

The Cognitive Bias Questionnaire: Further Evidence

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Abstract: Provided further evidence for the validity of the Cognitive Bias Questionnaire (Krantz & Hammen, 1979) as a measure of depressive cognitions. Forty depressed students completed the Cognitive Bias Questionnaire as well as general measures of depression and measures of depressed mood. In addition, independent raters counted frequency of negative and positive self-statements generated during a tape recorded self-description, and rated concurrent depressive tone. The results replicate previous findings of convergent and discriminant validity for the Cognitive Bias Questionnaire. Furthermore, depressed-distorted responses and nondepressed-nondistorted responses were significantly correlated with independently assessed depressive verbal behaviors.

A major obstacle in the development of cognitive-behavioral treatment strategies and the testing of cognitive-behavioral theories has been the lack of relevant assessment instruments (Kendall & Korgeski, 1979). Recently Krantz and Hammen (1979) developed one such measure of depressive cognitions. This measure, the Cognitive Bias Questionnaire (CBQ), consists of short vignettes of a person experiencing a potentially depressing event (e.g., being snubbed by a romantic prospect). Following each vignette are a series of questions which subjects answer by imagining themselves in the place of the main character. There are four response choices which correspond to combinations of depressed and distorted cognitions: depressed-distorted (He/she dislikes me and wants me to get the message.), depressed-nondistorted (I'm unhappy that he/she prefers to eat alone this afternoon.), nondepressed-distorted (He/she's playing hard to get.), and nondepressed-nondistorted (I might consider being a little more assertive and pursue him/her.).

Using a number of different samples of depressives Krantz and Hammen (1979) found the CBQ to "reliably distinguish relatively depressed and nondepressed groups" (p. 617) when depression was defined by elevated Beck Depression Inventory (BDI) scores (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), role-playing instructions, and the research diagnostic criteria (Feighner, Robins, Guze, Woodruff, Winokur, & Munoz, 1972). In addition, depressed-

distorted scores decreased with corresponding decrements in depression level following treatment. Depressed-distorted scores did not correlate with anger or anxiety when depression level was partialled out. In a further study, Blaney, Behar, & Head (1980) found depressed-distorted scores to correlate more highly with BDI scores than the other three cognitive bias measures. Thus the CBQ appears to be a promising measure of depressive cognitions and warrants further validation.

In addition to comparing CBQ scores to measures of depression, a necessary step in the validation of this scale is to compare it to other methods of assessing depressive cognitions. Blaney et al. (1980) compared the CBQ to Seligman, Abramson, Semmel and von Baeyer's (1979) scale of attributional style. They concluded that although both were significantly related to depression level, they cannot be considered equivalent. The present study is a further attempt to provide evidence for the validity of the CBQ by comparing CBQ scores to verbal behaviors which reflect depressive cognitions. The verbal behaviors consisted of spontaneous self-generated positive and negative self-referent statements. They were chosen since positive and negative self-referent cognitions are hypothesized to play a casual role in the development of depression (Beck, 1972), and reading such statements has been found to induce depressed and elated moods (Coleman, 1975; Velten, 1968). Thus, it could be expected that high scores on the CBQ

would be associated with a higher frequency of self-generated negative self-statements and a lower frequency of self-generated positive self-statements. Frequencies of self-generated positive and negative self-statements were calculated from a three-minute tape recorded self-description.

Method

Subjects

Forty subjects were selected from a larger group of 356 freshman women who completed a self-rating scale for depression (0 to 5 scale) and a Beck Depression Inventory (BDI; Beck et al., 1961). The mean BDI score for the large sample was 6.0 ($SD = 5.6$). Those who indicated on the self-rating that depression was 4 (very much) or 5 (an extreme) problem for them, and who scored 12 or above on the BDI were asked to participate. Those who agreed were seen in three sessions covering a five-day period of time. The mean initial BDI score ($M = 17.4$, $SD = 4.7$) indicated that subjects were moderately depressed.

Procedures and Measures

Subjects were seen on days 1, 3, and 5. Multiple Affect Adjective Checklists-Today Form (Zuckerman & Lubin, 1965) were completed daily beginning with the day of session one. During session two (day 3) a brief treatment procedure was introduced. The four treatment groups were variations of Lazarus' (1968) time projected forward treatment for depression. Subjects received either relaxation or no relaxation instructions, and either positive activity imagery or neutral activity imagery instructions. The effects of these procedures are reported elsewhere (MacInnis & Frost, Note 1). The subjects then completed an MAACL, the CBQ and the self-description task. The experimenter gave subjects the following instructions for the self-description:

I want you to simply describe yourself into this tape recorder. In your description include your personal strengths and weaknesses, your habits (both good and bad), what you like about yourself and what you don't, and your likes and dis-

likes. Here is a list of suggestions that may be helpful.

