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MEASURING SELF-DEBASING COGNITIVE DISTORTIONS IN YOUTH

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ABSTRACT

The purpose of the study was to develop Self-Debasing Cognitive Distortions Scale (SDCDS) and to investigate its psychometric properties in Indian sample of adolescents. This study was cross-sectional and used purposive sampling. To assess the content validity, the experts evaluated the 21-items scale constructed by the researchers based on Beck et al. (1979) Model of Negative Cognitive Errors, with emphasis on the cultural appropriateness. 16 items were finalized in the final draft. Data on 858 participants (426 male and 432 female students) aged 16 to 20, collected from different higher secondary institutions of Srinagar and Baramulla area of Kashmir valley was examined. Principle Component Analysis was conducted to assess the construct Validity. The model was further tested with Confirmatory Factor Analysis. To establish the validity of the test interpretations, the convergent validity of the test was assessed by correlating the test with Dysfunctional Attitude Scale (DAS; Beevers et al. (2007)) Beck Depression Inventory; and Beck Anxiety Inventory (BDI & BAI; Beck and Steer (1993)) on a sample of 271 adolescents. Cronbach's Alpha was then computed to assess the internal consistency of the measure. The results indicated that the SDCDS has satisfactory content, construct and convergent validity; and has appropriate internal consistency. Therefore, the SDCDS is more appropriate than the western-context developed measures to measure the self-debasing cognitive distortions in Indian Adolescents.

Keywords: Self-debasing cognitive distortions scale, Validity, Reliability.

Contribution/ Originality

This study contributes in the existing literature regarding cognitive distortions and its relation with internalizing problems in youth. This study uses new estimation methodology to develop a short and easy to administer tool for assessing cognitive distortions in youth. The tool will be helpful in identifying the thinking patterns of youth and will aid in intervention.

1. INTRODUCTION

A basic premise of cognitive models of psychopathology is that emotional/behavioural disturbances are caused by faulty or negative ways of thinking (Beck *et al.*, 1979; Barriga and Gibbs, 1996) which have been referred to as Cognitive distortions. Cognitive distortions are defined as inaccurate thoughts and beliefs (Barriga and Gibbs, 1996). Two broad categories of cognitive distortions have been identified: Self-serving cognitive distortions and self-debasing cognitive distortions (Barriga and Gibbs, 1996; Barriga *et al.*, 2000) self-serving cognitive distortions have been associated with externalizing problems like aggression and conduct problems where as self-debasing cognitive

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distortions have been associated with internalizing problems like depression, anxiety, etc. (Dodge, 1993; Barriga *et al.*, 2000).

According to Beck cognitive model, cognitive variables can be classified into three domains: dysfunctional schemas, cognitive distortions and automatic negative thoughts. The dysfunctional schemas are those core, generalized beliefs that are firmly established at the back of a person's mind and that provide the basis or reference points for biased interpretations of external events. Cognitive distortions refer to those actual processes of biased interpretation of external events. The automatic negative thoughts represent those outcomes of cognitive distortions in the interpretation of external events. They in turn lead to emotional/behavioural problems. Recent decades have seen a growing emphasis on using cognitive model to explain emotional/behavioural problems as associating with distorted and maladaptive cognitions (Ellis, 1962; Beck *et al.*, 1979).

Self-debasing cognitive distortions inaccurately debase the self, leading to emotional problems. Major forms of self-debasing cognitive distortions include catastrophizing (i.e., expecting the worst possible outcome of an event or situation, such as ''if it rains there will be a flood''), overgeneralizing (i.e., believing that a single negative outcome is representative of or will occur in all similar future events, such as ''one bad day at school means school will always be awful''), personalizing (i.e., attributing control over the outcome of negative events to internal causes, such as ''my team lost the game because of me''), and selective abstraction (i.e., focusing on only the negative aspects of an event, such as ''I ruined the whole recital because of that one mistake'') (Leung and Wong, 1998; Leung and Poon, 2001).

