



Cross-Cultural Validity of the SIP-2R for Indigenous and Black Adults Experiencing Homelessness with Alcohol Use Disorders

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BACKGROUND

- North American Indigenous (NAI) and Black adults experience a stark alcohol-related health disparities (Collins, 2016, HIS, 2019, Zapolski et al., 2014)
 - NAI and Black adults report lower alcohol use than Whites, yet experience disproportionate alcohol-related problems (SAMHSA, 2018; SAMHSA, 2019; IHS, 2018; Burwell et al., 2014; Wilson et al., 2014; Stahre & Simon, 2010)
- NAI and Black adults are overrepresented among urban homeless people (Henry et al., 2019; Whitbeck et al., 2012)
 - In Seattle, WA, Black adults make up 32% of the homeless population, but 6% of the general population, while NAI represent 10% of the homeless population, but <1% of the general population respectively (Home, 2019).
- The Short Inventory of Problems (SIP-2R) scale is a psychometrically reliable and valid scale used to assess alcohol-related problems (Miller et al., 1995)
- Marra et al (2014) tested the factor structure and invariance of the SIP-2A among Hispanics using three competing SIP models: 1-factor, 5-factor, & Second order 5-factor (Marra et al., 2014)
- It is vital to test the psychometric properties of measures in order to minimize measurement bias when drawing conclusions across diverse groups

Aims of the Present Study:

- Investigate the factor structure of the SIP using three competing models for a community sample of NAI, Black, and White adults experiencing homelessness with alcohol use disorder (AUD)
- Determine whether the SIP-2R demonstrates measurement invariance among the three groups: NAI, Black, and White adults

METHODS

PARTICIPANTS

- 493 adults from baseline data of two larger RCTs of harm reduction treatment across six community-based settings
 - 125 (25.3%) Indigenous
 - 205 (41.6%) Black
 - 163 (33.1%) White
 - 34 (6.9%) Latinx
- Age: $M = 49$ years, $SD = 9.04$ (range: 21 – 71)
- Sex: 20.1% Female, 79.9% male

PROCEDURE

- All research procedures were approved by University of Washington IRB (Collins et al., 2019; Collins et al., 2014)
- Inclusion criteria included being ≥ 21 years of age, experiencing homelessness for at least 6 of the last 12 months, meeting AUD criteria, among others (Collins et al., 2019; Collins et al., 2014)
- Participants provided written informed consent and engaged in a 45-minute baseline interview (Collins et al., 2019; Collins et al., 2014)

MEASURES

- Sociodemographic Questions
 - Single items were used to assess self-reported age, sex assigned at birth, race, ethnicity, and experiences of homelessness in the past year
- The Short Inventory of Problems (SIP-2R) (Miller et al., 1995a)
 - 15-item, Likert-scale with four response options
 - (0 = never, 3 = daily or almost daily)

