

Translation, Psycho-Properties Test and Cultural Adaptation of Depression Literacy Questionnaire in China

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Abstract

Background: Depressive disorder is a serious and common problem among adolescents and young adults in China, as they are engaged in an important period of psychological development. It is necessary to make an accessible tool to measure their knowledge situation towards depression. **Methods:** 461 respondents from two schools were recruited in this study from September 2017 to March 2018. Internal consistence, factor analysis and content validity index (CVI) were used to evaluate the reliability and validity of Chinese version Depression Literacy Questionnaire. **Results:** The Cronbach's α of 0.885 revealed good internal consistency of the reliability. The CVI of 0.989 and the EFA reflected good validity of D-Lit. **Conclusions:** The Chinese version D-Lit was proved reliable and valid among Chinese adolescence and young adults to assess status of knowledge towards DD.

Keywords

Depression, Literacy, Knowledge, Chinese, Translation, Cultural Adaptation

1. Introduction

Depressive disorder (DD) is a common mental illness, which may have serious effects on both individual and public health. DD is characterized by a persistent depressed mood, loss of interest or pleasure, loss of words and actions, and other physical symptoms. It can cause the affected person to suffer greatly and function poorly at work, at school and in the family. At its worst, depression can lead to suicide (World Health Organization, 2017).

DD has high rates of prevalence, relapse, mortality, and suicide. A 2017 World Health Organization report shows 322 million people are suffering from DD at

present, equivalent to over 4% of the world's population. DD is the leading cause of disability all over the world, and is a major contributor to the overall global burden of disease (World Health Organization, 2017).

Despite the fact that effective and systemic intervention and treatment can relieve symptoms of DD, the poor awareness and recognition of depression result in the phenomenon that only a small percentage of patients would like to seek for professional help on their own initiative. Only 12.4% of college students showed their willingness to seek professional help (Seyfi et al., 2013). Data from Ministry of Education of the People's Republic of China showed that about four-fifths college students chose their intimate friends or peers as their only or the most preferred resource before seeking professional help due to psychological problems (Huang et al., 2011), and their peers and friends might lack of mental health related knowledge as well. This phenomenon acts as a barrier for students with psycho-problems to seek professional help conversely.

DD is a particular concern in older adolescents to young adults, a key stage of students' psychological development and a high-risk time for mental health problems (Bee, 2008). The first peak of onset of DD has been reported at 18 years old (Hankin et al., 1998). A national comorbidity survey (National Comorbidity Survey-R., 2007) in the United States (U.S.) found that the lifetime prevalence of major depressive disorder (MDD) and dysthymia between 18 - 29 years old was 17.8%. In China, a study found that 29.7% of college students had mild-to-moderate depressive symptoms (Xu et al., 2016).

Thus, it is important to know the knowledge and perceptions related to DD among young adults and adolescents. However, there was no accessible instrument to measure the depression knowledge in China. A systematic review of 17 studies (Wei et al., 2016) revealed 16 tools to assess knowledge and public perception towards mental health. As for depression, the Depression Literacy Questionnaire (D-lit) is a reliable and valid tool used to evaluate depression related knowledge. To date, D-Lit has been translated and validated in multiple languages (Jeong et al., 2017; Arafat et al., 2017; Ahmed et al., 2016; Kiropoulos et al., 2011; Griffiths et al., 2004). However, no Chinese version has been translated and validated for all we know.

The purpose of this study is to translate the English version of Depression Literacy Questionnaire into Chinese, and to do psycho-properties test of its Chinese version among the college students after the cultural adaption, so that it can be used in the Chinese adolescents and young adults. Reliability and validity were tested to prove its accessibility.

2. Methodology

2.1. The Depression Literacy Questionnaire

The Depression Literacy Questionnaire is a 22-item questionnaire designed for assessing the participant's knowledge about signs and treatments for depression by Griffiths et al. (2004). Each item is set with "True", "False" and "Don't know"

choices with only one right answer. Respondents will be given 1 point for each correct response, and get a continuous score from 0 to 22 totally. The higher points equal to the better knowledge status towards depression.

2.2. Participants and Data Collection

The samples were chosen from two universities from Hubei Province and Heilongjiang Province in China, including one comprehensive university and one medical university. According to the rules of sampling, the sample size was calculated to be 220 (Sun & Xu, 2014). Assuming 10% attrition, 245 students were recruited in each school, totally 490 pieces of data were distributed.

