Journal of Pediatric Nursing xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

Journal of Pediatric Nursing

Translation and Psychometric Analysis of the Chinese Version of the Dutch Eating Behavior Questionnaire for Children (DEBQ-C) in Taiwanese Preadolescents

Ya-Fen Wang [a,*], Hsiao-Ling Chuang [b,c], Chi-Wen Chang [d,e], Jaclene A. Zauszniewski [f]

[a] College of Nursing, Kent State University, Kent, OH, USA
[b] School of Nursing, Chung Shan Medical University, Taichung, Taiwan
[c] Chung Shan Medical University Hospital, Taichung, Taiwan
[d] School of Nursing, Chang Gung University, Taoyuan, Taiwan
[e] Department of Pediatrics, Chang Gung Memorial Hospital, Taoyuan, Taiwan
[f] Frances Payne Bolton School of Nursing, Case Western Reserve University, Cleveland, OH, USA

ARTICLE INFO

Article history:
Received 12 September 2017
Revised 18 December 2017
Accepted 10 January 2018
Available online xxxx

Keywords:
Dutch Eating Behavior Questionnaire-Children (DEBQ-C)
Overeating
Psychometric analysis
Preadolescents

ABSTRACT

Purpose: This study aimed to translate and evaluate the psychometric properties of a Chinese version of the (DEBQ-C) among Taiwanese preadolescents.
Design and Methods: The DEBQ-C was translated into Mandarin Chinese (CDEBQ-C) using established translation and back-translation methods and reviewed by an expert panel for cultural equivalence. A convenience sample of 349 preadolescents was randomly split to conduct exploratory factor analysis (EFA) on the first half and confirmatory factor analysis (CFA) on the second. Internal consistency estimates for subscales were evaluated using Cronbach's alpha. Construct validation with academic stress, a theoretically related construct, was also examined.
Results: The theoretical dimensions of the original DEBQ-C were supported with an EFA that revealed the presence of three factors with 41.23% variance explained, and model fit was confirmed by CFA. Construct validation was supported by positive correlations with academic stress. Each subscale of the CDEBQ-C demonstrated satisfactory internal consistency (Cronbach's alpha = 0.72–0.86). Overweight/obese preadolescents scored significantly higher on restrained eating compared to other weight groups.
Conclusions: The findings suggest that the CDEBQ-C is a psychometrically valid and reliable instrument for assessing overeating tendencies with Taiwanese preadolescents. Replication studies with greater diversity in age, ethnicity, and weight are needed to provide further evidence of construct validity for the CDEBQ-C.
Practice Implications: Clinicians and researchers can use the CDEBQ-C to assess or expand the knowledge of children's overeating. At-risk preadolescents can be identified at an early stage and effective and individualized intervention programs may be designed and facilitated.

Introduction

The prevalence of childhood overweight and obesity is rising globally. Prevalence of overweight and obesity in children has increased at a faster pace not only in developed countries, but also in developing countries, including countries in Asia (Chung et al., 2016; de Onis, Blossner, & Borghi, 2010; Jia, Xue, Zhang, & Wang, 2017; Ng et al., 2014; Ramachandran, Chamukuttan, Shetty, Arun, & Susairaj, 2012) where a less active lifestyle and an increasingly Westernized diet are becoming more common (NCD Risk Factor Collaboration, 2016; Ramachandran et al., 2012). In Taiwan, the prevalence of overweight and obesity in children was over 27% in 2013 (National Health Research Institutes, 2016), close to the 2013–2014 U.S. rate of 33% (Fryar, Carroll, & Ogden, 2016) and the highest in neighboring Asian countries (Ng et al., 2014).

Obesity is a complex disorder that results from the interaction of multiple factors (World Health Organization [WHO], 2016). Overeating, one dimension of behavioral elements related to eating, has been recognized as a critical contributor to overweight and obesity (Elfhag & Morey, 2008; Van Strien, Frijters, Bergers, & Defares, 1986). Overeating affects food preferences (Elfhag, Tynelius, & Rasmussen, 2010) and is linked to the nature of food consumption (Porter & Johnson, 2011; Riva, Gaggioli, & Dakanalis, 2013) as well as psychological conditions such as lower body esteem (Flament et al., 2012; Porter & Johnson, 2011). Hence, identifying overeating patterns is crucial and should surpass identifying other weight gain contributors (Kleiser, Rosario, Mensink, Prinz-Langenohl, & Kurth, 2009).

* Corresponding author at: Kent State University, College of Nursing, 113 Henderson Hall, P.O. Box 5190, Kent, OH 44242, USA.
E-mail address: ywang95@kent.edu (Y.-F. Wang).

https://doi.org/10.1016/j.pedn.2018.01.009
0882-5963/

Three different overeating styles have been identified: emotional, external, and restrained (Van Strien et al., 1986). According to psychosomatic theory (Bruch, 1997), food intake and psychological stress are correlated; therefore, collective daily stress can trigger emotional eating, which momentarily helps individuals reduce psychological distress and anxiety. Derived from externality theory (Schachter, 1971), external eating refers to eating in response to external food cues appealing to the senses, such as smell of food, regardless of the internal state of hunger and satiety. Explained by restraint theory (Herman & Polivy, 1983), restrained eating style as the outcome of unsuccessful dieting refers to conscious food restriction in order to maintain or control body weight.

The Dutch Eating Behavior Questionnaire for Children (DEBQ-C; Van Strien & Oosterveld, 2008), age-adapted from the adult version of the DEBQ (Van Strien et al., 1986), evaluates overeating tendencies in pediatric populations. The DEBQ-C has been used and shown good factorial validity and reliability across various clinical and non-clinical populations in Western settings. However, studies have not systematically evaluated the DEBQ-C, and none have reported psychometric properties of a version adapted for children in an Asian-Chinese cultural context.

