



Research report

Psychometric properties of the Chinese (Mandarin) TEMPS-A: A population study of 985 non-clinical subjects in China



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ABSTRACT

Background: The TEMPS-A (Temperament Evaluation of Memphis, Pisa, Paris and San Diego) is a 110-item auto-questionnaire (self-rated) which consists of five temperament scales: depressive, cyclothymic, hyperthymic, irritable and anxious temperaments. It has been translated into over 25 languages and validated in at least 12, with broad cross-cultural cogency. This is a first attempt to validate the TEMPS-A in a very large Chinese population speaking Mandarin.

Methods: The Chinese TEMPS-A was adapted from the original English version following a rigorous process of forward translation and backward translation (after the approval of the English back translation by H.S.A. and K.K.A.), it was administered to 985 non-clinical Chinese subjects aged between 18–60 years (53.8% female) in four communities in Guangzhou City, China. A subset of 105 subjects was retested approximately six weeks later. Standard psychometric tests of reliability and validation were performed.

Results: The test–retest reliability for depressive (0.74), cyclothymic (0.71), hyperthymic (0.67), irritable (0.66) and anxious (0.83) were respectively as shown in the parentheses. For internal consistency, Chronbach alphas coefficients were 0.68, 0.85, 0.82, 0.83 and 0.87, respectively. Exploratory factor analysis revealed 2 super factors, Factor I loading on anxious, cyclothymic, irritable, and depressive temperaments; and Factor II loading on hyperthymic. Depressive, cyclothymic, irritable and anxious temperaments were correlated with each other. Males had significantly higher scores than females for the hyperthymic and irritable temperaments. The prevalence of the dominant depressive (2.9%), cyclothymic (5.6%), hyperthymic (1.3%), irritable (7.0%) and anxious (5.3%) temperaments were respectively as shown in the parentheses.

Limitations: Although it is likely that generalizability of our scale is good for the entire Mandarin-speaking ethnic composition of China today, future research is needed to establish this conclusively.

Conclusion: The Chinese TEMPS-A standardized on one of the largest non-clinical samples in any of the other national studies to date, has good internal consistency, coheres well with validated versions in other languages. The findings suggest that it is a psychometrically sound instrument to assess affective temperaments in clinical and biological studies in China.

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1. Introduction

Kraepelin introduced the four basic affective dispositions: depressive, cyclothymic, manic and irritable (Kraepelin, 1921 tr).

These temperaments were considered as subclinical forms of affective psychosis and commonly observed in the family members of manic-depressive patients. The concept of an affective continuum between temperament and affective disorder was proposed by Kretschmer (1936). The senior authors (Akiskal and Akiskal, 2005) in a special monograph on temperament, examined it from various perspectives, culminating in an evolutionary formulation as well as further developing German constructs to the effect that temperamental dysregulation represents the fundamental pathology of mood disorder, thereby sharing a common pathophysiological mechanism (Akiskal, 1995). Even among

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individuals with mood disorders, temperament dysregulation appears to be associated with increased risk of relapse (Akiskal et al., 1989; Cassano et al., 1989), and decreased and even unfavorable response to antidepressant medication (Kukopulos et al., 1983). More recent formulations have advanced genetic arguments in favor of the foregoing perspective (Kelsoe, 2003; Greenwood et al. 2012).

Based on theoretical considerations and observations of outpatients and subjects in the community, the senior authors (H.S.A and K.K.A) developed an instrument of operationalization of the four temperaments (Depressive, Cyclothymic, Hyperthymic and Irritable): the temperament Evaluation of Meniphs, Pisa, San Diego (TEMPS) (Akiskal and Akiskal, 1992; Akiskal et al., 1979; Akiskal and Mallya, 1987). It was first published as a semi-structured interview of TEMPS (TEMPS-I) administered by trained psychiatrists (Akiskal et al., 1998; Placidi et al., 1998b), then the auto-questionnaire version of TEMPS (TEMPS-A) was developed to further facilitate clinical and epidemiological research, with an anxious temperament added latter (Akiskal et al., 2005a). One of the main objectives of this instrument was to facilitate the assessment of factors involved in choice of professions as well as leadership and artistic creativity, i.e. “positive” attributes (Akiskal et al., 2005c; 2005d).