Data collection took place from September 2017 to March 2018. The inclusion criteria of the test subjects were the students: 1) over 16 years old, 2) in the junior college or the school of a higher level, and 3) willing to participate in this survey. The exclusion criteria were the students: 1) affected by mental disorders, or 2) with a history of hospitalization for mental disorders.

461 pieces of effective data were recovered, with an effective data rate of 94.08%. The mean age of the participants was 18.58 years old, and 62.25% of them were female.

2.3. Translation and Cultural Adaptation

The translation and cultural adaptation process of the D-Lit was guided by the World Health Organization (2015) translation guidelines, with the modifying cycle of forward translation; expert panel; back translation; pre-testing as well as interviewing and final version.

Initially, the literature review which showed that the D-Lit had not been translated and validated in China so far had been done. Then, the authorization for usage and translation of the D-Lit had been obtained from the original author before the study started.

Forward-translation of D-lit from English to Chinese was operated by two linguists majoring in English to get the initial CD-Lit#1. The requirements in this process were: to make it conceptual equivalent; to make the expression simple, common and understandable; to avoid using professional terms; to consider respondent's age and gender and to avoid offensive words toward patients with depressive disorder.

Expert panel consisted of five experts, including one psychology teacher who was familiar with revision of scale, one psychiatric doctor, one mental health nurse, one psychotherapist and one psychological consultant. The CD-Lit#1 was checked and modified by language, concept consistency and cultural adaption under the expert panel in conjunction with the former forward-translators to form the CD-Lit#2. When it came to the inconformity, original author was contacted.

In the back translation process, under the same requirements as forward-translation, the CD-Lit#2 was translated from Chinese to English by two bilingual English professors with no experience of the D-Lit before. The

back-translation versions were sent back to the original author until reaching a consensus. The CD-Lit#3 was an outcome in this stage.

The pre-testing and the interviewing were carried out among 10 participants, covering college students in different grades and majors. Interviewing was a semi-structured interviewing after they had accomplished the D-lit with the questions:

- 1) Can you tell us how do you find this questionnaire while you are fulfilling it, please?
- 2) Can you please tell us whether the expression of this questionnaire is clear?
- 3) Do you have any comments on how we can get this questionnaire improved?
- 4) Do you have any comments about this interview?

Then, the records of this process were sent to the original author to get the questionnaire revised. The final version of the CD-Lit was the consequence of all the iterations described above.

2.4. Data Analysis

Statistical Package for Social Sciences (SPSS 21.0 for Windows) was used to analyze the data in this study. Significance level was set to be 0.05 (two-tailed).

Demographic data were analyzed by descriptive statistical analysis. Categorical variables (gender, grade) were analyzed using frequency and percentage, while quantitative data (age) were analyzed using mean and standard deviations. The psychometric test comprised reliability and validity test. The former one in this study was presented by Cronbach's alpha coefficient, while the latter one by the value of content validity index (CVI) and factor analysis.

2.5. Ethical Considerations

The study proposal was approved by the Ethical Committee of Medical Division of Wuhan University. Authorization of the Depression Literacy Questionnaire was granted from the original author. The whole process of the study was anonymous and voluntary for respondents. Before filling in the questionnaire, participants were asked to sign on the consent form after reading it, including the explanation of the study, what they should do and the permission of withdrawal at any time.

3. Results

3.1. Demographic Characteristics of the Participants

A total of 461 respondents from two schools finished the survey completely, and their socio-demographic characteristics (gender, department, grade) were shown in **Table 1**. The mean age of the participants was 18.58 years old (SD = 1.19).

3.2. Reliability Test of the Chinese Version D-Lit

Cronbach's alpha coefficient, a typical index for measuring internal consistency,

Table 1. Socio-demographic characteristics of the students (N = 461).

Characteristic	Frequency (n)	Percentage (%)
Gender		
male	174	37.74
female	287	62.26
Department		
medical	212	45.99
science and engineering	134	29.07
economy and management	69	14.97
others	46	9.98
Grade		
one	210	45.55
two	95	20.61
three	94	20.39
four	62	13.45
Total	461	100

was used in this study to assess the reliability of the Chinese version D-Lit. The overall value was equal to 0.885. A Cronbach's alpha coefficient value of beyond 0.7 is significant. The specific evaluation criteria are as follows (Zhao, 2014): 0.6 = acceptable, 0.6 - 0.65 = not good enough, 0.65 - 0.7 = the minimum acceptable degree, 0.7 - 0.8 = good, 0.8 - 0.9 = very good, much higher than 0.9 = should be considered to shorten the scale.

