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URDU TRANSLATION AND STRUCTURAL VALIDATION OF THE DEPRESSIVE COGNITION SCALE IN CLINICAL POPULATION

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Abstract

Objectives: *The present study aimed to translate and further validate the Depressive Cognition Scale's factor structure for the clinical population.* ***Background:*** *The Depressive Cognition Scale is a commonly employed instrument to determine depressive thoughts, resulting in clinical depression.* ***Methodology:*** *This study is comprised of two phases. During the first phase, the DCS scale was translated using the standard International Testing Commission (ITC, 2019) procedures, comprising committee evaluation, forward and backward translation, and pilot testing. The study's second phase was carried out to validate the translated version. For this purpose, a sample of 30 participants was selected for cross-language validation to ensure the accuracy and cultural relevance of the translation. For the scale's structural validation, the sample consisted of 300 participants aged 19–60 years (Mage = 39.5, SD = 11.83) who were selected through a purposive sampling strategy. The participants were recruited from a hospital setting, ensuring a clinically relevant sample to validate the scale.* ***Results:*** *The final model of DCS was retained with eight factors since the CFA results fit the data well. Additionally, results indicated that the convergent and divergent validity for DCS were higher than the equivalent squared correlation. The findings suggest that the DCS may effectively assess depressive thoughts before the onset of clinical depression.*

INTRODUCTION

The most prevalent and incapacitating mental illness and the primary contributor to disability is depression (Friedrich, 2017). Depression was projected to become the second leading cause of global disease by 2020 and was previously ranked as the fourth most common cause of illness worldwide (Yeung et al., 2007). According to the World Health Organization (WHO, 2023), depression is now the leading cause of disability worldwide, affecting over 280 million people. Millions of individuals worldwide suffer from depression, a severe mental illness, with so many people suffering from its crippling consequences. Similarly, depression is becoming more widespread in Pakistan. Depression affects people globally while the prevalence of depression in Pakistan is believed to be between 22% and 60%, it is between 10% and 33% for men and 29% and 66% for women (Nisar et al., 2019). More

recent data suggests that the prevalence of depression has increased, with studies indicating that approximately 50% of the population may experience some form of depressive symptoms by the age of 40 (Khan et al., 2022).

Depression's prevalence changes by location and demographic information in the entire country and its development is significantly influenced by gender, impoverishment, and cultural variables (Muhammad et al., 2019). A serious worldwide health issue, depression affects people solely in interpersonal relationships and in communities. Human discomfort, increased mortality and disease, and growing health-related expenses are all linked to depressive illness (Ridley et al., 2020). The interconnected interplay of biological, mental, and social elements leads to depression. Depression is more common in people who have had unfortunate events in their lives, such as being unemployed, displacement, or stressful events. In turn, depression can exacerbate the affected person's life circumstances and the depression itself, resulting in more pressure and inefficiency (Berchick et al., 2012).

Depressive Cognitions refer to negative thought patterns that are typically characterized by pessimism, self-criticism, and hopelessness, which significantly contribute to the development and maintenance of depression. These cognitive distortions often manifest as persistent negative self-perceptions, distorted views about the future, and overgeneralized interpretations of events, all of which can reinforce feelings of sadness, worthlessness, and anxiety. Over time, if left unaddressed, these thoughts can lead to full-blown depressive episodes, increasing the risk of long-term mental health issues such as major depressive disorder (Beck, 1967).

According to the cognitive model of depression (Beck, 1987), depressive cognitions, or cognitive indicators of depression, are manifested before the physical, stimulating, and psychological signs that make up clinical depression. Indeed, Beck and associates have maintained that depressed symptoms stem from depressive cognitions in a manner of unpleasant automatic ideas that are produced by inaccurate assumptions. Sousa et al. (2005) argued that to prevent clinical suicidal behaviors and depression, it is crucial to identify and treat initial cognitions related to depression among individuals. Beck and Alford (2009) reported that the expense of treatment may be significantly reduced if depressive cognitions are identified early enough to allow relatively less lengthy, more targeted psychological treatment.

