

Interpretative Bias: Indicators of Cognitive Vulnerability to Depression

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Abstract

Objectives: The study aimed at testing the existence of interpretative bias in remitted depressives as compared to unipolar depressives and never-depressed individuals.

Method: Cognitive Bias Questionnaire was administered on 10 individuals each with unipolar depression, remitted depression, and never-depressed participants. Participants were presented with vague and ambiguous vignettes of potentially problematic situation that individuals often encounter their daily lives. Each vignette is followed by four questions with four response options reflecting a depressed-distorted, depressed-nondistorted, nondepressed-distorted, or nondepressed-nondistorted option. Participants choose the response option that best represents how they would respond to the situation if it actually happened to them.

Results: Unipolar depressives interpret their condition as high on depressive mood symptoms as well as distorted thoughts whereas remitted depressives interpret their condition as high on distorted thoughts alone.

Conclusions: It may suggest that despite of reduction in level of symptomatic severity of depression, cognitive errors are still maintained during remission, can increase one's vulnerability for relapse. It implies that management of depression should focus on reducing cognitive vulnerability to depression, rather than only targeting a reduction in the symptoms (German J Psychiatry 2008; 11: 98-102).

Keywords: cognitive bias, interpretative bias, cognitive distortion, unipolar depressives, remitted depressives

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Introduction

Cognitive processes like selective attention and memory influence the affective states. Greater allocation of these cognitive processes to a particular category of stimuli is referred to as cognitive bias. The question of cognitive biases has long held interest in the study of cognitive mechanisms underlying depression. Cognitive biases such as attention bias and memory bias are critical aspects of several cognitive theories of depression (Beck, 1967). Attention bias is the tendency to pay excessive attention to information with negative content. Memory bias is the tendency to retain affect congruent information more than affect-incongruent information. Number of studies has examined the attention and memory bias in patients with unipolar depression (Gotlib & McCann, 1984; Gotlib & Cane, 1987; Blaney, 1986; Bradley & Mathews, 1988) and remitted depressives (Gotlib & Cane, 1987; Williams & Scott, 1988).

Very little research has been conducted in the area of interpretative bias in unipolar depression. For example, some studies have reported that clinical depression is associated with biased interpretation of ambiguous information (Miller & Norman, 1984; Norman et al., 1988; Krantz & Gallagher Thompson, 1990; Krantz & Hammen, 1979; Krantz & Liu, 1987; Miller & Norman, 1986). It suggested that depression may be associated with a bias, during the comprehension of ambiguous information that serves to favor emotionally congruent interpretations. Clinically depressed individuals generated significantly more negative solutions to the scrambled sentences than non-depressed participants (Hedlund & Rude, 1995). It is not clear whether tendency to interpret ambiguous information in negative manner present in individuals with remitted depression or it normalized with clinical remission. If remitted depressives (vulnerable individuals) would also show the errors of interpretation, then it will give an indication that presence of interpretative bias is a vulnerability factor to depression. To examine this research question we administered Cognitive Bias Questionnaire (CBQ)

with a group of unipolar depressives, remitted depressives, and never-depressed participants.

Method

Participants

Three groups of participants were employed in the study: unipolar depressives ($N = 10$), remitted depressives ($N = 10$), and never-depressed ($N = 10$) individuals. All participants were between 21 and 53 years of age and their primary language was Hindi. Both clinical groups were recruited through the Department of Psychiatry, Swaroop Rani Medical College and Hospital in Allahabad city. The selection criteria for unipolar depressed group were (a) primary diagnosis of major depression according to Diagnostic and Statistical Manual of Mental Disorders (DSM-IV (American Psychiatric Association, 1994) criteria (the diagnosis was determined in a clinical interview at the end of the administration of the tasks) and (b) a score of >17 on the Hamilton Depression Rating Scale (HDRS) (Hamilton, 1960). Participants with a history of unipolar depression but no longer meeting DSM-IV criteria and with a score of ≤ 17 on HDRS were included as remitted depressives (Bell & Rothschild, 2004). Participants with bipolar disorder, psychiatric/neurological disorder, clinical evidence of mental retardation, having motor, speech deficits, and who have undergone cognitive behavioral therapy (CBT) at any point in their treatment history were excluded from the study. It has been suggested that CBT may have a lasting favorable effect on the thinking of depressed individuals, which intends to alter cognitive biases in depressed individuals (Hollon et al., 1991). Participants with unipolar depression and remitted depressives were only on medication, but not on other therapies such as CBT or electroconvulsive therapy (ECT). Never-depressed participants who scored ≤ 3 on General Health Questionnaire were included. The participants were also matched on gender, age, and expressive speech. Further characteristics related to participants are presented in Table 1.

