Spanish-speaking sample. Interestingly, in both samples, those legally mandated to treatment reported significantly less consequences than those not legally mandated to treatment. Compared with the strong relationships with URICA readiness scores, a greater number of reported negative consequences on the SIP involve a level of problem awareness/acceptance that may serve as an impetus to treatment and readiness to change. The weak correlations with the employment and legal composite scores from the ASI may indicate a need for greater coverage of these domains in future versions. The primary limitation of this study was the limited number of measures administered in the parent clinical trials, which constrained the ability to fully evaluate convergent and discriminant validity in data. In conclusion, this study supports the use of both the English and Spanish versions of the SIP as a reliable and valid assessment of adverse consequences associated with alcohol and drug use.

Table 1. Correlation of SIP-R and SIP-RS with Baseline Measures

<table>
<thead>
<tr>
<th>Outcome</th>
<th>English-version SIP-R (n=886)</th>
<th>Spanish-version SIP-R (n=405)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASI medical composite</td>
<td>0.16**</td>
<td>0.24**</td>
</tr>
<tr>
<td>ASI employment composite</td>
<td>0.07*</td>
<td>0.18</td>
</tr>
<tr>
<td>ASI alcohol composite</td>
<td>0.29**</td>
<td>0.43**</td>
</tr>
<tr>
<td>ASI drug composite</td>
<td>0.48**</td>
<td>0.57**</td>
</tr>
<tr>
<td>ASI legal composite</td>
<td>&lt; 0.01</td>
<td>0.11</td>
</tr>
<tr>
<td>ASI family/social composite</td>
<td>0.34**</td>
<td>0.36**</td>
</tr>
<tr>
<td>ASI psychiatric composite</td>
<td>0.37**</td>
<td>0.56**</td>
</tr>
<tr>
<td>URICA - readiness score</td>
<td>0.61**</td>
<td>0.45**</td>
</tr>
<tr>
<td>Days of primary drug use during past 28</td>
<td>0.07</td>
<td>0.45</td>
</tr>
</tbody>
</table>

*p < 0.05; ** p < 0.01

References


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Figure 1. SIP-R Total Scores by Baseline Characteristics

1. English SIP-R
2. Spanish SIP-R

Legend:
- Male
- Female
- Logged Married
- Not Married
- Alcohol
- Cocaine
- Marijuana
- Opioids
- Methamphetamine
- Benzodiazepines