Other scales available to measure depressive cognitions include the Automatic Thoughts Questionnaire (ATQ), which assesses common negative thoughts (Hollon & Kendall, 1980), the Cognitive Triad Inventory (CTI), focusing on negative self-evaluation (Wright, 2005), and the Dysfunctional Attitude Scale (DAS), which evaluates maladaptive core beliefs (Weissman & Beck, 1978). While these scales are effective, the Depressive Cognition Scale (DCS) offers a more targeted approach by specifically measuring the cognitive distortions directly linked to depressive symptoms, making it particularly relevant for early detection and intervention in depression. Additionally, the DCS has been validated in diverse populations, ensuring its broader applicability (Beck & Alford, 2009).

To evaluate cognitions that might occur before the onset of clinical depression, Zauszniewski (1995) developed the Depressive Cognition Scale (DCS). Originally designed to be administered to older individuals, the DCS showed a strong correlation with assessments of emotional and psychological growth among older individuals, indicating appropriate psychometric properties of the measure, consisting of discriminate and convergent validity (Zauszniewski, 1995).

Literature Review

The Depressive Cognition Scale was translated into multiple languages and among numerous populations as DCS was subsequently verified among different U.S. groups, especially with health issues, such as adult females diagnosed with diabetes (Zauszniewski et al., 2001), young as well as healthy elderly people (Zauszniewski, 1997). Additionally, there is empirical evidence supporting the scale's reliability and validity. To establish the DCS's psychological characteristics and conceptual comparability, the researcher translated its original English into Portuguese and administered a pilot test to bilingual people in Brazil. The Portuguese version's alpha coefficient was .79. Additionally, inter-item correlations were examined to assess the

DCS measure's reliability. The average interitem scores for the DCS in Portuguese and English were .32 and .30, respectively (Sousa et al., 2005).

A random sample of forty multilingual Brazilian older individuals and 82 Brazilian individuals with Type 2 diabetes was selected to assess the DCS's psychometric qualities after it was translated into Portuguese in 2005. The results showed that the scale was reliable for the older population and had a Cronbach's alpha of .88. Item-to-total correlations ranging from .30 to .70 validated the instrument's homogeneity. Consistent with the English version, factor analysis produced a single factor having an eigenvalue above 1 (Sousa et al., 2008).

Using the DCS with young people a study was carried out and 170 freshman-year teenage Egyptian nursing students' cognitive responses to the Arabic version of the Depressive Cognition Scale (A-DCS) were assessed. Cronbach's alpha for the Arabic version was found to be .86. Item-to-total coefficients ranging from .30 to .70 validated the instrument's uniformity. Consistent with the English version, factor analysis generated simply one factor with independent values greater than one (Bekhet & Zauszniewski, 2010).

The Depressive Cognition Scale (DCS) has been translated into the Korean language as part of the study, and its validity and reliability were examined. A survey was completed and used to collect data from an accessible group of 795 Korean adults who lived in the community. According to the reliability computation, the internal coherence associated with the Korean language version of the DCS (K-DCS), with a mean item-to-total coefficient of r =.76 and a Cronbach's alpha of .93, was deemed adequate (Yeun et al., 2012).

Nonetheless, the early detection of major depression and depressive symptoms, particularly faulty cognitions, has received minimal attention in the context of the Pakistani population. To date, depressive features in Pakistan are primarily measured using broad diagnostic criteria, such as the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) and the Beck Depression Inventory (BDI; Beck et al., 1961), which focus on emotional and behavioral symptoms of depression (Mirza & Jenkins, 2004). While these tools are useful, they do not specifically target depressive cognitions, which are considered early signs of clinical depression and key factors in its development and maintenance. Depressive cognitions—such as negative thought patterns and cognitive distortions—can often precede and predict the onset of a depressive episode, making their early identification crucial for effective intervention (Beck, 1967). Therefore, there is a pressing need for a culturally validated tool, like the Depressive Cognition Scale (DCS), to assess these cognitive patterns among the clinical population in the Pakistani context. To meet this need, the present study focused on translating the DCS into Urdu and examined the scale's validity and reliability for use in Pakistan.

Methods

The current study was conducted in two phases: the first phase involved translating the DCS into Urdu, and the second phase was used to determine the scale's psychometric characteristics. The following are the specifics of both phases:

Phase I: Translation Procedure of Depressive Cognition Scale

The translation procedure was finished following the International Testing Commission's (ITC, 2019) criteria, which comprised forward and backward translation, committee approach, and pilot testing.