Measures

Screening Tools

Brief tests were administered to rule out vision, hearing, attention, expressive and receptive speech deficits for all the three groups.

Hamilton Depression Rating Scale (HDRS). HDRS (Hamilton, 1960) was used to select participants for the study as well as

to assess the severity of depression in unipolar and remitted depressives. HDRS consists of 21 items, each of which is rated 0 to 4 or 0 to 2, with a maximum total range of 0 to 76. The ratings were derived from a structured clinical interview with the participants. Answers to questions about feelings of guilt, suicide, sleep habits, and other symptoms of depression were elicited. The total scores inform about the level of severity of depression, where a score in the range of 0-6 falls in the level indicating no depression, 7-17: mild depression, 18-24: moderate level of depression, and 25-above indicates severe depression. The HDRS has shown acceptable levels of both validity (Carroll et al., 1973) and inter-rater reliability (Bech et al., 1975).

General Health Questionnaire (GHQ). The 12-item scale of GHQ was used to detect psychiatric disorders among never-depressed participants. The cut-off score of ≤ 3 on GHQ indicates absence of any behavioral disturbances.

Interpretative Bias: Cognitive Bias Questionnaire (CBQ), Krantz and Hammen, (1979)

Since the present study aimed to examine whether faulty information processing (cognitive distortions) would normalize after clinical recovery of depression. CBQ was used to measure interpretative bias. CBQ is the only measure which gives an opportunity to simultaneously examine two aspects of depression such as depressive mood symptoms as well as cognitive distortions.

The original version of the CBQ contains 6 stories. In the present study only two stories were taken in order to reduce the time taken for entire assessment. The CBQ consisted of a description of vague and ambiguous vignettes of potentially problematic situations that individuals often encounter in their daily lives. Each vignette was followed by four questions with four response options reflecting depressed-distorted, depressed-non-distorted, nondepressed-distorted, and nondepressed-nondistorted dimensions. The depressed-distorted response option incorporates cognitive errors such as arbitrary inference, selective abstraction, overgeneralization, and maximization/ minimization. Each story was presented one by one and the participant was required to put him or herself in place of the main character of the story and is required to choose the options that best represented his or her own response to the situations portrayed in the stories if he or she was the central character.

Procedure

Following informed consent, participants were screened using appropriate measures, followed by administration of CBQ. Finally, all participants underwent the structured clinical interview on HDRS and were debriefed.

Table 1. Demographic Characteristics of the Unipolar Depressives (UD), Remitted Depressives (RD), and Never Depressed individuals (ND)

Characteristics	UD (n = 10)			RD (n = 10)			ND (n = 10)		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Age (years)	40.0	8.37	21-50	43.0	4.49	38-53	43.60	5.21	32-50
Education (years)	16.50	4.30	-	15.70	3.33	-	18.30	2.11	-
Age at onset (years)	37.5	8.5	21-49	37.9	5.9	28-49	-	-	-
Duration of remission	-	-	-	4 months	0.18	3-9 months	-	-	-
HDRS [§]	22.8	2.9	18-24	6.00	1.4	4-9	4.3	0.48	4-5
GHQ [¶]	-	-	-	-	-	-	1.6	0.69	1-3

[§]Hamilton Depression Rating Scale; [¶]General Health Questionnaire

Results

Sample Characteristics

Demographic characteristics are presented in Table 1. Age and education were not significantly different across groups. Unipolar depressives scored significantly higher than the other two groups on HDRS and they were significantly different from remitted depressives $F(1, 18) = 265.7, p < .001$ and from never-depressed participants, $F(1, 18) = 386.48, p < .001$ on severity of depression. Remitted depressives were not significantly different from never-depressed participants on HDRS, suggesting that the clinical condition of these participants did not qualify for a diagnosis of major depression at the time of assessment and that they were symptom free.

Cognitive Bias Questionnaire

Mean score on four dimension of CBQ was taken as measure of performance of this task. Main effect across the three groups was found to be significant $F(2, 27) = 11.74, p < .001$. Interaction effect between status of depression and four dimensions on CBQ was also found significant $F(6, 81) = 22.31, p < .001$, which indicates that interpretative bias is related to the affective states in depression.