The "How I Think" Questionnaire (HIT-Q) (Barriga *et al.*, 2001) is an instrument that evaluates self-serving cognitive distortions related to externalizing problems (Barriga *et al.*, 2000). However there is no such instrument to evaluate the opposite self-debasing cognitive distortions. There is a paucity of empirically supported measures designed to assess self-debasing cognitive distortions directly. There are various assessment tools intended to assess dysfunctional thinking. But these tools inadequately explain self-debasing cognitive distortions. Some of these assessment tools include: The Cognitive Errors Questionnaire (CEQ; Lefebvre (1981)) The Dysfunctional Attitude Scale (DAS-A, DAS-B; Weissman (1979)) The Automatic Thoughts Questionnaire (ATQ; Hollon and Kendall (1980)) The Cognitive Distortions Scale (CDS; (Briere, 2001)) and The Inventory of Cognitive Distortions (ICD; Yurica and DiTomasso (2002)). Although the cognitive model recognizes the fundamental role of cognitive distortion in the genesis and maintenance of all manner of psychological disturbance, only one recently validated measure exists that identifies the frequency and categorical use of self-debasing cognitive distortions by mental health patients. Although promising, this instrument, the Inventory of Cognitive Distortions, has been validated only for anxious and depressed populations (Ilardi and Craighead, 1999).

For the measurement of self-debasing distortions specifically, Leitenberg *et al.* (1986) developed Children's Negative Cognitive Error Questionnaire (CNCEQ). Leitenberg *et al.* (1986) designed the Children's Negative Cognitive Errors Questionnaire based on Beck *et al.* (1979) list of seven cognitive errors. Leitenberg *et al.* (1986) found that some of the cognitive errors overlapped; therefore, they were combined and condensed to the four cognitive errors found in the CNCEQ. But the tool suffers from cultural biasness.

The overall purpose of the present study was to develop a set of relatively short and easy to administer questionnaires appropriate to Indian culture, society, beliefs, and norms in order to measure self-debasing cognitive distortions in a broader base of participants and potentially beneficial for the research purposes.

2. METHOD

2.1. Participants

The study was conducted in Kashmir Valley of India. The total sample consisted of 1,129 adolescents, of which 548 were male and 581 were female adolescents, aged 16 to 20, selected from different educational institutions of Srinagar and Baramulla area.

2.2. Measures

Self-Debasing Cognitive Distortions Scale: A draft of 21-items was formulated by the authors based on Beck *et al.* (1979) Model of Negative Cognitive Errors, with emphasis on the cultural appropriateness. The items were evaluated by the experts for the content validity, and 16 items were selected in the final draft with responses ranging from 1 (*never*) to 5 (*most often*). Higher score indicates higher negative cognitions.

Dysfunctional Attitude Scale (DAS-SF_1 & DAS-SF_2; Beevers *et al.* (2007)). The short forms of DAS (Weissman, 1979) consist of 9 statements each to which participants respond on a 4-point scale (i.e., *totally agree, agree, disagree, totally disagree*). The DAS assesses dysfunctional beliefs that are thought to reflect a person's self-evaluation. Internal consistency reliability measured in the present study was very good (.93).

Beck Depression Inventory (BDI; Beck and Steer (1993)). The BDI is a widely used self-report questionnaire that assesses depression severity on a 4 point scale ranging from 0 to 3. The BDI consists of 21 items. Internal consistency reliability measured in the present study was good .84.

Beck Anxiety Inventory (BAI; Beck and Steer (1993)). The BAI consists of 21 items and measures the presence and severity anxiety symptoms on a 4 point scale from 0 to 3. Internal consistency reliability measured in the present study was good (.84).

2.3. Procedure

The study was cross-sectional and used purposive sampling. First, the SDCDS was group administered to 858 participants, of which 426 were male and 432 were female. Second, the SDCDS was again administered along with DAS-SF_1 & DAS-SF_2, BDI and BAI on a sample of 271 participants, of which 122 were male and 149 were female.

2.4. Statistical Analysis

Statistical analyses were conducted using SPSS and AMOS version 20.0 software packages. To analyze the reliability of the SDCDS scores, Cronbach's Alpha (α) was computed to assess the internal consistency of the SDCDS scores. In order to test the theoretical structure of the SDCDS, Exploratory Factor Analysis (EFA) was used. Confirmatory Factor Analyses using AMOS were performed comparing a four-factor model to a single-factor model.

Finally, Convergent and predictive validity was assessed by analyzing the associations of SDCDS scores with constructs that should be related to the measure, such as depression and anxiety. Pearson's product moment correlation was applied to assess the convergent validity by correlating SDCDS to the DAS. Regression analysis was used to assess the predictive validity of SDCDS in predicting depression and anxiety. Finally Cronbach's Alpha was computed to assess the internal consistency of the measure.