Three psychiatrists and two psychologists, all bilingual in Urdu and English, translated the Depressive Cognition Scale during the forward translation stage. The translators were selected based on their proficiency in both languages, expertise in mental health, and cultural competency to ensure conceptual accuracy. The psychiatrists had extensive experience in clinical psychiatry and psychiatric research. At the same time, the psychologists specialized in cognitive and behavioral psychology, making them well-equipped to adapt the scale for linguistic and cultural relevance. They were instructed to translate the material into Urdu while considering the context. The translations with the highest ratings were kept after a thorough review and selection of the finest translations based on the original author's language. They carefully examined the Urdu-translated items to ensure the text was understandable and that syntax and grammatical

mistakes were avoided. The best-translated items were kept after careful evaluation.

The measures were translated back into English during the backward translation stage by two independent bilingual experts who were not involved in the forward translation process. These experts, typically professional translators, linguists, or mental health professionals, ensured that the translated version retained the original meaning and conceptual accuracy, minimizing any linguistic or cultural discrepancies. To reduce biases and errors in translation, a methodical process known as the back-translation methodology is used (Brislin et al., 1973). The forward translation step did not involve the sample chosen for back translation. As a result, they were unfamiliar with the original items of the legislation.

In the committee approach, one psychiatrist and one psychologist confirmed the Urdu version's items after carefully assessing and back translating each item. After revising processes, the English and Urdu translations of the measure agreed to a satisfactory degree. Each expert agreed on the accuracy of the translation.

The final version of the scale was tested on ten participants, comprising an equal number of males and females, all native Urdu speakers receiving treatment at a hospital. The pilot study aimed to evaluate their understanding of the Urdu version, identify any problems with wording, structure, or instructions, and determine whether they could complete the questionnaire independently. Most participants experienced no difficulties while filling out the scale. The expert committee subsequently reviewed the results to ensure clarity and accuracy.

Phase II: Validation of Depressive Cognition Scale

This phase comprises validating the DCS across the clinical population following cross-language and structural validation.

Step I: Cross-Language Validation of the Depressive Cognition Scale

Participants and Procedure.

To assess cross-language validity, 30 adolescents were divided into three equal groups of 10. Each group completed the Depressive Cognition Scale (DCS) in a different sequence. The first group received the original English version, followed by the backward-translated version, and then the Urdu-translated version. The second group began with the Urdu version, followed by the backward-translated version, and then the original English scale. The third group completed the backward-translated version first, followed by the original English, and finally, the Urdu version. To minimize learning effects and prior experiential influences, a three—to four-day gap was maintained between each administration. This process helped identify any inconsistencies and evaluate the equivalency across the three versions (original, Urdu/forward-translated, and backward-translated) and within the same version.

Step II: Structural Validation of Depressive Cognition Scale through Confirmatory Factor Analysis (CFA)

Participants

In the second step of Structural validation of the Depressive Cognition Scale (DCS), a convenient sampling strategy was used to select 300 individuals from the clinical population of Faisalabad city to assess its psychometric characteristics. The participants were aged 19 to 60 years (M = 39.5, SD = 11.83) and included 150 males (50%) and 150 females (50%). Any sample size over 300 is deemed adequate for structural validation (Thompson, 2004). Participants were selected based on their availability and willingness to participate in the study. Only those with a confirmed diagnosis of depression, ranging from mild to moderate severity level, were included in this study. Those participants were excluded who had a diagnosis of other severe psychiatric conditions such as schizophrenia, bipolar disorder, or severe substance use disorder, as these conditions could affect cognitive patterns related to depression. Although it is often advised to accumulate over 250 samples, considering the larger sample size, the lower the error, 250 samples produce a variance of 8% or lower, which is typically accepted in Social Science disciplines (Reyes & Ghosh, 2013).

Measures

During this stage, the following measures were used:

Demographic Questionnaire

A demographic questionnaire comprises individual characteristics, including age, gender, level of education, number of siblings, family size, birth order, profession, marital status, and socioeconomic status. Information on the participants' family system (e.g. nuclear or joint) was also collected. The questionnaire also assessed the presence of any chronic medical conditions, history of mental disorders (such as previous diagnoses of depressive disorders, anxiety disorders, etc.), and past or ongoing mental health treatment (e.g., psychotherapy, medication). A family history of mental health issues was also noted, as it may play a role in depressive cognition.

