



Validation of the Chinese version of public attitudes toward epilepsy scale in Mainland China



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ABSTRACT

Purpose: Epilepsy is a significant yet seriously underappreciated public health issue in Mainland China. The stigma and discrimination toward people with epilepsy (PWE) and their families are especially severe in China based on cultural misconceptions which cause tremendous psychological, economic and social burdens. It is imperative to formulate a targeted public intervention to eliminate knowledge gaps and correct these misconceptions of epilepsy. However, to date, the essential tools that may drive such an intervention by measuring the public perspective on PWEs is lacking in China. The goal of this study is to test the reliability and validity of a Simplified Chinese version of the "Public Attitude Toward Epilepsy" scale (PATE) in Mainland China which can be used to understand the content and identify the possible sources of stigma to better inform the design and focus of future stigma reduction interventions.

Methods: The standard procedure of cross-cultural adaptation was used in the translation process. Subjects from different economic and social backgrounds were enrolled by convenience sampling in central China. Exploratory factor analysis and confirmatory factor analysis were used to check the underlying factor structure of the items. Furthermore, Cronbach's alpha was utilized to assess internal consistency.

Results: 199 respondents were included in the final analysis. Content validity of this Chinese PATE was assessed to be adequate for assessing public attitudes toward epilepsy among the mainland Chinese. Two factors were extracted from the data by exploratory factor analysis; confirmatory factor analysis further confirmed good consistency of theoretical constructs between the original Public Attitudes Toward Epilepsy scale and our Chinese PATE. Our Chinese PATE presented excellent internal consistency ($\alpha = 0.853\text{--}0.909$).

Conclusion: This version of the Chinese PATE showed acceptable psychometric properties, indicating that it can be implemented in surveying public attitudes toward epilepsy in Mainland China.

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1. Introduction

Epilepsy is a significant and widely prevalent, yet often overlooked, public health problem in China. The latest epidemiological studies indicate that epilepsy is the third most common neurological disease in China with a prevalence of 0.7% in the population, which translate into just over 9 million epileptic patients among whom an estimated 6 million have active epilepsy [1]. People with epilepsy (PWE) in China experience not only the medical consequences of the disease,

but also the strong social stigma and discrimination surrounding the disease. With 70% of China's population living in rural areas where traditional and superstitious views toward epilepsy endure, the psychological burden of epilepsy may be much more serious in China than elsewhere [2]. However, a specialized quantitative tool for assessing the public attitude toward epilepsy does not currently exist in China. Such a tool will significantly help elevate the nation's awareness regarding epilepsy's social burden and provide insights into misinformation and misunderstandings about epilepsy and the resulting formal and informal stigma perpetrated on PWEs.

Previous works related to the public attitude toward epilepsy in China are flawed in that none implemented cultural-specific scales [3–5]. Firstly, on a global basis, very few available tools exist to quantify

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the public's attitude toward epilepsy. Furthermore, many scales are not adequate for cross-cultural implementation. Among those scales, the "Public Attitudes Toward Epilepsy" scale (PATE), developed by Kheng-Seang Lim from the University of Malaya, is most suitable for multi-cultural usage [6]. This scale is based on Link's stigma model – a universally applicable theoretical model which defines stigma as the co-occurrence of its components: labeling, stereotyping, separation, status loss, and discrimination [7]. The PATE scale measures the general and interpersonal views regarding PWEs. It has been validated in Malay and Mandarin in Malaysia, and multiple studies have been conducted with its applications in several specific populations, demonstrating that the PATE scale is reliable and easily applicable [8–11]. Unfortunately, the existing Mandarin version of the PATE validated overseas cannot be implemented successfully in Mainland China due to the obvious difference in regional language and cultural backgrounds. Here, to better inform the design and focus of future stigma reduction interventions for PWEs, we propose to translate the original PATE into Simplified Chinese and to study its psychometric characteristics, i.e. convergent validity, exploratory and confirmatory factorial analysis, internal consistency in Mainland China.

