Supplement to Cross-Ethnic Measurement Equivalence of the RCMAS in Latino and White Youth With Anxiety Disorders

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CROSS-AGE AND CROSS-SEX EQUIVALENCE OF THE RCMAS

Prior to evaluating the cross-ethnic measurement equivalence of the RCMAS, analyses were conducted to evaluate the cross-age and sex equivalence of the RCMAS, and the cross-ethnic, age, and sex equivalence of the variables used to evaluate construct validity (i.e., the CDI and the FSSC-R). Results supported the configural and metric invariance of the three RCMAS anxiety subscales across age (ages 6 to 9 years, M = 7.77 years, SD = 1.06, n = 309; 10 to 16 years; M = 12.26 years, SD = 2.01, n = 368) and also sex (boys vs. girls). There was, however, mixed evidence of threshold invariance. Constraining thresholds to equal across age resulted in a significant chi-square difference from a model with factor loadings constrained to be equal across age groups [$\Delta\chi^2$ (22, N = 662) = 94.65, p <.001] and a significant chi-square test of model fit [χ^2 (236, N = 662) = 316.19, p < .001], suggesting the RCMAS could be performing differently across the age groups. However, practical fit indices indicated that the constrained thresholds model fit the data well (CFI = .98, RMSEA = .03). Constraining thresholds to equal across sex resulted in a significant chi-square difference from a model with factor loadings constrained to be equal the across sex groups [$\Delta\chi^2$ (22, N = 662) = 49.48, p <.001], and a significant chi-square test of model fit [χ^2 (236, N = 662) = 313.76, p < .01]. But once again, the practical fit indices indicated that the constrained thresholds model fit the data well (CFI = .99, RMSEA = .03).

Thus, on the basis of a majority of fit indices, and because the chi-square difference criterion is sensitive to trivial modifications of fit (Cheung & Rensvold, 2002), threshold invariance across age and sex was supported. Results also supported the item uniqueness invariance of the RCMAS across age (i.e., χ^2 = 319.19, p < .001; CFI = .98 and RMSEA =.03 for the model constraining thresholds, factor loadings, and unique item variances) and sex (i.e., χ^2 = 313.76, p < .01; CFI = .98 and RMSEA =.03 for the model constraining thresholds, factor loadings, and unique item variances). In terms of the RCMAS Lie scale, measurement invariance tests supported configural, metric, threshold, and item uniqueness invariance across age (i.e., χ^2 = 69.85, p < .001; CFI = .98 and RMSEA =.05 for the model constraining thresholds, factor loadings, and unique item variances) and sex (i.e., χ^2 = 51.83, p < .05; CFI = .99 and RMSEA =.04 for the model constraining thresholds, factor loadings, and unique item variances).

CROSS-AGE, CROSS-SEX, CROSS-ETHNIC EQUIVALENCE OF THE CDI AND FSSC-R

In addition, invariance tests supported the configural, metric, threshold/intercept, and item uniqueness invariance of the CDI and FSSC-R across ethnicity, age, and sex with the exception that invariance of item intercepts across age was not supported for the FSSC-R. A significant chi-square difference [$\Delta\chi^2$ (5, N = 588) = 74.45, p < .001], a significant chi-square test of model fit [χ^2 (14, N = 588) = 87.16, p < .001], adequate CFI (i.e., .96), and a high RMSEA (i.e., .13) were found for age. Subsequently, item uniqueness invariance across age could not be tested in a full invariance model.

FACTORIAL INVARIANCE OF RCMAS LIE FOR LATINO AND EUROPEAN AMERICAN YOUTH

A multi-group single-factor CFA was used to evaluate configural invariance of the RCMAS Lie by ethnicity and a non-significant adjusted chi-square was obtained [χ^2 (33, N = 661) = 25.55, *ns*], thus configural invariance was supported. Next, metric invariance was evaluated by comparing a model with constrained factor loadings to a model with factor loadings allowed to vary across ethnic groups. Results showed a significant adjusted chi-square difference between the models [$\Delta\chi^2$ (7, N = 661) = 25.11, p < .001] and a significant chi-square

test of model fit [χ^2 (30, N = 661) = 54.81], suggesting the Lie scale is performing somewhat differently across the ethnic groups. However, the practical fit indices fit the data well [CFI = .99 RMSEA = .05]; hence, based on a majority of indices, metric invariance across European American and Latino youth was supported.

Threshold invariance was evaluated by comparing a model with constrained factor loadings to a model with factor loadings and item thresholds constrained to be equal across ethnic groups. Results showed a significant adjusted chi-square difference between the models [$\Delta\chi^2$ (7, N = 661) = 14.98, p < .05], a significant chi-square test of model fit [χ^2 (36, N = 661) = 67.31, p < .001], and adequate practical fit indices (CFI = .99, RMSEA = .05). Accordingly, threshold invariance was supported. Lastly, a fully invariant model, compared to a model that allowed item uniquenesses to vary across ethnic groups was evaluated and yielded a significant chi-square difference between the models [$\Delta\chi^2$ (8, N = 661) = 24.40, p < .01], but the model with all parameters of interest constrained (factor loadings, item thresholds, and item residuals) showed good fit to the data [χ^2 (36, N = 661) = 67.31, p < .001; CFI = .99, RMSEA = .05]. Thus, item uniqueness invariance for the RCMAS Lie across Latino and European American youth was supported.

CONSTRUCT VALIDITY EQUIVALENCE OF RCMAS LIE FOR LATINO AND EUROPEAN AMERICAN YOUTH

Functional and scalar equivalence was evaluated using the CDI and the FSSC-R as construct validity variables. Functional equivalence of the Lie scale was supported by testing the invariance of the slope and of the intercept of its regression relation to CDI and FSSC-R across Latino and European American youth. As shown in Table 2, constraining the slope relation between the CDI and the RCMAS Lie did not result in a significant chi-square difference [$\Delta\chi^2$ (1, N = 662) = 1.60, *ns*] and constraining the slope relation between the FSSC-R and the RCMAS Lie did not result in a significant chi-square difference [$\Delta\chi^2$ (1, N = 662) = .54, *ns*]; thus, functional equivalence was supported.

Scalar equivalence of the Lie scale was evaluated by comparing constrained slope construct validity models to models with equality constraints on both slopes and intercepts. Constraining the RCMAS intercept to equality across ethnic groups resulted in a significant chi-square difference for the CDI-Lie relation [$\Delta\chi^2$ (1, N = 662) = 24.43, p <.001] and for the FSSC-R-Lie relation [$\Delta\chi^2$ (1, N = 662) = 18.40, p < .001]. Scalar equivalence for Latino and European American youth was not supported. As shown in Table 2, the intercept of the relation between the CDI and the RCMAS Lie was higher for Latino (5.01) than for European American (4.34) youth. Similarly, the intercept of the relation between the FSSC-R and the Lie was higher for Latino (4.51) than for European American (3.63) youth. These results suggest that the association between a given score on the CDI and the Lie scale and between a given score on the FSSC-R and the Lie scale are not consistent across Latino and European American youth.