Depressive Cognition Scale (DCS; Zauszniewski, 1995). It is an eight-item self-reported, uni-factor scale measuring the cognitive aspects of depression, specifically the negative thought patterns and beliefs commonly associated with depressive states. The response format is on a 6-point Likert-type scale, with 5 representing strongly agree and 0 representing strongly disagree. When coded in reverse, the scale reflects depressive cognitions because each of the eight items is framed positively (Zauszniewski et al., 2001). After the eight items are reverse coded, the scores go from 0 to 40, with higher ratings indicating more depressive thoughts (Zauszniewski, 1997). The validity and reliability of the DCS have been shown to be satisfactory by earlier studies. The estimated Cronbach alphas of .84 is reported in elderly people (Bekhet et al., 2008) and .90 in guardians of individuals with autism (Bekhet et al., 2012) also demonstrated acceptable reliability.

Procedure

After that author of the original English version of the DCS was asked to grant permission to translate and validate the scale in Urdu for the clinical population. The research team also sought permission from the hospital's administration to recruit participants from the psychiatry and outpatient departments, where individuals seeking treatment for depressive symptoms were approached. Additionally, informed consent was obtained from all participants before the study began. Participants were recruited from the hospital setting, specifically from those who visited the psychiatric and outpatient departments.

Ethical Considerations

The study adhered to ethical guidelines by ensuring informed consent, where participants were fully briefed on the study's purpose, procedures, and their right to withdraw. Confidentiality was maintained by anonymizing participant data, with secure storage accessible only to authorized researchers. Voluntary participation was emphasized, with no pressure placed on individuals to participate. Participants were offered psychological support in case they experienced any emotional distress during or after the study.

Results

The Statistics Package for Social Science (SPSS version 28) was used to interpret the data using inferential and descriptive statistics. The mean and standard deviation have been determined for continuous data, and the frequency of demographic information was ascertained for categorical parameters. Reliability analysis for the initial stage of the study has been estimated employing intra-class Pearson Product Moment correlation coefficients and their internal consistency. In the second phase of the investigation, CFA was carried out employing Analysis of Moment Structures (AMOS-26) to confirm the model of measurement and the structure of the DCS components in Urdu.

Additionally, CFA has been employed to verify the measurement model and DCS factor structure. To find the optimum model fit, the current study employed a few models fit indices and standards, such as the Comparative Fit Index (CFI), Non-Normed Fit Index (NFI), and Root Mean Square Error of Approximation (RMSEA). The model fit indices of the DCS are estimated per the rules Hu and Bentler set forth (1999). Following the model's initial fit criteria, which state that an item loading with +/-0.30 satisfies the lowest possible level of the needed level of structure's comprehension, CFA was utilized to evaluate the initial model (Hair et al., 2006). The ability to comprehend, speak, and write in Urdu and English was a requirement for participation. The participants were aged 19 to 60 years (M = 39.5, SD = 11.83) and included 150 males (50%) and 150 females (50%). Most of them (69%)

belonged to nuclear families, while the other half (31%) lived in a joint family.

Results of Cross-Language Validation

Table 1

Summary of Reliability Coefficients and Inter-Correlation among Scores on the English, Backward, and Urdu Versions of DCS

Scales	1	2	3	α
1. English Version	-			.78
2. Backward Version	.97***	-		.88
3. Urdu Version	.70***	.69***	-	.90

Table 2 shows the reliability of all three versions of DCS. The values of Cronbach's alpha for the English and Backward versions of the DCS scale are good. The reliability of the Urdu version of the DCS scale is excellent (>.8) (Hulin et al., 2001).