RESULTS

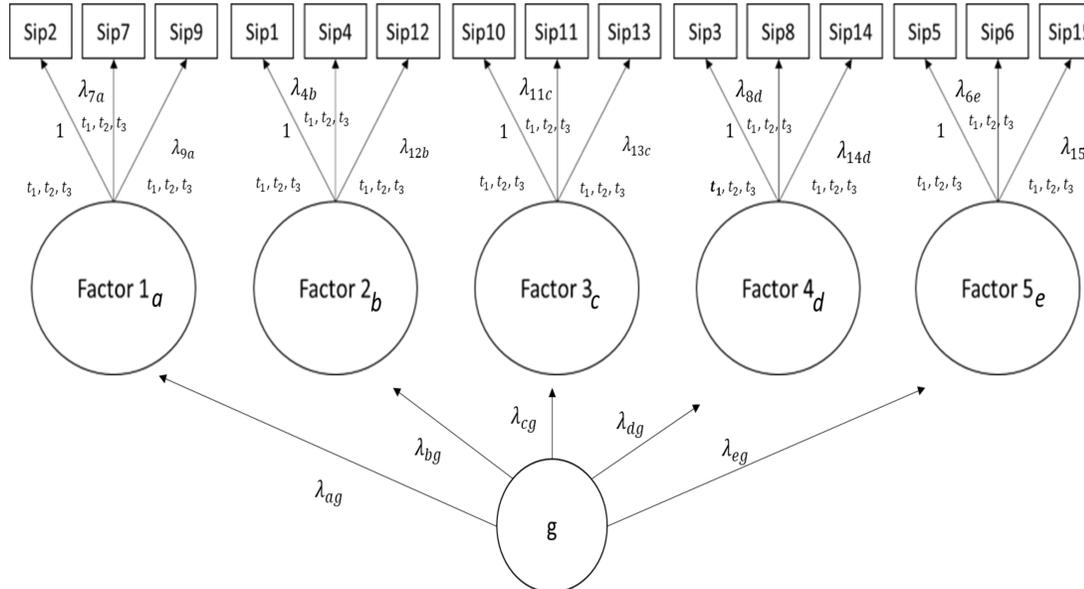


Table 1. Model identification

Model	χ^2, p	df	CFI	RMSEA [90 _C]	SRMR
1-Factor	646.116, $p < .001$	90	0.930	.112 (.104, .121)	0.066
First-Order 5-Factor	306.62, $p < .001$	80	0.971	.076 (.067, .085)	0.045
*Second-Order 5-Factor	320.30, $p < .001$	85	0.970	.075 (.067, .084)	0.048

Note. *Second-order 5-factor shows no significant depreciation from first-order 5-factor model

Table 2. Second-order 5-factor categorical confirmatory factor analysis by sample

Racial Group	χ^2, p	df	CFI	RMSEA [90 _C]	SRMR
Indigenous	145.328, $p < .001$	85	0.973	.076 (.054, .096)	0.064
Black	201.981, $p < .001$	85	0.971	.083 (.068, .0978)	0.058
White	147.204, $p < .001$	85	0.973	.067 (.049, .085)	0.067

Table 3. Multiple group confirmatory factor analysis for second-order 5-factor model

Model	χ^2, p	df	CFI	RMSEA [90 _C]	SRMR
Configural	493.482, $p < .001$	255	0.972	.076 (.066, .086)	0.063
Metric	507.199, $p < .001$	283	0.974	.070 (.060, .080)	0.076
Scalar	646.872, $p < .001$	327	0.963	.077 (.068, .086)	0.063
Partial Scalar	623.758, $p < .001$	325	0.966	.074 (.066, .083)	0.063

Table 4. Reliability per factor by race

Racial Group	Co-efficient Alpha (α)
Indigenous	.92
Black	.93
White	.91

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RESULTS

Confirmatory Factor Analysis

- Results indicated that the second-order 5-factor model was the best-fitting model (Table 1)
 - This Indicates that each latent factor (5) loads onto 1 general factor (second-order)
- Adequate fit was found for all three racial groups (Table 2)

Measurement Invariance Across Groups

- Results indicated the scale as partially invariant across race (Table 3)
- Forward partial invariance testing looking at modification indices was conducted to determine which item thresholds (cutoffs for each response category) to relax across groups
 - Sip3 threshold 1, was not invariant across groups (i.e. there was a significant difference in the responses across groups from “Never” to “Once and a few times”)
 - Sip 3: “I have failed to do what is expected of me because of my drinking”
 - Threshold 1: From “Never” to “Once and a few times”

Reliability

- The scale had excellent internal consistency for all three racial groups (see Table 4)

Concurrent Validity

- Support for concurrent validity was found among the full sample with positive correlations between the total SIP-2R score and the number of drinks consumed in the past 7 days $r(491) = .18, p < .05$, and the number of drinks consumed on a heavy drinking day, $r(489) = .28, p < .05$

DISCUSSION

This study finds the SIP-2R to be reliable and valid for use among NAI, Black, and White adults experiencing homelessness with AUD

We found the second-order 5-factor model to be most parsimonious with our sample:

- Aligns with research that finds distinct subfactors within the SIP (Feinn et al., 2003; Kiluk et al., 2013),
- In contrast to Marra et al (2014), finding the first-order 1-factor as preferred structure (Marra et al., 2014)

Given our sample is a heavily impacted group of individuals experiencing severe and disproportionately high alcohol-related problems, a second-order 5-factor model provides clinical utility by offering more clarity around specific groups of problems experienced by this population

Partial invariance was established on item 3, indicating that there is a significance difference in responses to this item. However, given that over 1/2 of the items were invariant, it can be concluded the SIP-2R may be used to compare across these groups (Putnick & Borstein, 2016)

Limitations include that this study was comprised of a population of high utilizing underserved, urban adults experiencing homelessness with AUD; Therefore, results may not be generalizable to a less severe utilizing sample

Future directions should include further investigation into how this scale aligns psychometrically with harm reduction treatment