3. RESULTS

3.1. Validity

Uni-dimensional Structure of the Self-Debasing Cognitive Distortions Scale

Factor Analysis

Exploratory factor analysis was applied to assess the structure of the SDCDS. Prior to the factor analysis, several preliminary analyses were performed. The items were analyzed for descriptive statistics (see table 1) and inter item correlations. Since large sample are preferred for these analyses, sampling adequacy was tested. As such, Kaiser-Meyer-Olkine (KMO) and Bartlett's test of sphericity were performed. The sample size is considered adequate if KMO value is more than 0.50 and Bartlett's test of sphericity is significant if p value is less than 0.05 (Field, 2009). The preliminary analysis of SDCDS was found to be satisfactory. Data was checked for Multicollinearity (Determinant = .13 > .00001), revealing no problem. The KMO test (KMO = .83 > .5) verified the sampling adequacy for the analysis. Barttlet's Test of Sphericity, examining whether the *R*-Matrix resembles the Identity Matrix, was

found significant (X^2 (120) = 1770.73, p < .001), indicated that correlation between items sufficiently large for factor analysis. The values of the Anti-image correlation matrix were above 0.5 for all items (all KMO values > .7). The average of the Communalities was .45 (see table 1).

Table-1. Descriptive Statistics and Communalities for the items of SDCDS

Items		M	SD	h^2
1)	I think if would have worked more, things would have been better	3.68	1.19	.56
2)	Looking at others I think if I would have been intelligent I would have been better	3.16	1.33	.64
3)	If someone says no to me I think he/she is not interested in my work	2.90	1.20	.48
4)	I think nobody will like to be my friend if asked to be chosen	2.22	1.23	.51
5)	If something goes wrong I think it is my fault	3.01	1.29	.44
6)	I think my friends don't want to be with me if they hang around some other instead of me	2.42	1.25	.50
7)	I think my parents believe that I would not do anything in my life	1.78	1.20	.53
8)	I think if I try something, I will not be able to do and people will make fun of me	2.23	1.27	.47
9)	I think I am bad all the time and in all things	2.04	1.15	.41
10)	I think nothing will ever work out for me	2.16	1.08	.33
11)	I think that everybody understands me wrong	2.29	1.17	.43
12)	If I am not asked for my opinion or some other thing I feel ignored	2.81	1.20	.32
13)	If I get good in every subject except one I think everything has been messed up	2.83	1.29	.44
14)	I think I am not lucky enough to get any favor or opportunity	2.61	1.28	.38
15)	If my teacher tells me that she wants to talk to me I think that I have done something wrong and will be punished	2.61	1.27	.42
16)	Looking around I think there is nothing that can change this world for better	2.53	1.25	.36

Source: Original

Exploratory Factor Analysis

Principal component analysis of polychoric correlations for the 16 items SDCDS was conducted. Four components were extracted by the PCA. But, the results support a primary dimension that was significantly larger than subsequent factors. The primary dimension accounted for 22% of the common variance, with subsequent factors accounting for 8%, 7% and 6%, respectively. The eigenvalues for the first four factors were 3.57, 1.40, 1.24, and 1.02. All the 16 items loaded > .35 (range .36–.58) on the primary factor (see table 2).

Table-2. Component Matrix showing eigenvalues and component loadings before rotation

Components	1	2	3	4
Eigenvalues	3.57	1.40	1.24	1.02
Items	Loadings			
1	.38	.54		
2	.41	.45		.45
3	.42			
4	.45		.47	
5	.45		.38	
6	.43		.39	
7	.36			.49
8	.53			
9	.58			
10	.54			
11	.55			
12	.50			
13	.44	.42		
14	.58			
15	.44			
16	.42			

Source: Original

A variety of principal factor analyses with both orthogonal (varimax) and nonorthogonal (oblique) rotations were first conducted, but better solution was not found. The rotated plots were not found better than the unrotated plot. Cattell (1966) scree test was employed to determine the number of components to extract. The plot was slightly ambiguous suggesting retaining both a single factor and four factor, as the indicated by the two inflexions on the graph (see figure 3.1).