Figure 1

CFA for Measurement Model of DCS Urdu Version (N=300)

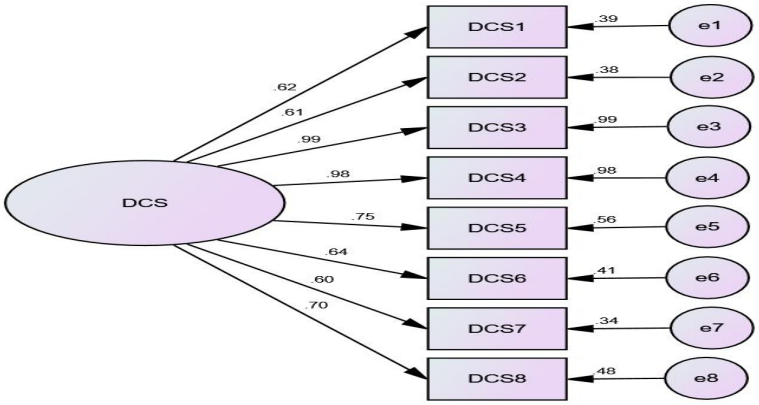

Table 2

Model Fit Indices on CFA of Depressive Cognition Scale (DCS)

Model	χ^2	df	χ^2/df	CFI	NFI	TLI	RMSEA	PCLOSE
Model Fit	70.61	20	3.53	.98	.97	.97	.08	.002

Note. N=300, χ^2 >.05, CFI=Comparative Fit Index, NFI = Non-Normed Fit Index, TLI= Tucker Lewis Index, RMSEA=Root Mean Square Error of Approximation, PCLOSE: P value of close fit.

Table 1 displays the Depressive Cognition Scale (DCS) model fit indices. The DCS showed an absolute fit of χ^2 (20) = 70.61, p <. 05. The model has an RMSEA of .08 with CFI, NFI, and TLI values of .98, .97, and .97, respectively. The indices above demonstrated how well the model accounted for the information. The study's findings revealed that the measurement model described a good fit between the data and the model. The RMSEA value falls within the recognized range of 0.05 to 0.08 (Byrne, 1994), indicating a good model fit. In addition to RMSEA, several other fit indices are used to evaluate the model's adequacy. The Comparative Fit Index (CFI) should exceed 0.90, and the Tucker-Lewis Index (TLI) should be greater than 0.90 to confirm acceptable model fit (Bentler, 1990; Tucker & Lewis, 1973). Regarding the factor loadings of the scale, values greater than 0.50 are typically considered acceptable for demonstrating convergent validity (Fornell & Larcker, 1981), while loadings above 0.70 are considered strong, reflecting that the items significantly contribute to the underlying factor. Overall, a uni-factor solution was confirmed for the Depressive Cognition Scale (DCS) among the Pakistani clinical population, with excellent model fit indices supporting the scale's validity.

The convergent and divergent validity of the Depressive Cognition Scale (DCS) was determined by examining the Composite Reliability (CR), Average Variance Extracted (AVE), and Standardized Factor Loadings (λ) of each item. The following are the findings:

Table 3

First order CFA for Depressive Cognition Scale.

Items	α	*CR*	*AVE*	Λ
DCS1-Emptiness	.90	.90	.56	0.62
DCS2- Helplessness				0.61
DCS3- Hopelessness				0.99
DCS4- Loneliness				0.98
DCS5- Meaninglessness				0.75
DCS6- Powerlessness				0.64
DCS7- Purposelessness				0.60
DCS8- Worthlessness				0.70

Note. CR = Composite reliability, AVE = Average variance extracted, λ (lambda) = standardized factor loading.

The Depressive Cognition Scale's psychometric characteristics showed outstanding validity and reliability estimates. As shown in Table 3, the values of Cronbach's alpha, Composite reliabilities, and AVE are above the corresponding cutoffs of 0.70 and 0.50 (Henseler et al., 2016; Hair et al., 2010). The factor loading of items was employed to assess the discriminant validity of the measure derived from the CFA approach. The validity criteria for assessment set by Fornell and Larcker (1981) were adhered to accomplish the target. CR and AVE are used to assess convergent validity, and the square root estimate of AVE is used to assess discriminant validity. Given these specifications, AVE >.50 (Fornell & Bookstein, 1982; Fornell & Larcker, 1981) and CR >.70 (Lee et al., 2005).