2. Methods

2.1. Ethics statement

Our study has been approved by the ethics committee of the Xiangya Hospital of Central South University [Grant Number: 201412420]. Respondents were informed the purpose and significance of our study and that their answers to the scale will be used in our scientific research. Filling in the study form with the revised PATE scale was deemed written consent as stated in the introductory section of the form. The collected questionnaires have been preserved with confidentiality at our Neurology lab at Xiangya.

2.2. Subjects and procedures

Chinese-speaking subjects older than 18 years old from mainland China were enrolled via convenience sampling by randomly issuing questionnaires on the streets of Changsha, China. No other exclusion criteria were made. Written consents were obtained and all questionnaires were administered anonymously.

2.3. Measures

The PATE scale is a two-dimensional 14-item scale that measures public attitudes toward epilepsy. The personal domain comprises of five items concerning personal relationship with epilepsy patients, such as dating, marriage or employment. The general domain includes nine items that assess the general opinion of patients with epilepsy. Each item has five response categories with 1 being "strongly disagrees" and 5 being "strongly agree". The higher the score, the more negative the response reflected toward epilepsy.

2.4. Translation process

2.4.1. Forward and backward translation and cultural adaptation

Two trained translators translated the English version of the PATE into Simplified Mandarin Chinese independently. A team of clinical neurologists and clinical psychologists reconciled these two Chinese versions into one single version. Backward translation was then performed by two other linguists who were unaware of the original PATE or the study. The consolidated backward translation was compared with the original version and recommendations were made until an acceptable Chinese translation was agreed upon. Finally, ten Chinese-speaking adults were asked to complete the drafted instrument to identify any difficulty in comprehension and relevance of the questions

asked. The recommendations from them were taken into considerations in drafting the last version of the scale.

2.5. Data analyses

Data was input with EpiData 3 and analyzed with SPSS 19 or Amos 21. Descriptive statistics were used to characterize the sample and distribution of PATE scores.

2.5.1. Psychometric analyses of the scale

2.5.1.1. Reliability. The internal consistency of the scale and other components were assessed using Cronbach's alpha. An alpha value of 0.7–0.9 is considered to be acceptable.

2.5.1.2. Validity. Content validity: Content validity refers to how well the subjects' reaction toward the test content matches with the designed measuring purposes. We invited five experts from the psychology, epidemiology, and neurology departments to evaluate the correlation between each item, theme and language accuracy. Correlation analysis was performed. The correlation coefficients between an item and its belonged domain should be higher than the correlation with another domain and the total score.

Construct validity: The underlying structure of the translated version should be similar to the original version which was evaluated by exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Before EFA, the Kaiser-Meyer-Olkin (KMO) value was calculated to see whether the data met the criteria of principal component analysis. Eigenvalue >1 was used to identify the number of extracting factors in the scree plot. CFA was performed to further check whether the underlying structure of the translated Chinese version matches with the original PATE scale which revealed a two-factor model.

3. Results

3.1. The Chinese PATE scale

After the standard translation process described above, the final Chinese version was created (Appendix 1). The average time of completion for the scale is about 7 min.

3.2. Demographic data

In total, 199 subjects completed the questionnaire. The average age of respondents was 33.75 years old (SD = 10.60, range 18–70 years old), with 39.7% male, 67.8% married, 97% having a minimum education of 6 years and 2.5% having family history of epilepsy (Table 1).

Table 1
Demographic characteristic of subjects (N = 199).

		Number (%)
Sex	Male	79 (39.7)
	Female	120 (60.3)
Marital status	Married	135 (67.8)
	Single	53 (26.6)
	Divorced	11 (5.5)
Education level	Primary or under	6 (3)
	Middle or High School	31 (15.6)
	College or above	162 (81.4)
Individual monthly income (Chinese Yuan*)	1000 and below	13 (6.5)
	1001–3000	92 (46.2)
	3001–5000	69 (34.7)
	5001 and above	25 (12.6)
Family history of epilepsy	Yes	5 (2.5)

* 1 USD = 6.91 Chinese Yuan.

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