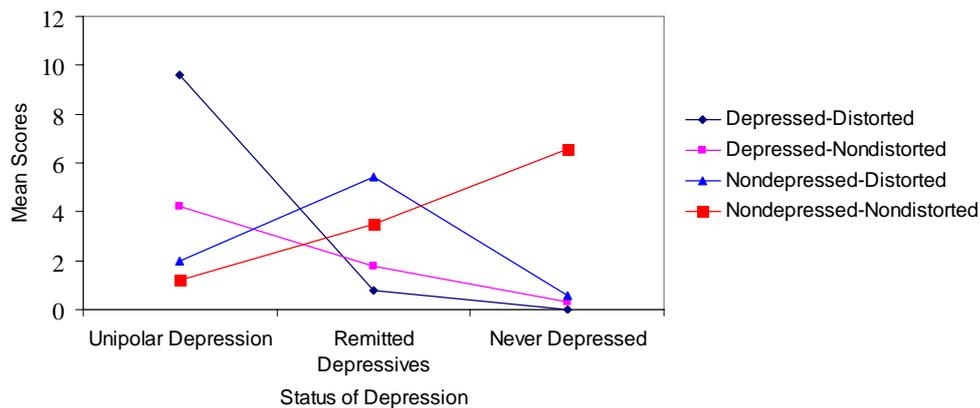
Post-hoc comparisons revealed that unipolar depressives were significantly different from remitted depressives $F(1, 19) = 8.05, p < .05$ as well as from never depressed participants $F(1, 19) = 8.78, p < .05$ while remitted depressives were not significantly different from never depressed participants on depressed-distorted dimension of CBQ. Unipolar depressives were not significantly different from remitted

depressives on depressed-nondistorted dimension. At the same time remitted depressives were also not significantly different from never-depressed individuals on this dimension. It appears that unipolar depressives interpret or perceive their condition as high on depressive symptoms as they are more distressing and overlook the cognitive distortion which underlies the mood symptoms. However, remitted depressive perceives or interpret their condition as high on distorted thoughts alone, which indicates that remission phase is marked by a symptom free state but cognitive distortion may be exist.

Discussion

Our aim of the present study was to examine whether tendency to interpret the ambiguous situation exist in remitted depressives or it normalized after clinical recovery. Results indicated that Unipolar depressives scored high on depressed-distorted dimension and low on nondepressed-nondistorted dimension. They seem to perceive themselves as high on both depressive symptoms and cognitive distortions. On the other hand, remitted depressives perceive or interpret their condition as high on distorted thoughts alone, as they scored significantly high on nondepressed-distorted dimension (see Figure 1). It indicates that despite of the reduction in level of severity of depression, faulty information processing is still maintained during remission. Both clinical groups scored low on nondepressed-nondistorted dimension as compared to never depressed participants. Never depressed participants were found low on information processing bias with respect to faulty information processing as they scored low on depressed-distorted dimension and high on nondepressed-nondistorted dimension (see Figure 1).

Figure 1. Mean performance of unipolar depressives, remitted depressives, and never depressed participants on four dimensions of CBQ



Cognitive biases may begin with self-referent attention bias to negative content and can end with the systematic errors of interpretation. In the present study participants were required to identify themselves with the situations presented in vignettes on CBQ. These situations were no way related to the life events of unipolar depressives / remitted depressives. Unipolar depressives showed greater identification with negative information while making judgments on the situations presented in vignettes on CBQ. It shows higher tendency for affect-congruent interpretative bias in depressed individuals. Thus, unipolar depressives were found biased in terms of higher perception of depressive mood symptoms as well as making judgments based on their distorted thoughts. Other studies have also reported that clinically depressed participants produced significantly more irrational response and fewer rational responses than non-depressed psychiatric and never depressed participants (Watkins & Rush, 1983). Remitted depressives perceive themselves as higher on nondepressed-distorted dimension, which indicates that these individuals are biased in terms of perceiving cognitive distortion more as compared to depressive mood symptoms. It may suggest that despite of reduction in level of symptomatic severity of depression, cognitive errors are still maintained during remission, can increase one's vulnerability for relapse. This finding is also supported by a study in which authors divided remitted depressives in two groups of high and low cognitive distortions on the basis of their responses on the CBQ. They found that high distortion group showed more persistent cognitive distortions after clinical improvement than the low scoring group (Miller & Norman, 1986). These results might indicative of the existence of dysfunctional schema in remitted depressives.

The sample size in the present study is small and restricts the wider generalization of the results. However, the findings of the present study could have implications for treatment. The present study provides evidence for interpretative bias as cognitive vulnerability factor as cognitive distortion exist in remitted depressives. It implies that cognitive distortion should be targeted through long-term specific interventions during and even after the full remission phase. Successful treatment of depression not only requires a successful reso-

lution of depressive symptoms but, more importantly, change in the underlying, stable cognitive vulnerability that increases susceptibility for repeated episodes. Therefore, management of depression should focus on reducing cognitive vulnerability to depression, rather than only targeting a reduction in the symptoms.

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