The following list was given to subjects as suggestions for topics: interests, physical appearance, athletic skills, intellectual skills, personality characteristics, and eating habits. The task lasted three minutes during which time the experimenter was out of the room. Two raters, blind to subjects' cognitive bias scores, independently rated all the self-descriptions on three dimensions. The first was the total number of negative self-statements (NSS). The raters training manual contained examples of statements falling into this category such as "I wish I was smarter." "I can't seem to do anything right." "I should study harder." "I can't adjust very well to new situations." The second rating was the number of positive self-statements (PSS). Examples from the raters' manual included: "I'm a strong person." "I'm a very sociable person." "I'm fairly confident about myself." "I enjoy many things." The third rating was of depressive tone (T). The interrater reliabilities indicated that these measures were reliable (NSS = .92, PSS = .85, T = .90). During the third session (day 5) subjects completed a final BDI.

The measures derived from the cognitive bias questionnaire included the number of depressed-distorted responses (DD), the number of nondepressed-nondistorted responses (NDND), the number of depressed-nondistorted responses (DND), and the number of nondepressed-distorted responses (NDD). Correlations were calculated between each measure of the cognitive bias questionnaire and (a) pre and post BDI scores, (b) MAACL immediately following the treatment manipulation, (c) daily mood measures from the MAACL, and (d) measures of verbal behavior from the self-descriptions (NSS, PSS, T). In order to remove the effect of treatments, all correlations were partial correlations controlling for treatment effects.

Results and Discussion

In the present sample depressed-dis-

torted responses ranged from 0 to 10 with a mean of 3.83 and a standard deviation of 2.7. Compared to previous samples, the present sample's mean depressed-distorted score was slightly above Blaney et al.'s (1980) high depression group and slightly below Krantz and Hammen's (1979) clinically depressed group. The present sample was also slightly lower than Blaney et al.'s high depression group on nondepressed-nondistorted responses ($M = 9.65$, $SD = 3.8$) and on nondepressed-distorted responses ($M = 1.85$, $SD = 2.0$), and slightly higher on number of depressed-nondistorted responses ($M = 7.68$, $SD = 3.04$). Intercorrelations between the four measures of cognitive bias indicated that depressed-distorted and nondepressed-nondistorted responses were highly and negatively correlated ($r = -.727$, $p < .001$). Depressed-distorted responses were not significantly correlated with either depressed-nondistorted or nondepressed-distorted responses ($p > .10$). Nondepressed-nondistorted responses were negatively correlated with depressed-nondistorted responses ($r = .635$, $p < .001$), but not nondepressed-distorted responses ($p > .10$). Depressed-nondistorted and nondepressed-distorted responses were negatively correlated ($r = -.537$, $p < .001$).

Table 1

Correlations of CBQ and Measures of Depression and Depressive Cognition

	Cognitive Distortion			
	DD	NDND	DND	NDD
BDI PRE	.432**	-.451**	.100	.122
BDI POST	.506**	-.438**	.304*	-.324*
MAACL-D	.350*	-.247	.221	-.350*
T	.503**	-.413**	.153	-.133
NSS	.420**	-.367*	.036	.074
PSS	-.341*	.263	-.134	.171

* $p < .05$.** $p < .005$.

As the results in Table 1 indicate, depressed-distorted responses were positively and significantly correlated with both pre- and post-assessment BDI, while nondepressed-nondistorted

responses were negatively and significantly correlated with both BDI assessments. Depressed-nondistorted responses were positively and significantly correlated with post-assessment BDI, but not with pre-assessment BDI. Similarly, nondepressed-distorted responses were negatively and significantly correlated with post-assessment BDI, but not with pre-assessment BDI.

These results replicate previous research (Blaney et al., 1980; Krantz & Hammen, 1979) and indicate that measures of cognitive bias correlate with the BDI. The correlations between cognitive bias and pre-assessment BDI are especially noteworthy for two reasons. First the range of BDI scores was relatively restricted (12-31). Second, the pre-assessment BDI was administered between 3 and 10 weeks before the CBQ. Thus, in addition to being able to predict BDI scores 8 weeks later (Krantz & Hammen, 1979), it appears that depressed-distorted and nondepressed-nondistorted responses are highly correlated with BDI scores completed earlier in time.

