Measurement Invariance of the University of Rhode Island Change Assessment Scale (URICA) in Project MATCH

Dylan K. Richards[1], Frank J. Schwebel[1], Kiefer D. Cowie[2,3], Matthew R. Pearson[1], & Katie Witkiewitz[1,4]

[1]Center on Alcohol, Substance Use, And Addictions (CASAA), University of New Mexico
[2]Department of Clinical Psychology, The Wright Institute
[3]Integrated Substance Abuse Programs, University of California, Los Angeles
[4]Department of Psychology, University of New Mexico

INTRODUCTION

- ❖ Progression through the stages of change is proposed to be a mechanism of change underlying treatments for alcohol use disorder (AUD)
- ❖ In order to examine change in stages over time, the measure used to assess the stages of change must demonstrate longitudinal invariance
- ❖ The University of Rhode Island Change Assessment Scale (URICA) is the most common measure of the stages of change in trials of AUD treatment
- ❖ We sought to conduct a comprehensive test of the measurement invariance of the URICA in Project MATCH from baseline to the post-treatment assessment of stages of change

METHOD

Participants and Procedure

- ❖ We conducted a secondary data analysis of Project MATCH (N = 1726; M_{age} = 40.2, SD = 10.9; 75.7% male; 80.0% non-Hispanic white)
- ❖ Project MATCH was a multisite randomized clinical trial with outpatient and aftercare conditions that tested the utility of matching patients to specific AUD treatments: Motivational Enhancement Therapy, Cognitive-Behavioral Therapy, and Twelve-Step Facilitation

Measures

- ❖ Participants completed the 24-item URICA for assessing the following stages of change in relation to drinking at baseline and posttreatment (3 months after baseline): Precontemplation (PC), Contemplation (C), Action (A), and Maintenance (M)

Statistical Analysis

- ❖ 4-factor Exploratory Structural Equation Models (ESEM) were conducted at both timepoints
- ❖ Multigroup ESEMS were then conducted testing levels of measurement invariance: configural, metric, and scalar.
- ❖ Measurement invariance was tested across sex, ethnicity, marital status, education, and parental AUD history at baseline; treatment groups at follow-up; and across time
- ❖ Latent mean differences were examined when scalar invariance was met
- ❖ Analyses were conducted using M*plus* 8.5 using maximum likelihood estimation with robust standard errors and oblique geomin rotation

RESULTS

Table 1. Global Fit of the 4-Factor URICA Models Without Measurement Invariance

Model	Global Fit Indices				
	SB X^2	df	CFI	RMSEA (90% CI)	SRMR
Baseline					
ESEM	672.551	186	0.949	0.039 (0.036, 0.042)	0.024
CFA	1400.529	246	0.879	0.052 (0.050, 0.055)	0.058
Posttreatment					
ESEM	538.126	186	0.963	0.034 (0.031, 0.038)	0.022
CFA	2005.161	246	0.814	0.067 (0.064, 0.070)	0.097

Table 2. Results of Measurement Invariance Testing

	Comparing Model Fit Indices		
		ΔCFI	ΔRMSEA
Sex (baseline)			
1. Configural	CFI = .943; RMSEA = .042, 90% CI = .039, .046; SRMR = .026		
2. Metric	1 vs. 2	0.000	-0.004
3. Scalar	2 vs. 3	-0.003	+0.001
Ethnicity (baseline)			
1. Configural	CFI = .925; RMSEA = .049, 90% CI = .045, .052; SRMR = .028		
2. Metric	1 vs. 2	+0.016	-0.010
3. Scalar	2 vs. 3	-0.001	0.000
Marital status (baseline)			
1. Configural	CFI = .949; RMSEA = .039, 90% CI = .036, .043; SRMR = .026		
2. Metric	1 vs. 2	+0.005	-0.005
3. Scalar	2 vs. 3	-0.001	0.000
Education (baseline)			
1. Configural	CFI = .937; RMSEA = .044, 90% CI = .041, .048; SRMR = .027		
2. Metric	1 vs. 2	+0.008	-0.007
3. Scalar	2 vs. 3	-0.001	0.000
Family AUD history (baseline)			
1. Configural	CFI = .942; RMSEA = .042, 90% CI = .039, .046; SRMR = .027		
2. Metric	1 vs. 2	+0.006	-0.006
3. Scalar	2 vs. 3	-0.001	0.000
Intervention groups (posttreatment)			
1. Configural	CFI = .958; RMSEA = .038, 90% CI = .034, .042; SRMR = .027		
2. Metric	1 vs. 2	+0.005	-0.007
3. Scalar	2 vs. 3	-0.001	0.000
Time (baseline and posttreatment)			
1. Configural	CFI = .954; RMSEA = .026, 90% CI = .024, .027; SRMR = .024		
2. Metric	1 vs. 2	**-0.020**	+0.004

RESULTS (CONT'D)

Table 3. Latent Mean Differences

	PC	C	A	M
Male	-0.024	-0.073	**0.231**	-0.043
Non-Hispanic White	**-0.264**	-0.146	0.100	**-0.341**
Married	**-0.154**	-0.050	0.099	-0.062
Higher Education	-0.117	-0.041	**-0.232**	-0.120
Parent AUD History	-0.011	0.005	-0.062	-0.042
Intervention Group				
MET	**-0.146**	**0.153**	**0.131**	-0.118
TSF	-0.105	**0.184**	0.063	-0.094

Boldface is statistically significant at $p < .05$
MET=Motivational Enhancement Therapy, TSF=Twelve-Step Facilitation

DISCUSSION

- ❖ A 4-factor ESEM model provided a good fit to the data and a better fit to the data than a 4-factor CFA model
- ❖ The URICA demonstrated scalar invariance across each patient subgroup at baseline and treatment condition at follow-up—several group differences were found
- ❖ The URICA did not demonstrate longitudinal invariance
- ❖ These findings suggest caution in using the URICA to test progression through the stages of change as a mechanism underlying effects of AUD treatment
- ❖ Revised or new measures that demonstrate longitudinal invariance are needed to appropriately test mechanisms
- ❖ Despite face validity of the stages of change, lack of empirical support suggest other conceptualizations of motivation may be needed

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CONTACT

- ❖ e-mail: dkrichards@unm.edu
- ❖ Website: http://mateolab.yolasite.com/
- ❖ Twitter: @DylanKRichards