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Psychometric Assessment of the Depressive Cognition Scale Among Older Chinese People

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ABSTRACT

The study aimed to translate the Depressive Cognition Scale (DCS) into Chinese and to test its reliability and validity among Chinese older people. Using a cross-sectional design, a demographic questionnaire and Chinese versions of the Depressive Cognition Scale (DCS-CHI) and the Center for Epidemiological Studies-Depression Scale (CES-D) were administered. The sample consisted of 1673 older people who were from communities and hospitals. The Cronbach's alpha (α) of DCS-CHI was 0.91, and the test-retest correlation coefficient was 0.91 (95% CI, 0.86–0.95, $p < 0.001$). The Content Validity Index (CVI) was found to be good. Exploratory factor analysis (EFA) resulted in a single factor that explained 58.46% of the total variance and all 8 items had strong factor loadings ranging from 0.62 to 0.83; confirmatory factory analysis (CFA) indicated all measurements of the structural model exceeded the recommended criteria, and the single factor solution of DCS-CHI had a good fit ($\chi^2/df = 2.45$, GFI = 0.99, AGFI = 0.97, CFI = 0.99, TLI = 0.99, RMSEA = 0.04, RMR = 0.01, PCLOSE = 0.79). The strong correlation of 0.81 ($p < 0.01$) between the DCS-CHI and CES-D suggested good concurrent validity. Specifying the CES-D as the criterion, the area under the receiver operator characteristic (ROC) curve of the DCS-CHI for the optimal cut-point was 0.941(95%CI:0.919–0.963, $p = 0.000$), the sensitivity and the specificity were 84.7% and 90.7% respectively, suggesting good predictive validity. The findings support the reliability and validity of the DCS-CHI as a measure of depressive cognitions that typically proceed more serious depressive symptoms among Chinese older adults.

BACKGROUND

Depression can be defined as a mental disorder, with persistent sadness, loss of interest in daily living activities, difficulty concentrating, poor memory, and lack of energy (Yeun, Kwon, & Kim, 2012). As one of the most common psychiatric disorders, depression is the third leading cause of burden of disease worldwide and the first in middle-income and high-income countries (National Institute of Mental Health, 2008).

Depression affects persons of all ages, genders, and backgrounds (Zauszniewski & Bekhet, 2012), and the older population is more vulnerable to depression than the rest of the population because of declining health, higher morbidity due to chronic diseases, and the rapidly increasing number of older people who live alone or only with a spouse (Gao, Wei, Shen, Tang, & Yang, 2014). At present, China is the country with the largest aging population in the world and the fastest population growth in general. It was estimated that the elderly population would reach >400 million by 2015 (Guo, Gao, Guo, & Liu, 2014; Wang, Ma, & Dou, 2013). Research has shown that, in China, the elderly who have obvious depressive symptoms represented 16% of all older people and included 52% of seriously ill patients (Huang, 2015). Therefore, depression in the older population has aroused widespread concern in society.

In accordance with Beck's cognitive theory of depression, the cognitive symptoms of depression, that is, depressive cognitions, appear earlier than the affective, motivational, and somatic symptoms constituting clinical depression (Beck, Brown, Steer, Eidelson, & Riskind, 1987; Yeun et al., 2012; Zauszniewski, 1995, 1997; Zauszniewski & Bekhet, 2012). Therefore, depressive cognitions are the precursors of clinical depression, suggesting that early detection and treatment is important to prevent the development of clinical depression and suicide (Yeun et al., 2012; Zauszniewski & Bekhet, 2012).

Currently, many scales exist to assess the depression of older people in the world, including the CES-D (Radloff, 1977), the Zung self-rating Depression Scale (SDS) (Zung, 1965), the Beck Depression Inventory

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(BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Geriatric Depression Scale (GDS) (Yesavage et al., 1983), and the Hospital Anxiety and Depression Scale (HADS) (Hamilton, 1960). However, although these scales are known to be reliable, valid, and widely used, they all measure the collection of symptoms constituting clinical depression, and do not specifically measure the depressive cognitions that may precede clinical depression (Bekhet & Zauszniewski, 2013a, 2013b; Zauszniewski & Bekhet, 2012).

Accordingly, to address this issue, Zauszniewski (1995) designed the Depressive Cognition Scale (DCS) to measure depressive cognitions that may precede the development of clinical depression, based on Erikson's theory of psychosocial development and Beck's cognitive theory of depression (Beck, 1967; Erikson, 1959; Erikson, 1961; Erikson, 1968). The DCS is a self-report scale that has been used in America (Zauszniewski, 1995; Zauszniewski, 1997; Zauszniewski & Bekhet, 2012; Zauszniewski, Chung, Krafcik, & Sousa, 2001; Zauszniewski, Picot, Debanne, Wykle, & Roberts, 2002; Zauszniewski & Suresky, 2010), Brazil (Sousa, Zauszniewski, Mendes, & Zanetti, 2005; Sousa, Zauszniewski, Zanetti, & Mendes, 2008), the Middle East (Bekhet & Zauszniewski, 2010), and Korea (Yeun et al., 2012). Thus, the DCS has been found to be reliable and valid in English, Portuguese, Arabic, and Korean languages. However, prior to the study reported here, the DCS was not translated into Chinese for use among Chinese older people.