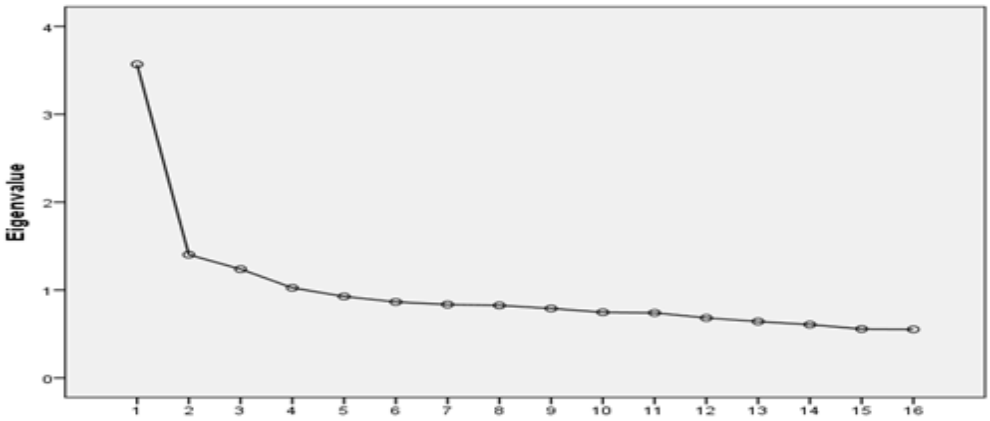

Figure-3.1. Scree plot

Source: Original

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA), using AMOS 20.0, was used to evaluate the adequacy of the four dimensional structural model against the unidimensional structural model of cognitive distortions as measured by SDCDS. Model fit may be assessed through a combination of parameter investigations (all parameters should be within acceptable values), the chi-square/ degrees of freedom ratio (which, ideally, should be close to, or less than, two), and various relative fit indices. In this study, we used standard indices and cut-off values to evaluate fit: the Root Means Square Error of Approximations (RMSEA < .08), and the Goodness-of-Fit Index (GFI > .90) and Comparative Fit Index (CFI > .90) (see Kline (1998)) as measures of model fit, with all parameters estimated using the maximum likelihood procedure. The model provided a better fit to the data for the unidimensional structural model, χ^2 (104) = 428.44, Ratio = 4.12, CFI = .80, GFI = .94, RMSEA = .06 (see figure 3.2), compared to the four-factor structural model, χ^2 (105) = 749.96, Ratio = 7.14, CFI = .61, GFI = .89, RMSEA = .09.

Therefore, the four-factor solution was regarded as not admissible. Thus, these results of the confirmatory factor analyses show that the structure of the SDCDS is best described as a unidimensional structural model with one comprehensive cognitive distortions factor.

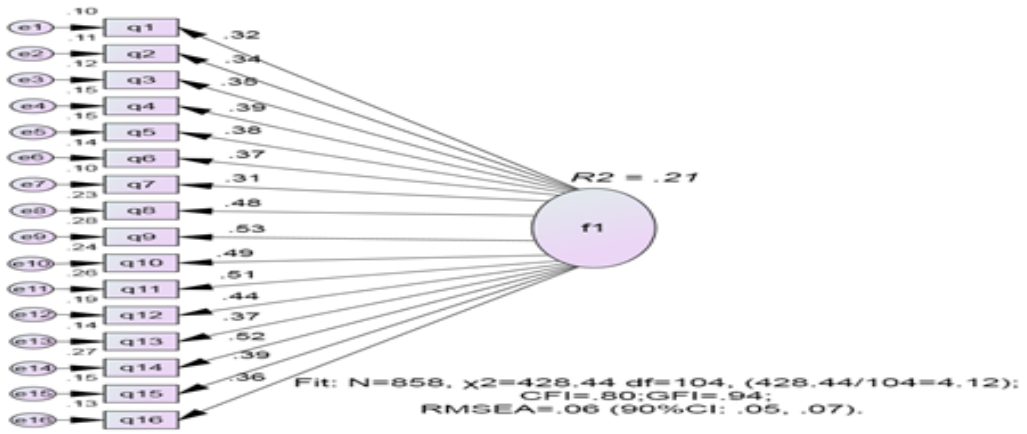

Figure-3.2. Unidimensional structural Model for the Self-Debasing Cognitive Distortions Scale

Source: Original

Convergent Validity

Convergent Validity was examined by examining correlation between constructs related to cognitive distortions. The correlations between the SDCDS and short forms of the DAS were examined. As is shown in Table 3, each of the short form of DAS was moderately correlated with the SDCDS (r = .30).