The result of 0.885 proved that the internal consistency of the Chinese version of D-Lit was very good.

3.3. Validity Test of the Chinese Version D-Lit

Validity is a most important indicator for a scale, reflecting whether a tool can measure the degree of target accurately, including content-related validity, construct-related validity, criterion-related validity, etc. The more consistent the results are with the aimed investigating target, the higher the validity will be. On the contrary, the validity is lower.

3.3.1. Content Validity Index, CVI

CVI is a common indicator representing content-related validity. 3 psychiatrists and 3 psychologists were invited to evaluate the content validity of the Chinese version D-Lit. They were asked to mark each item of the Chinese version D-Lit, from "1 = No correlation, 2 = Low correlation, 3 = Correlation, 4 = Strong correlation". The content validity of the total questionnaire was 0.989. A mean CVI value of 0.8 or more by over 5 professionals is significant (Zhao, 2014).

3.3.2. Factor Analysis

Construct validity can be measured by exploratory factor analysis and confir-

matory factor analysis. Exploratory factor analysis was used in this study.

Kaiser-Meyer-Olkin (KMO) Measure and Bartlett's test for sphericity were found to be 0.885, which suggested highly significant ($P < 0.001$). Factor analysis and extraction showed communalities (Table 2) of all item were 0.3 or above, indicating its feasibility (Tabachnick & Fidell, 2007). Only one single factor was selected, as the result of the scree plot (Figure 1). And based on the original English version of D-Lit, one factor could explain all the items.

3.4. The Scores of the Chinese Version D-Lit

Descriptive analysis of the Chinese Version D-Lit was done for this study. The mean score of knowledge among the respondents was 11.11 ± 3.64 , and median was 11. As was shown in Table 3, accuracy of item 2, 4, 9, 11, 13, 14, 15, 22 were above 60%, while 40 to 60 percent of the participants made a correct answer on item 1, 3, 5, 7, 8, 12, 19, 20. The items mentioned above got fairish correct rate among this population. However, others reflected different understandings de-tailly. For instance, less than 7% respondents knew that antidepressants were the

Table 2. Results of factor analysis.

	Item to Total Correlation	Factor-loading	Communalities
Q1	0.214	0.553	0.432
Q2	0.378	0.567	0.424
Q3	0.210	0.607	0.369
Q4	0.356	0.607	0.462
Q5	0.311	0.380	0.400
Q6	0.277	0.535	0.406
Q7	0.500	0.652	0.595
Q8	0.484	0.752	0.649
Q9	0.367	0.376	0.296
Q10	0.235	0.383	0.356
Q11	0.419	0.573	0.480
Q12	0.246	0.388	0.523
Q13	0.508	0.642	0.533
Q14	0.288	0.323	0.347
Q15	0.399	0.743	0.616
Q16	0.293	0.465	0.415
Q17	0.286	0.618	0.522
Q18	0.413	0.701	0.553
Q19	0.381	0.669	0.495
Q20	0.365	0.477	0.437
Q21	0.332	0.482	0.452
Q22	0.428	0.539	0.409

Table 3. The accuracy of the Chinese version D-Lit.

Item	Correct number (n)	Correct rate (%)
1	238	51.6
2	379	82.2
3	215	46.6
4	380	82.4
5	188	40.8
6	102	22.1
7	249	54
8	206	44.7
9	330	71.6
10	154	33.4
11	315	68.3
12	217	47.1
13	312	67.7
14	293	63.6
15	381	82.6
16	32	6.9
17	121	26.2
18	150	32.5
19	195	42.3
20	227	49.2
21	80	17.4
22	357	77.4