AIMS AND OBJECTIVE

The aims of this study were to translate the Depressive Cognition Scale (DCS) into Chinese and to test the reliability (i.e. internal consistency, homogeneity and stability) and validity (i.e. content, construct, concurrent and predictive validity) of the Chinese Version of the Depressive Cognition Scale (DCS-CHI) among older people in the Chinese context.

METHODS

DESIGN AND PARTICIPANTS

The study was conducted using a cross-sectional survey among older individuals. Inclusion criteria were: (1) ≥60 years old; (2) able to communicate; and (3) consent to participate. Exclusion criteria were: (1) not permanent residents (more than half a year); or (2) suffering from serious acute or chronic diseases, such as severe heart failure, kidney failure, liver disease, malignant tumor, etc. These persons were excluded because they may have been experiencing symptoms that appear on the depression scale that may have been associated with their severe acute or chronic illness rather than with depressive illness.

INSTRUMENTS

The questionnaire included demographic variables: age, gender, height, weight, body mass index (BMI), marital status, educational level, alcohol drinking status, contact information, smoking status, health coverage status, and the status of chronic diseases and the DCS-CHI and CES-D. Demographic characteristics of the sample appear in Table 1.

DCS

The DCS (Zauszniewski, 1995) is an eight-item instrument that assesses emptiness, helplessness, hopelessness, loneliness, meaninglessness, worthlessness, purposelessness and powerlessness. All the items are phrased in a positive direction, and sample items of DCS include: "I have many people in my life" and "I am in control of my life". The DCS is a six-point Likert scale, on which every item is scored from 0 (strongly disagree) to 5 (strongly agree). Each item in the scale reflects one depression cognition and all items are reverse coded. The possible total score ranges between 0 and 40, and the higher scores indicate the presence of more depressive cognitions that may precede clinical depression. This instrument was developed by its author to be scored in this way and a number of published studies described its reliability and validity when scored in this way.

Table 1
Characteristics of the sample.

Variables	Total sample $N = 1673$	EFA $N = 837$	CFA $N = 836$
Age in years (mean ± SD)	73.34 ± 7.86	75.54 ± 6.43	71.89 ± 8.42
≥60 years old (*N*/%)	756 (45.2)	358 (42.8)	398 (47.6)
≥70 years old (*N*/%)	572 (34.2)	306 (36.6)	266 (31.8)
≥80 years old (*N*/%)	301 (18.0)	146 (17.4)	155 (18.5)
≥90 years old (*N*/%)	44 (2.6)	27 (3.2)	17 (2.1)
Gender (*F*/%)			
Male	826 (49.4)	398 (47.6)	428 (51.2)
Female	847 (50.6)	439 (52.4)	408 (48.8)
Spouse status (*F*/%)			
Have	1243 (74.3)	616 (73.6)	627 (75.0)
No	430 (25.7)	221 (26.4)	209 (25.0)
Education (*F*/%)			
≤9 years	930 (55.6)	460 (55.0)	470 (56.2)
>9 years and ≤12 years	432 (25.8)	221 (26.4)	211 (25.2)
>12 years	311 (18.6)	156 (18.6)	155 (18.6)
Smoking status (*F*/%)			
Yes	509 (30.4)	245 (29.3)	264 (31.6)
No	1164 (69.6)	592 (71.7)	572 (68.4)
Alcohol drinking status (*F*/%)			
Yes	599 (35.8)	295 (35.2)	304 (36.4)
No	1074 (64.2)	542 (64.8)	532 (64.6)
BMI (Mean ± SD)	22.76 ± 2.38	23.54 ± 4.32	21.43 ± 3.96
Chronic diseases status (*F*/%)			
Yes	944 (56.4)	466 (55.7)	478 (57.2)
No	729 (43.6)	371 (44.3)	358 (43.8)

Note. SD, standard deviation; F, frequency; %, percentage; EFA, exploratory factor analysis; CFA, confirmatory factor analysis; BMI, body mass index.

CES-D

The CES-D (Radloff, 1977) is the well-known scale for the general population and it is mostly widely used instrument to assess depressive symptoms in field of psychiatric epidemiology (Murphy, 2002). The CES-D is very popular in China and has good reliability and validity (Zhang et al., 2010). It is a 20-item instrument that measures the following domains: depressed affect (items 1, 3, 6, 9, 10, 14, 17 and 18), somatic and decreased activity (items 2, 5, 7,11, 13 and 20), positive affect (items 4, 8, 12 and 16), and inter-personal relations (items 15 and 19). Four items are phrased negatively and therefore are reverse-scored. The CES-D is a four-point Likert scale; every item ranges from 0 (rarely or not at all) to 3 (most or all of the time). The possible total score ranges between 0 and 60, and the higher scores indicate more depressive symptoms.

TRANSLATION PROCEDURE

The English version of the DCS was provided by its original author, and translation steps were undertaken following Brislin's translation guidelines (Brislin, 1970). First, a bilingual professional translator translated the DCS from English into Chinese. Then, another bilingual professional translator translated the translated version back into English. The two translators worked separately. Second, a group of bilingual persons, including three nursing experts and two psychology experts, examined the original English version and the back translated scale to resolve discrepancies in the meaning of the scale items and to evaluate the cultural and the linguistic equivalence of each item. Third, a pre-survey was conducted among ten older people with the trial Chinese version, and modifications were made according to the participants' feedback on the items. Finally, a consensus was reached for the DCS-CHI in terms of its wording, clarity, and cultural equivalence.

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