

Measurement Invariance of the Readiness to Change Questionnaire for Alcohol among Injured Patients



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INTRODUCTION

- ❖ Brief motivational intervention (BMI) for alcohol is a practical application of motivational interviewing delivered in opportunistic settings.
- ❖ The stages of change are proposed to explain the process of reducing or quitting drinking following BMI.
- ❖ Baseline readiness is hypothesized to influence response to BMI and increased readiness is hypothesized to mediate the effects of BMI.
- ❖ Measures of readiness that are invariant across groups and time are needed to appropriately test the above hypotheses.
- ❖ We sought to test measurement invariance of the Readiness to Change Questionnaire (RCQ) among injured patients who received a brief intervention for alcohol across patient subgroups and time.

METHOD

Participants

- ❖ Participants (N = 596) were patients admitted to three Level I trauma centers in Texas from 2007 - 2010 for unintentional or intentional injuries who screened positive for hazardous alcohol use and received a brief intervention: brief advice, BMI, or BMI with a booster.

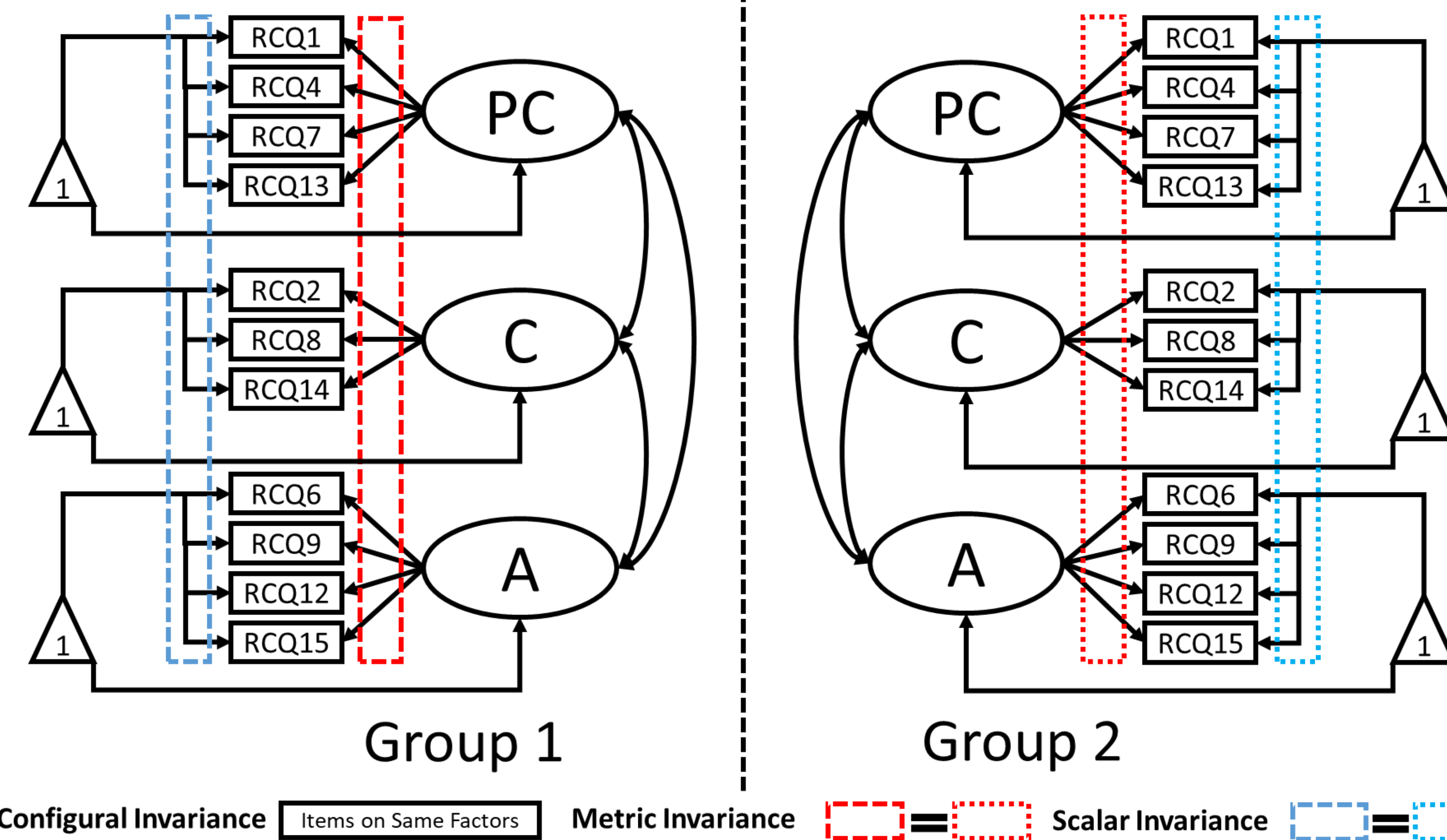
Measures

- ❖ 15-item treatment version of the RCQ (Heather et al., 1999; revised by Heather & Hönekopp, 2008) was used to assess **precontemplation (PC)**, **contemplation (C)**, and **action (A)** at baseline ($\omega = .73$ to $.84$) and 3-month follow-up ($\omega = .75$ to $.88$).

Analytic Plan

- ❖ Multigroup confirmatory factor analyses testing measurement invariance: configural, metric, and scalar.
- ❖ Measurement invariance tested across sex (females and males), ethnicity (Black, Hispanic, and non-Hispanic White participants), and hazardous drinking status (non-hazardous drinking [AUDIT score < 8] and hazardous drinking [AUDIT score \geq 8]) at baseline.
- ❖ Measurement invariance tested across intervention groups at 3-month follow-up.
- ❖ Measurement invariance tested across time (baseline and 3-month follow-up).
- ❖ Group and time differences were examined contingent on support for scalar invariance.