Today, TEMPS-A has been translated and validated in most of the main languages in the world, suggesting it is useful in quantifying affective temperament (Vázquez et al. 2012). Intriguingly, a growing body of evidence has shown that affective temperaments identified by TEMPS-A have potentially clinical implications (e.g. the hyperthymic temperament correlated with Lithium response) (Rybakowski et al., 2012) as well as being involved in professional choices and creativity in daily life (Figueira et al., 2010; Vellante et al., 2011). Considering its validations and large applications in other populations, we translate and validate this Chinese (Mandarin) version of TEMPS-A, a language which has at least 1.3 billion people speaking it, as preliminarily standardized in clinically-well subjects, which helps facilitate clinical research in the future. In addition, since there is no psychometrically sound scale for assessing affective temperaments in China, much attention has been given to TEMPS-A. However, there exists a previous 2006 Cantonese Version of TEMPS-A in preparation, but still unpublished (by Leung Chi-ming, who at the time was at the Chinese University of Hong Kong).

The aim of current study is to test the reliability of TEMPS-A, and to validate its factor structure in a nonclinical Chinese population. Concerning its stability, which is important for trait assessment, an approximately six-week test–retest reliability of the Chinese TEMPS-A is examined, mainly taking into account the potential effect of mood status and memory. Secondary objective of this study is to map TEMPS-A dominant temperaments in the Chinese population using preliminary cut-off points for each subscale.

2. Method

2.1. Design of the study and participants

Subjects were interviewed in their workplaces and communities as well as in their university classrooms from October 2012 to November 2012 in 4 districts (Baiyun, Haizhu, Yuexiu and Liwan) in Guangzhou, China, where a trained interviewer (Huiyi Ouyang) explained the purpose of this study (“to understand temperaments in good healthy people”). The trained interviewer conducted brief clinical interviews with the volunteers aged 18 and 60 years to confirm they were free of psychiatric disorders.

The interviewer distributed and collected TEMPS-A and questionnaire on demographic data (including gender, age, occupational status, marital status and educational attainment). Those with mental disorders identified during the interview as well as self-reporting of mental disorders history and family history of mental disorders were excluded from the study. Subjects were asked to respond to each of the 110 questions positively only if it was characteristic of their usual self since at least mid-adolescence. The dominant temperament for each subscale was set at 2 standard deviations above. The study was approved by the Ethics Committee of the Guangzhou Psychiatric Hospital. All the participants provided written informed consent.

TEMPS-A were administered to 1050 non-clinical Chinese subjects aged between 18 years and 60 years. Sixty-five subjects (6.1%) did not complete all the items and refused to response after reminding on-site, who were considered as non-responders and thus excluded from the final analyses. The resultant sample consisted of 985 non-clinical Chinese subjects between 18–60 years with mean age 29.9 ± 8.6 years. There were 530 women (53.8%) with mean age 30.2 ± 8.6 years, and 455 men (46.2%) with mean age 29.6 ± 8.6 years. Of this sample, 105(10.7%) subjects were college students and 791(80.3%) were employed. As far as marital status, 52.7% of the total samples were single, 47.1% married, and the remaining 2% either divorced or widowed. As for education, for 84 (8.5%) subjects, their highest level of education was elementary school, for 240 (24.4%) was high school, and 661(67.1%) had either completed college or were completing college.

The interviewer together with a teacher asked the same 105 university students to complete TEMPS-A again in their respective classrooms approximately 6 weeks later. They were 47 woman with mean age 19.9 ± 0.8 years, and 58 men with mean age 20.0 ± 0.7 years. All the retested students were full-time university students and single.

2.2. Measures

The TEMPS-A is a “yes” or “no” type self report instrument developed by the senior authors (H.S.A and K.K.A) of this article (Akiskal et al., 2005a, 2005b). It consists of 110 items that assess the 5 temperaments in 5 scales: depressive (items 1–21), cyclothymic (items 22–42), hyperthymic (items 43–63), irritable (items 64–84) and anxious (items 85–110). The Chinese TEMPS-A was adapted from the original English version following a rigorous process of forward translation (from English to Chinese) and backward translation (from Chinese to English). The backward English translation was revised by the original author of TEMPS-I (H.S.A) and the appropriate modifications were made by the Guangzhou Psychiatric Hospital team for the final version.

2.3. Statistical analyses

All the data was analyzed with the Statistical Package for Social Sciences (SPSS) software, version 16.0 with a 95% confidence interval. Internal consistency was measured through the Chronbach–Alpha coefficient. Factor loading was calculated using the principal component analysis with Varimax rotation, and the cut-off coefficient was set at 0.3. The test–retest reliability and correlation among the temperaments were examined using Pearson’s bivariate correlation. Differences in scores were tested using student’s independent *t*-test, one way analysis of variance (ANOVA), and chi-square test. Standardization was established by calculating Z-scores.

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