Correlations between cognitive bias and measures of depressed mood (MAACL-Depression) revealed that depressed-distorted responses were positively and significantly correlated with session 2 MAACL-D, and nondepressed-distorted responses were negatively and significantly correlated with session 2 MAACL-D. Neither nondepressed-nondistorted nor depressed-nondistorted responses were correlated with session 2 MAACL-D. Concerning the daily MAACL-D scores, depressed-distorted responses were positively and significantly correlated with MAACL-D on days 1, 3 and 4 (p s $< .05$) and the correlation for day 2 approached significance ($p < .10$). For nondepressed-nondistorted responses, only the correlations for days 3 and 4 were significant. None of the correlations between daily MAACL-D and depressed-nondistorted or nondepressed-nondistorted responses were significant. Thus, depressed-distorted responses, and to a lesser extent nondepressed-nondistorted responses, were

correlated with immediately measured depressed moods, and depressed moods measured several days prior and subsequent to the measurement of cognitive bias. These data are consistent with Blaney et al.'s (1980) suggestion that depressed-distorted responses are more closely associated with measures of depression than the other three measures from the CBQ.

Of special importance for the validation of the CBQ are the correlations between cognitive bias and verbal behavior during the self-description. As indicated in Table 1, depressed-distorted responses were positively correlated with affective tone ($p < .001$), the number of negative self-statements ($p < .005$), and was negatively correlated with the number of positive self-statements ($p < .05$). In addition, nondepressed-nondistorted responses were negatively correlated with affective tone ($p < .005$) and the number of negative self-statements ($p < .05$), and approached being significantly positively correlated with the number of positive self-statements ($p < .10$). Neither depressed-nondistorted nor nondepressed-distorted responses correlated with any measure from the self-description task. Besides being correlated with self-report indices of depression, measures of cognitive bias (especially depressed-distorted responses) were correlated with observable verbal behaviors which reflect depressive cognitions.

When MAACL-Anxiety and Hostility during session 2 were examined, five of the eight possible correlations between these measures were significant. However, when the influence of depression level during session 2 was partialled out, only one of these correlations remained significant (depressed-distorted with MAACL-H = .289, $p < .05$). Concerning daily MAACL-A and H, 18 of the possible 32 correlations with cognitive distortion measures were significant. Once again, however, when the effects of daily depression levels were partialled out, fewer than half of these correlations remained significant (7). The relative absence of correlations

with anxiety and hostility when depression is controlled for provide further evidence of the discriminant validity of the CBQ.

Summary and Conclusions

In summary, these data add further evidence for the validity of the cognitive bias questionnaire. Although the CBQ has been shown to fluctuate with changes in level of depression (Krantz & Hammen, 1979), these data indicate that depressed-distorted and nondepressed-nondistorted responses are correlated with BDI scores collected 3 to 10 weeks earlier, and with BDI scores collected several days later. As noted earlier, correlations with pre-assessment BDI are especially striking given the restricted range of BDI scores. On the basis of these results and those of previous investigations, there is little doubt that the CBQ is correlated with BDI scores across a wide variety of ranges and samples.

These data also provide evidence that the CBQ correlates with other measures of depressed mood. Depressed-distorted responses were correlated with immediately measured depression from the MAACL as well as daily MAACL-D measures. In addition, depressed-distorted and nondepressed-nondistorted responses were significantly correlated with rated depressive tone. The correlation with tone is noteworthy since it is not a self-report but a blind rating from a tape recorded self-description. Additionally, these data are consistent with Krantz and Hammen's assertion that when depression level is partialled out, CBQ scores are not correlated with other affects (in this experiment, anxiety and hostility).

Finally, depressed-distorted responses and to a lesser extent nondepressed-nondistorted responses correlated with a different, more behavioral, method of measuring depressive cognitions. The negative self-statement and positive self-statement measures are important ones since they are, in effect, observable variables. They were produced in a relatively unstructured task (self-de-

scription), and were assessed by independent "observers" blind to subjects' CBQ scores. They do not rely on what subjects say they are thinking, but rather what they actually say about themselves. This may be the most behavioral, or at least the most observable, measure possible of depressive cognitions. The correlation between these measures and CBQ scores provide still further evidence for the validity of the CBQ.

Data from the present experiment are also consistent with Blaney et al.'s (1980) suggestion that depressed-distorted scores may be more closely related to depression than other CBQ measures. In the present study depressed-distorted scores were significantly correlated with all six measures of depression and depressive cognitions. The next most closely related measure was the number of nondepressed-nondistorted responses which correlated with four of the six dependent variables. Depressed-distorted responses from the CBQ, and to a lesser extent nondepressed-nondistorted responses, appear to have substantial validity as measures of depressive cognitions.

Reference Note

1. MacInnis, D. & Frost, R.O. *Effects of relaxation and imagery on depression*. Unpublished manuscript, Smith College, 1980.

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