Predictive Validity

Whether the SDCDS was associated with the BDI and BAI was examined. Correlational analyses revealed that SDCDS is moderately correlated BDI and BAI (r = .42, .43 respectively). Further applying regression SDCDS was found a significant predictor of both BDI (R^2 = .17, $F(1, 269)$ = 55.98, $t(269)$ = 7.48, p < .001) and BAI (R^2 = .18, $F(1, 269)$ = 69.09, $t(269)$ = 7.82, p < .001)

Table-3. Correlations between SDCDS and theoretically associated Constructs (n = 271)

	M (SD)		***r***
SDCDS ($\dot{\alpha}$ = .73)	38.52 (8.57)	DAS-SF_1 ($\dot{\alpha}$ =.64)	.21*
		DAS-SF_2 ($\dot{\alpha}$ =.56)	.32**
		BDI ($\dot{\alpha}$ = .87)	.42**
		BAI ($\dot{\alpha}$ = .83)	.43**

* p < .01, ** p < .001,

Reliability

Cronbach's Alpha coefficient was computed to examine the internal consistency. Internal consistency, which examines the average inter-item relationship of the items of any scale, is very important as it measures the degree to which the items are related to each other. According to Peat et al. (as cited in Rahim *et al.* (2013)) a cut-off alpha value above 0.70 is considered good in the field of social science. The Cronbach's alpha (α) of the 16 items of SDCDS was found to be 0.73 (see Table 3).

In sum, the SDCDS demonstrated satisfactory psychometric properties in terms of both reliability and validity.

4. DISCUSSION

The Self-Debasing Cognitive Distortions Scale (SDCS) was developed in order to assess the self-debasing cognitive distortions posited to be associated with internalizing behavioural problems like depression and anxiety, as emphasized by the cognitive model, specifically Beck *et al.* (1979) Model of Negative Cognitive Errors. For the purpose, a draft of 21 items was formulated. The 16 items were finally selected after assessing the content validity by the experts.

To assess the factor structure, EFA using PCA was applied. Four components were extracted by the PCA. Different rotations were applied, but could not found a better solution. The rotated plots were not found better than the unrotated plots. The Scree plot was slightly ambiguous and showed inflexions that would justify retaining both components 1 and 4.

Confirmatory factor analysis was applied to test the adequacy of the four factor model against the unidimensional structural model of SDCDS, and the unidimensional structural model indicated better fit than the four dimensional structural model for SDCDS. Therefore, it was found that the SDCDS can be used as a unidimensional measurement instrument for the assessment of self-debasing cognitive distortions. With respect to the convergent validity, SDCDS was significantly correlated with DAS-SF1 and DAS-SF2. As for predictive validity, SDCDS was also found significantly predicting the BDI and BAI. The internal consistency in the scores of the SDCDS was found good.

The SDCDS thus appears to have value as a research instrument. The concept of cognitive distortions has been explored in previous research and has been found a fruitful area for systematic investigations. A variety of measurements have been used to evaluate the cognitive distortions. However, most of these instruments suffer from a

number of critical limitations. Consequently, the instruments fails to identify the cognitive distortions construct as posited by the Beck *et al.* (1979). Further the tools are not culturally appropriate and lack potential for use in the research purposes due to heavy number of items. The SDCDS was developed keeping in view the limitations of the available tools. The SDCDS is a brief and easy to administer tool. The SDCDS can prove useful for research purposes for assessing cognitive distortions and can help in predicting the internalizing problems in Indian adolescents, which can help in prevention and intervention. The SDCDS includes items that are more pertinent to the Indian culture. SDCDS appears to be better assessing the cognitive distortions in Indian culture than the western-context developed instruments because the items of the SDCDS were specifically developed by culturally appropriating for the assessment of cognitive distortions in India.

Although, the SDCDS was developed and validated on a large sample group and has good psychometric properties, but it is limited to the student population. The SDCDS was tested only from the perspective of adolescent population. Future research needs to explore the psychometric properties of the SDCDS in diverse samples and its applicability in clinical setting for intervention purposes, which will enhance the generalizability of the instrument.

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