It is well-documented that health consequences of childhood overweight and obesity are significant. Overweight children tend to remain overweight into adolescence (Tran, Krueger, McCormick, Davidson, & Main, 2016) and adulthood (Freedman et al., 2005; Simmonds, Llewellyn, Owen, & Woolacott, 2016). Likewise, obese adolescents are more likely to become obese adults when compared with obese children (Simmonds et al., 2016). In addition, the consequences of overweight and obesity in childhood, including adverse physical and psychological effects, are likely to persist into adulthood as well (Reilly & Kelly, 2011). Most importantly, it is challenging and requires significant effort and commitment to reverse the trajectory of excess weight gain once a child has become obese. Thus, preadolescence, a time during which the risk of onset, complications, and persistence of overweight and obesity increases, is an ideal time for health professionals and researchers to monitor preadolescents' eating patterns and guard against the weight-gain trajectory.

Given the high prevalence of childhood overweight and obesity in Taiwan, it is critical to have a reliable and valid instrument that can be used by healthcare professionals and researchers to provide a better understanding of overeating tendencies and behaviors in the Taiwanese-Chinese population. Hence, the purpose of this analysis was to report the translation and evaluation the psychometric properties of the Chinese version of the DEBQ-C (CDEBQ-C) in a community sample of Taiwanese preadolescent children.

Methods

Participants and Procedure

A cross-sectional design was used to conduct this multiple-phase methodological study. The study was approved by the University Institutional Review Board for the protection of human participants prior to data collection. A non-clinical community-based sample was recruited from diverse socioeconomic backgrounds and various geographical locations in Taiwan. Preadolescent children (fifth- and sixth-graders) were eligible to participate in the study. No other restrictions were placed on recruitment. Participants were given parental consent and assent forms to read and sign prior to the collection of any information. Additionally, participants were assured that their responses would remain confidential; they could refuse to answer any questions and/or to participate in the study at any time; and refusal to participate in the study would not affect their relationships with school authorities, teachers, and peers.

Instrument

The Dutch Eating Behavior Questionnaire for Children (DEBQ-C)

The DEBQ-C (Van Strien & Oosterveld, 2008) is a self-report instrument for assessing three types of overeating tendencies, emotional, external, and restrained, in children aged 7–12 years old. There are 20 items in the DEBQ: 7 pertaining to emotional eating (e.g., "Does worrying make you feel like eating?"); 6 to external eating (e.g., "Do you feel like eating whenever you see or smell good food?"); and 7 to restrained eating (e.g., "Do you intentionally eat less to avoid gaining weight?"). The DEBQ-C uses a 3-point Likert scale with response categories that range from 0 ("no") to 2 ("yes"), and a higher sum score indicates a higher tendency for the specific type of overeating. The DEBQ-C has shown satisfactory internal consistencies and factorial validity that the fit measures for the three-factor model (Van Strien & Oosterveld, 2008).

Instrument Translation. Using the well-established translation and back-translation process with the goals of assuring equivalence in varied aspects between source and target versions and fitting within the linguistic and cultural environment (Behling & Law, 2000; Brislin, 1986), the DEBQ-C was first translated into Mandarin Chinese following a systematic procedure. First, two bilingual nursing professionals with doctoral degrees who were familiar with the study populations and the content of the instrument worked independently to translate the measure from English (source version) into Chinese (target version). Second, the panel of translators and another bilingual nursing professional reviewed the translated material and identified discrepancies to determine the best translation for each item. After the translated Chinese version was established, it was reviewed by a monolingual elementary teacher to ensure the target version met fifth and sixth graders' cognitive development and to avoid incomprehensible wordings.

Back Translation. Back translation was conducted by other bilingual nursing experts who were blinded to the original English version. A panel of experts experienced in pediatric nursing was then asked to compare and examine discrepancies between these two versions (original English and back-translated English versions) for culturally valid and linguistic congruence. Lastly, as requested, the back-translated English version was sent back to the developer (Dr. Van Strien) for further validating. The process was repeated until the translated (target) version was satisfactory. The final Chinese version of the DEBQ-C (CDEBQ-C) was tested in a representative group of five fifth and sixth graders to assess appropriateness.

Validation

Overeating can be provoked by stress (Adam & Epel, 2007; American Psychological Association [APA], 2013, 2016; Bruch, 1997; Groesz et al., 2012; Michels et al., 2015; Torres & Nowson, 2007). Findings from the Stress in America™ (APA, 2014) survey show that >25% of youths reported engaging in overeating as a result of stress. Academic-related stress was one of the daily stressors experienced by children (Chiang et al., 2013; Hesketh et al., 2010). Therefore, academic stress, commonly reported in Chinese society, was selected to test construct validity based on the hypothesis testing method. Theoretical association was expected between overeating and the measure of academic stress in a positive direction, demonstrating the construct validity of the CDEBQ-C.

Academic Stress Scale (ASS)

Academic stress may be assessed by the Academic Stress Scale (ASS; Leung, Yeung, & Wong, 2010. Developed by Chinese scholars and written in Chinese, the ASS is composed of eight items on a 4-point scale (1–4), with higher summed scores indicating a higher level of academic stress experienced by children. The ASS has been used with children in Hong Kong, and the Cronbach's alpha was found to be .84 among 1171

Please cite this article as: Wang, Y.-F., et al., Translation and Psychometric Analysis of the Chinese Version of the Dutch Eating Behavior Questionnaire for Children (DEBQ-C) in T..., *Journal of Pediatric Nursing* (2018), https://doi.org/10.1016/j.pedn.2018.01.009