Discussion

The current study aimed to translate the Depressive Cognition Scale into Urdu and to validate it using a confirmatory factor analysis approach among a sample comprising individuals from the clinical setting. The uni-dimensionality of the DCS is also indicated in other studies that investigated the psychometric attributes of the instrument by employing exploratory factor analyses (e.g., Sousa et al., 2008; Zauszniewski et al., 2002; Zauszniewski et al., 2001; Zauszniewski, 1997). By contrasting the translated Urdu version of the scale with the original English version, this study aimed to determine its

cross-language validity and to further verify the factor structure of the translated DCS through structural validation.

In the cross-language validation step, we provided participants with samples of the measurement tool's English, backward, and Urdu versions. The data indicated a strong positive correlation among the three versions of the scales (see Table 1). The findings demonstrate that the scale's Urdu version was simple to understand and aids in more effectively communicating the intended concept, enabling individuals to engage with the content more deeply. Additionally, Urdu translation enables native speakers to relate to and understand the scale content on a cultural level. The study's findings indicated that Cronbach's alpha was high (see Table 1), which is over the minimal requirement of .60 (Nunnally & Bernstein, 1994), indicating reliability through sufficient estimations of internal consistency (see Table 1). These findings align with previous studies on DCS that found a Cronbach's alpha of .85 among type 2 diabetic females (Zauszniewski et al., 2001), .75 in African female caregivers (Zauszniewski et al., 2002), and .78 in older adult's sample (Zauszniewski, 1995). Therefore, results indicated that the DCS scale's translation into Urdu enriches the conceptualization of depressive cognitions among participants by encouraging ease of access, cultural relevance, and a broader comprehension.

The Depressive Cognition Scale's factor structure was confirmed using confirmatory factor analysis and the model fits well to the data collected from the Pakistani clinical population. The CFA results indicate a strong model fit to the data (see Table 2) with acceptable values for various model fit indices i.e., CFI, NFI, RMSEA, and $\chi 2/$ df (Hu & Bentler, 1999). The factor structure of the DCS in this study was consistent with findings from earlier research. The results indicated a single-factor structure, significant factor loadings, and strong model fit indices, aligning with previous studies (Guo et al., 2017; Sousa et al., 2010; Bekhet & Zauszniewski, 2010).The convergent and divergent validity of the Depressive Cognition Scale (DCS) was determined by examining the Composite Reliability (CR), Average Variance Extracted (AVE), and Standardized Factor Loadings (λ) of each item. Average Variance Extracted (AVE) is a crucial indicator of convergent validity. This study determined whether the items accurately represent the latent construct they are intended to measure. The investigation's findings showed that, for DCS, the squared root estimations of AVE were greater than the equivalent squared correlation (see Table 3). Thus, it corresponds with the guidelines proposed by Fornell and Larcker (1981). Composite reliability (CR) accounts for the varying factor loadings of scale items, providing a more accurate measure of the scale's true reliability. The study's findings showed that the scale's construct is reliably measured through its items when the CR value is 0.90 (see Table 3), which is greater than 0.70 and generally regarded as satisfactory, as suggested by Hair (2012). These confirmatory factor analysis results align with previous DCS research and offer more evidence for the construct validity of the DCS (Sousa et al., 2008; Zauszniewski et al., 2001).In conclusion, the findings on the Urdu version of the DCS's psychometric characteristics show compelling evidence of the 8-item DCS's appropriate validity and reliability. Additionally, according to the findings, the DCS could potentially prove effective in evaluating depressive thoughts that individuals have before developing clinical depression. This is crucial for the preliminary treatment and management of depression among individuals.

Conclusion

This study is the initial attempt to investigate the psychometric characteristics by evaluating the validity and reliability of an Urdu version of the DCS among Pakistan's clinical population. The results demonstrate that the translated scale is a valid and reliable measure for the clinical population through prudent translation, psychometric evaluation, and pilot testing. These standards guarantee that the scale is consistent and appropriately reflects the concept being measured in its current cultural and linguistic context.

Limitations and Future Recommendations

Considering the study limitations, there is also potential for improvement in the study. The current study's data is limited to a single city. To ensure that the scale is widely applicable and not biased towards

any specific group, it is recommended that it should be tested across various Urdu-speaking populations and diverse groups (such as non-clinical, patients with chronic illnesses, and marginalized groups). Other variables that might be considered in future research are diverse age groups, backgrounds (urban and rural), different settings (health and educational), and diverse socioeconomic conditions.

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