Measurement Invariance of the Patient Health Questionnaire‐9 (PHQ-9) Among US College Students

* Abstract:
  + Despite its popularity, little is known about the measurement invariance of the Patient Health Questionnaire‐9 (PHQ-9) across US sociodemographic groups (Patel et. al., 2019)
  + The present study assesses the factor structure and measurement invariance the Patient Health Questionnaire‐9 (PHQ-9) among US college students across gender and race including Middle-Eastern, Native American, and Pacific Islander.
  + Most importantly, this study looked into race-gender intersections, extending the current literature, which has only looked into race and gender separately (e.g., Keum, Miller, & Inkelas, 2018; Patel et. al., 2019)
  + Using data from 2016 to 2021 National Healthy Minds Study (n = 232,254), the present study tested the PHQ-9 for measurement invariance across 2 binary gender, 7 racial, and 14 race-gender intersection groups.
  + Based on the results of single-group confirmatory factor analyses (CFA), we justify a bifactor structure for the PHQ-9 consisting of a cognitive / affective factor, a somatic factor, and a general depression factor (CFI=0.983, RMSEA=0.064, SRMR=0.023)
  + Given the large sample size, the present study does not use the Chi-squared statistics to determine model fit and for the subsequent measurement invariance tests, as the Chi-squared statistics is highly sensitive to sample size (Chen, 2007; Meade, 2005; Meade, Johnson, & Brady, 2008; Putnick & Bornstein, 2016). Instead, the present study follows Chen (2007) recommendations for the cutoff to determine non-invariance.
  + The present study shows configural, metric, and scalar invariance across race, gender, and race-gender intersections were tenable with adequate fit indices (Δ CFI≤-0.003, Δ RMSEA≤0.001, Δ SRMR≤0.003).