Psychometric Evaluation of Somatic and Psychological Health Report: A Sample from Chinese Adolescents

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The purpose of the present study was to do a psychometric evaluation of the somatic and psychological health report (SPHERE) among Chinese adolescents. Our participants were 116 twins (50 females). Psychometric evaluation indicated that the reliability and validity of this scale were good. The internal consistencies and split-half reliabilities of all subscales were above 0.80. Furthermore, the item-total correlations were acceptable for all the subscales (all the values were higher than 0.20). The present findings suggest that the SPHERE can be well used to measure Chinese adolescents’ somatic and psychological health.

Keywords: SPHERE, Chinese, adolescents, twin

Somatic and psychological health is a hot topic in the research of adolescence. In previous research, a number of studies have investigated adolescents’ somatic and psychological health by using twin samples (Boomsma et al., 2000; Hansell et al., 2012; Hettema et al., 2006; Kendler et al., 2006; Vassend et al., 2012; Wright & Martin, 2004; Zhao et al., 2013). Among these studies, somatic and psychological health report (SPHERE) is an instrument that has been widely used to measure adolescents’ somatic and psychological distress (Gillespie et al., 2000; Hansell et al., 2012; Okbay et al., 2016; Rietschel et al., 2014; Wijeratne et al., 2006). The items of the SPHERE were derived from four self-report questionnaires (the 30-item version of the General Health Questionnaire, the Neurasthenia Symptom Questionnaire, the Diagnostic Interview Schedule self-report module for somatoform disorders, and the Schedule of Fatigue and Anergia; Wijeratne et al., 2006). There are three response choices for each item: sometimes/never (coded as zero), often (coded as one), and most of the time (coded as one). A total score of all the 34 items describes the overall mental health and well-being. The SPHERE can also yield subscale scores independently measuring somatic distress, psychological distress, affective symptoms of depression/anxiety, somatic distress, fatigue, neurasthenia, and somatization (Hickie et al., 2001). The reliability and validity of the SPHERE have been well established in Western studies (Hansell et al., 2012; Hickie et al., 2001; Rietschel et al., 2014; Wijeratne et al., 2006). However, until now, no study has examined whether this scale can be applied in Eastern adolescents or not. Therefore, the present study seeks to do a psychometric evaluation of the SPHERE by using a Chinese adolescent sample.

Method

Participants and Data
Our participants consisted of 116 twins (mean age = 17.26 years, SD = 0.62), who were mainly from middle-class families. Fifty-four twins were recruited in pairs and the others were singletons. Fifty twins were females. The twins were middle school or high school students in Jiangsu province, China. During the survey, the participants were asked to indicate if they had been troubled by symptoms over the past few weeks. They completed the survey on a

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computer in their schools. The questionnaire was translated and back translated from the English version by a Chinese researcher, who is good at both English and psychology. All questionnaires were returned without any missing values. This study was approved by the institutional review board and informed consent was obtained by the participants. In this study, internal consistency and split-half reliability were used to evaluate the reliability, and item-total correlations were computed to examine the validity of the SPHERE.

Results

Descriptive statistics of the subscale scores and scores for each item are shown in Table 1. The analysis of reliability indicated that the internal consistencies of this scale was good (for SPHERE, $\alpha = 0.97$; for somatic distress, $\alpha = 0.83$; for psychological distress, $\alpha = 0.89$; for depression/anxiety, $\alpha = 0.94$; for somatic distress, $\alpha = 0.89$; for fatigue, $\alpha = 0.87$; for neurasthenia, $\alpha = 0.93$; and for somatization, $\alpha = 0.92$). The split-half reliabilities were good as well (for SPHERE, $\alpha = 0.96$; for somatic distress, $\alpha = 0.82$; for psychological distress, $\alpha = 0.89$; for depression/anxiety, $\alpha = 0.93$; for somatic distress, $\alpha = 0.88$; for fatigue, $\alpha = 0.85$; for neurasthenia, $\alpha = 0.94$; and for somatization, $\alpha = 0.94$). The validities of the SPHERE were tested by using the item-total correlations (Hubel et al., 2008). The results indicated that the item-total correlations were acceptable for all the subscales of the SPHERE (all the values were higher than 0.20).

Discussion

In previous research, the SPHERE has been widely used in Western studies (Gillespie et al., 2000; Hansell et al., 2012; Okbay et al., 2016; Rietschel et al., 2014; Wijeratne et al., 2006). The present study contributes to the literature by
examining the reliability and validity of the SPHERE in Chinese adolescents. Similar to the findings in Western studies (Hansell et al., 2012; Wijeratne et al., 2006), our data indicated that the Chinese version of the SPHERE has a good reliability and validity as well. In China, few instruments have been developed to measure adolescents’ somatic and psychological distress. The Chinese version of the SPHERE provides a useful tool for researchers, who are interested in investigating Chinese adolescents’ somatic and psychological health. The SPHERE has some advantages over some other Chinese scales on adolescents’ health. For instance, it is a short scale but can provide a lot of information on several kinds of symptoms at one measurement. Furthermore, it can provide continuous data rather than binary or ordinal data, which is easier for genetic modeling in twin research (Hansell et al., 2012). In sum, our study suggests that the SPHERE is a good tool and can be well used to measure adolescents’ somatic and psychological health.

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References


