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Measurement invariance of four pediatric PROMIS short forms: Examination across Chinese and American children with cancer

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Backgrounds: Patient-reported outcomes (PROs) could evaluate the patient's the symptoms and experience directly, It not only provide the information for clinicians to make treatment judgment, but also promote the communication between patients and clinicians. Pediatric PROMIS (Patient-Reported Outcomes Measurement Information System), one part of PROMIS, which aims to measure symptoms and experience of the pediatric patients with a variety of chronic disease by using the same sensitive measures and make possible new findings through direct comparisons. The objective of this study is to examine the measurement invariance of four pediatric PROMIS short forms between Chinese and American children and adolescents with cancer.

Methods: Children and adolescents (8-17 years old) with cancer were recruited in Chinese (N=232) and American (N=200) hospitals. Data of four pediatric PROMIS symptom short forms (i.e., Anxiety, Depression, Fatigue, and Pain) were analyzed in this study. Confirmatory factor analysis (CFA) models with ordered categorical items was conducted to examine factorial structure, invariance of measurement parameters (e.g., item thresholds and factor loadings) and structural parameters (e.g., factor means and variances) of the four PROMIS symptom scales separately.

Results: A limited number of non-invariant item thresholds (i.e., 4 out of 32 item thresholds in anxiety, nine in depression, three in fatigue and five in pain) and factor loadings (i.e., three out of eight factor loadings in anxiety, two in fatigue, one in pain) were found in the four PROMIS symptom measures between the China and the American children cancer patients. No significant difference was found in test invariance of factor means and factor variance of the four short forms.

Conclusions: The Four Pediatric PROMIS symptom short forms (i.e., anxiety, depression, fatigue, and pain) seemed to function uniformly across American and Chinese children groups. They can be used to compare cross-cultural results meaningfully between both countries after children and adolescents symptoms were validly measured.

Biography

Changrong Yuan has completed her PhD at the age of 36 years from Shanghai Second Military Medical University, China. She is the Professor of Nursing School of Shanghai Second Military Medical University. She has published more than 120 papers in reputed journals and serving as an editorial board member of 6 SCI journals. In addition, Dr. Yuan is the editor-in-chief for Nursing Journal of Chinese PLA, a Chinese leading nursing journal since 1993. She serves as an advisory panel member for many kinds of grants review.

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