- ❖ Analyses were conducted using *Mplus* 8.4 (Muthén & Muthén, 1998-2020).

RESULTS



Measurement Invariance Results ($\Delta CFI \geq .01$ & $\Delta RMSEA \geq .015$ [non-sig. decrease in model fit])

	Comparing Model Fit Indices	
	ΔCFI	$\Delta RMSEA$
Sex (baseline)		
1. Configural	CFI = .942; RMSEA = .069, 90% CI = .057, .082; SRMR = .061	
2. Metric	1 vs. 2	-.002
3. Scalar	2 vs. 3	+.001
Ethnicity (baseline)		
1. Configural	CFI = .937; RMSEA = .071, 90% CI = .058, .085; SRMR = .066	
2. Metric	1 vs. 2	+.007
3. Scalar	2 vs. 3	-.025
4. Partial Scalar	2 vs. 4	-.009
AUDIT (baseline)		
1. Configural	CFI = .948; RMSEA = .059, 90% CI = .046, .072; SRMR = .061	
2. Metric	1 vs. 2	-.010
3. Partial Metric	1 vs. 3	-.005
4. Partial Scalar	3 vs. 4	-.006
Intervention (3 month)		
1. Configural	CFI = .936; RMSEA = .075, 90% CI = .061, .089; SRMR = .071	
2. Metric	1 vs. 2	-.002
3. Scalar	2 vs. 3	-.002
Time (baseline and 3 month)		
1. Configural	CFI = .946; RMSEA = .047, 90% CI = .041, .053; SRMR = .055	
2. Metric	1 vs. 2	-.003
3. Scalar	2 vs. 3	-.009

RESULTS (CONT'D)

Significant Group Differences on Latent Variables

	Latent variable	Latent mean difference	p	d
<i>Baseline group differences</i>				
Ethnicity (non-Hispanic White referent)				
Black	A	0.171	0.017	0.263
Hispanic	C	0.254	0.015	0.271
Hispanic	A	0.252	<0.001	0.271
AUDIT (AUDIT total score < 8 referent)				
AUDIT \geq 8	PC	-0.704	<0.001	-0.892
AUDIT \geq 8	C	0.910	<0.001	1.189
AUDIT \geq 8	A	0.296	<0.001	0.473
<i>3-month group differences</i>				
Intervention (brief advice referent)				
BMI + Booster	A	0.182	0.038	0.243

DISCUSSION

- ❖ Initial support for the measurement invariance of the RCQ in the context of BMI in the trauma setting, which supports its use as a clinical and research tool.
- ❖ Future work is needed to further test measurement invariance of stages of change measures given the proposed importance of this construct in relation to alcohol intervention.
- ❖ Lack of measurement invariance for some measures may explain mixed support for the stages of change, especially as a mediator of intervention effects.

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