Reliability and Validity of the Chinese Version of the Multidimensional Anxiety Scale for Children Among Chinese Secondary School Students

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Abstract  The objective of the current study was to develop a Chinese translation of the Multidimensional Anxiety Scale for Children (MASC) [March (1997) Multidimensional anxiety scale for children: Technical manual, Multi health systems, Toronto, ON], and to evaluate its reliability and validity. The original version of the MASC was translated into Chinese (MASC-C) and administered to 1,538 Chinese adolescents between the ages of 14 and 19. In comparison to the American normative sample [March (1997) Multidimensional anxiety scale for children: Technical manual, Multi health systems, Toronto, ON], Chinese adolescents reported significantly higher scores on the subscales of social anxiety and separation anxiety. Girls reported higher levels of anxiety on all subscales than males. Participants between the ages of 16 and 19 reported higher scores on the physical symptoms and harm avoidance subscales. The MASC-C exhibited strong internal consistency (Cronbach’s alpha coefficient was 0.91 and the mean inter-item correlation coefficient was 0.20) and moderate test-retest reliability (intra-class correlation coefficient was 0.84 over a one-month interval). MASC scores inter-correlated a small to moderate degree with measures assessing negative life events and depressive symptoms indicating acceptable convergent validity. The results of confirmatory factor analyses indicated that the four-factor structure of the MASC was suitable for the Chinese sample. The four factor structure was also invariant across sex and age. As the Chinese translation of the MASC indicated high levels of reliability and validity, the MASC-C is appropriate for assessing anxiety in Chinese adolescents.

Keywords  Anxiety · Reliability · Validity · Assessment · Chinese adolescents

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Introduction

Evidence has accumulated in recent years regarding the high prevalence, chronic course, and debilitating consequences of anxiety disorders in children and adolescents. The results of epidemiological studies indicate that anxiety disorders are the most common form of psychopathology experienced by youth [1] with prevalence rates ranging from 10.7% to 17.3% in community samples [2–4]. Anxiety disorders in youth are often the start of a longtime pattern of disturbance with the majority of adults with an anxiety disorder diagnosis reporting initial symptom onset in their youth [5, 6]. Anxiety disorders in youth have also been shown to be associated with a wide range of psychiatric and physical health problems as well as impairment in multiple domains of functioning [7].

A large number of measures have been developed to assess symptoms of anxiety in adult populations. As outlined by March and Albano [8], however, the use of such measures with child and adolescent samples is problematic for several reasons. First, anxiety frequently occurs as a response to something in an individual’s environment. As children’s daily environments differ from those of adults, there are differences in the types of anxiety disorders children and adults develop (e.g., school phobia and separation anxiety disorder). Such age-related differences necessitate the use of measures designed to specifically tap into the type of anxiety disorders most commonly experienced at specific developmental stages. Second, the expression of anxious symptoms in children, adolescents, and adults also differs due to age-related differences in levels of cognitive, emotional, social, and physiological development [9]. Thus, instruments need to be tailored to assess the symptoms most frequently manifested at any given developmental stage. Last, fears occur as part of normal development; it is only when they become excessive or developmentally inappropriate that they are best viewed as problematic [10]. As what constitutes “excessive” and “developmentally inappropriate” is likely to be different at different developmental stages, age and gender norms are essential to differentiate normal from pathological anxiety at different developmental stages.

Early self-report measures designed to assess symptoms of anxiety disorders in youth, such as the Revised Children’s Manifest Anxiety Scale (RCMAS) [11], the State-Trait-Anxiety Inventory for Children (STAI-C) [12], and the Fear Survey Schedule for Children-Revised (FSSC-R) [13] were downward extensions of measures originally developed for adult populations [8, 14]. Although such measures demonstrate adequate levels of reliability [15–18], their validity and clinical utility has been questioned [8, 14, 19]. More specifically, such measures demonstrate poor divergent validity, particularly with measures assessing attention deficit hyperactivity disorder (ADHD) and major depressive disorder [20, 21]. Such measures also do not comprehensively cover the symptoms of DSM-IV [22] anxiety disorder diagnoses [23]. In response to dissatisfaction with available instruments, several new self-report measures of anxiety in youth have been introduced in recent years including the Screen for Child Anxiety Related Emotional Disorders (SCARED) [24], Spence’s Children’s Anxiety Scale (SCAS) [25] and the Multidimensional Anxiety Scale for Children (MASC) [26].

The primary objective of the current study was to examine the reliability and validity of the Chinese version of the MASC (MASC-C) in a sample of Chinese secondary school students. The MASC was designed to assess four specific