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ORIGINAL ARTICLE

Psychometric Properties of the Chinese Version of the Kid-KINDL^R Questionnaire for Measuring the Health-related Quality of Life of School-aged Children

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Summary *Objective/Background*: The reliability and validity of the Chinese version of the Kid-KINDL^R questionnaire were examined with school-aged children in Hong Kong.
Methods: A total of 112 healthy children were selected by convenience sampling from two primary schools and 30 children with global developmental delay were selected from an outpatient occupational therapy department of a convalescent hospital. The Kid-KINDL^R questionnaire was translated using independent forward and backward translation. The content validity of the translated instrument was evaluated by four experts. Internal consistency, factor analysis, and construct validity were examined in the healthy children group, whereas known-group comparison was performed in the group with global developmental delay.
Results: The significance value of the Shapiro—Wilk test was greater than 0.05, indicating that the sample displayed a normal distribution. The total score had good internal consistency (Cronbach's alpha = .77); however, the consistency of the subscales varied (Cronbach's alpha ranged from .47 to .70). The children and parent questionnaires did not load onto the six factors originally hypothesized. Instead, seven factors were generated. Evidence supporting the questionnaire's validity included a lack of age and sex bias and positive known-group differentiation (Wilks' lambda = 0.906, p = .035).
Conclusion: The Chinese version of the Kid-KINDL^R questionnaire exhibited good psychometric properties, but the internal consistency of the translated instrument needs further improvement. It is recommended that practitioners focus on the Kid-KINDL^R total score

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when interpreting the Kid-KINDL[R] data. Overall, the study findings indicate that the Chinese version of the Kid-KINDL[R] is an important tool for use in clinical practice.

Introduction

Health professionals are showing an increasing interest in the measurement of quality of life (QoL). QoL can be described in a broad multidimensional manner by incorporating objective and subjective accounts of factors such personal feelings, social relationships, the local environment, societal values, political institutions, economic conditions, and international relations (Colver, 2008).

Early attempts to rate children's QoL relied on data provided by mothers. Doctors and therapists often assume that the therapies and treatments they offer to children naturally correspond with what a child will want and will improve their QoL. However, children do not share the same views as adults about the causes, aetiology, and treatment of illness. They may interpret a doctor's questions differently, and adopt a different time perspective regarding the course of a disease. Accordingly, any comprehensive assessment of a child's health-related QoL (HRQoL) should include information from both the child and his or her caregiver. A number of tools have been designed to assess QoL in children and adolescents, such as the Child Health Questionnaire (CHQ; Landgraf, Abetz, & Ware, 1999), the Kid-KINDL[R] questionnaire (Ravens-Sieberer & Bullinger, 2000), and the Pediatric Quality of Life Inventory (PedsQL; Hu, Jiang, Hong, Cheng, Kong, & Ye, 2013).

A Chinese version of the PedsQL has been developed and psychometrically evaluated. The scoring of PedsQL is somewhat more complicated and difficult to interpret than that of the Kid-KINDL[R] because of the time factor. The PedsQL requires the child to self-report and the parent to proxy report how much of a problem each item has been during the past month on a 5-point Likert scale. The items are linearly transformed to a 0—100 scale and the scale scores are computed as the sum of the items divided by the number of items answered.

The CHQ consists of 87 items distributed across 14 subscales, whereas the 24 items of the Kid-KINDL[R] are divided into six subscales as well as a total scale. The Kid-KINDL[R] questionnaire is easy to administer, fill in, and score, and is completed within 10 minutes, whereas the administration, filling in, and scoring of the CHQ are somewhat more complicated, and the questionnaire requires between 25 minutes and 30 minutes to complete. All of the items of the CHQ are scored using 4- to 6-point Likert scales. Although the CHQ is an extensive instrument, a shorter questionnaire such as the Kid-KINDL[R] may be desirable for use in health research and clinical practice.

Overall, the Kid-KINDL[R] questionnaire is the preferred instrument because it includes both child and parent proxy reports and, most importantly, the child self-report has the least items and is relatively easy to complete. The Kid-KINDL[R] comprises 24 Likert-scaled items that are equally distributed into six subscales. In addition to the six subscale scores, the respondents are given a total scale score, which may be expressed in the original metric (1—5). Eiser and Morse (2001a, 2001b) recommend that the ideal QoL measurement for children should not contain >30 items. The psychometric properties of this instrument for children with and without chronic disorders have been well documented. Hence, we chose to translate the Kid-KINDL[R] questionnaire into Chinese and validate it for local application in Hong Kong.

A previous local study found that children in Hong Kong reported lower QoL under the same physical conditions (Yam et al., 2008). Societal and cultural attitudes play an important role in determining QoL. Hence, when adapting and translating QoL instruments for use in other cultural contexts, it is important to ensure that the psychometric properties of the original questionnaire are preserved in the new cultural setting. Therefore, the goal of this study was to validate a Chinese version of the Kid-KINDL[R] questionnaire. Specifically, the study focused on the following three psychometric areas: (a) content validity, (b) reliability (internal consistency), and (c) construct validity (i.e., sex bias and known-group comparison). The study was granted independent approval from the Hospital Authority Research Ethics Committee prior to commencement.

Methods

Participants

The participants were divided into two groups, namely, Group A and Group B. For Group A, the convenience sampling method was used to select participants from two primary schools. Invitation letters were sent to the school principals, and individual invitation letters and consent forms were delivered through the school to the children's parents or guardians. Prior oral permission to participate in the study was obtained from the principals of the primary schools. Children aged 7—13 years and their parents were selected to participate in the study by the teacher in charge of the school. The aim was to minimize the administrative burden to encourage participation. All selected participants were given an individual invitation letter and the consent form. Participation in the study was voluntary. The parent or guardian of each child signed and returned the consent form to the first author along with the completed QoL questionnaires. None of the participants in Group A had been diagnosed with physical, intellectual, or sensory impairment or had identified special educational needs. All were Cantonese-speaking individuals and attended mainstream schools. All of the children and their parents were able to read and write traditional Chinese.

The participants in Group B were recruited from the outpatient occupational therapy department of a