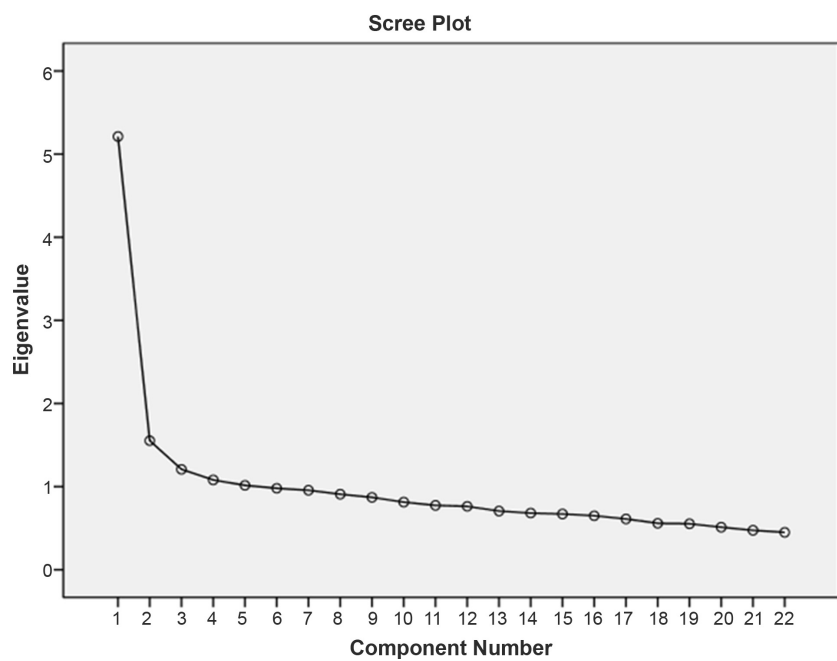


Figure 1. Scree plot of the factor analysis of the Chinese D-Lit.

most effective treatment for depression (item 16). Item 21 revealed that most individuals (82.6%) had misunderstanding of the addiction of the antidepressants. Only 22.1 percent of participants were aware of that the fact auditory hallucination was not a common symptom of depression, but schizophrenia (item 6) (Carpenter et al., 1974). The results also inferred that some people were prone to confuse depression disorder with schizophrenia, obsessive-compulsive disorder, mania and other mental disorders, and had little understanding of the treatment of depression, the use of antidepressants, or the working permission of psychotherapists (American Psychiatric Association, 2013).

4. Discussion

4.1. Implementation and Significance of the Chinese Version D-Lit

It is reported that Chinese adolescents are lack of knowledge regarding depression, which may lead to the stigma and a decline of help-seeking (Amarasuriya et al., 2018; Amarasuriya et al., 2015). This study translated, cultural adapted, and tested psychometric of English version of Depression Literacy Questionnaire into Chinese in order to understand the current situation of depression knowledge among young adults and adolescents, thus making a guidance and implementing the targeted intervention. The translation process of the measuring tool followed the scale development procedures strictly. It is a highly qualified and operable tool as the fact that it is simple to read and easy to score. Psychiatrists, mental health nurses, public health and mental health workers can use the D-Lit to obtain knowledge about the depression-related conditions of the aimed population and provide targeted health education, guidance and other relevant interventions.

4.2. Psychometric Test of the Chinese Version D-Lit

Depression Literacy Questionnaire (D-lit) was developed by K. M. Griffiths et al. and had been translated into several languages without Chinese. The Cronbach's alpha of D-Lit original (English) version, Greek version, Italian version, Arabic version and Bangla version was found 0.70, 0.88, 0.92, 0.78 and 0.77 respectively while the Spearman rho was found 0.91 in these studies (Arafat et al., 2017; Ahmed et al., 2016; Kiropoulos et al., 2011; Griffiths et al., 2004), which showed that the D-Lit was valid and reliable to be used in other cultures.

Internal consistency of the Chinese version of D-Lit was very good, with the value of Cronbach's alpha coefficient of 0.885. 14 items got a 0.3 or above item-total correlation coefficient, and the other 8 items more than 0.2. The original version questionnaire did not mention this (Griffiths et al., 2004), but the results of our study were similar to Arabic's (Ahmed et al., 2016). Results of factor analysis proved all of 22 items could be explained by one single factor so that Chinese version D-Lit could be valid as a measuring tool. Other studies had the same findings that the D-Lit was a unifactorial structure measuring tool (Arafat et al., 2017; Gulliver et al., 2012).

5. Conclusion

There is a good reliability and validity of the Chinese version of Depression Literacy Questionnaire, and it can be used to evaluate knowledge regarding depression among Chinese adolescents and young adults.

Limitations

There are some limitations in this study:

- 1) Convenience sampling was used in this study, leading to an unbalanced distribution of gender and grades. Female and grade one students took the predominant parts among all respondents, which might have limited generalizability.
- 2) Respondents were recruited voluntarily. People with high level of stigma towards depression or affected by depression may be loath to participate, which could be another sampling bias in this study.
- 3) Internal consistency was the only method to test reliability of the measuring tool, without test-retest, ignoring the bias due to different conditions, such as environment, etc.

Conflicts of Interest

The authors declare that there are no conflicts of interest in this study.

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