Effectiveness of Mindfulness-based Cognitive Therapy in Persons with Depression: A Preliminary Investigation

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This study was a preliminary effort at examining the effectiveness of mindfulness-based cognitive therapy in patients with depression. A single case design with pre and post assessments was adopted. The sample consisted of five patients with depression. They were assessed on measures of depression, dysfunctional cognitions, quality of life (QoL) and work and social adjustment. The intervention included eight weekly sessions of mindfulness meditation and cognitive restructuring. The percentage of clinically significant change from pre to post-therapy was calculated. Four patients completed therapy. Three patients showed clinically significant improvement on depression, work and social adjustment and QoL. Changes in dysfunctional beliefs were not significant, suggesting that beliefs take a longer time and more sessions to change. Mindfulness-based cognitive therapy can be an effective treatment for recurrent depression, and it can be also helpful in addressing factors that maintain depressive symptoms.

Keywords: Depression, mindfulness-based cognitive therapy, dysfunctional beliefs

Depression amounts to a major public health problem, in terms of its prevalence, suffering, dysfunction, morbidity and economic burden. Globally, more than 150 million people suffer from depression at any point in time and nearly 1 million commit suicide every year (World Health Organization, 2003). In a meta-analytical study from India, prevalence of depression was found to be to be 7.9 to 8.9 per thousand population and the prevalence rates were nearly twice in the urban areas (Reddy & Chandrasekhar, 1998). A recent large population-based study from South India reported the overall prevalence of depression to be 15.1% (Poongothai, Pradeepa, Ganesan, & Mohan, 2009). Depression has a high risk of relapse, which increases dramatically with numbers of previous episodes (Solomon, Keller, Leon, Mueller, Lavori & Shea, 2000) and is linked to diminished role functioning and quality of life, medical morbidity and mortality (Üstün, Ayuso-Mateos, Chatterji, Mathers, & Murray, 2004). Apart from pharmacotherapy, a variety of psychotherapeutic approaches has been applied to the treatment of depression. However, cognitive-behavioural therapy has the best-documented efficacy in the literature for the specific treatment of major depressive disorders (Gloaguen, Cottraux, Cucherat & Blackburn, 1998). In recent years, there has been an emphasis on examining changes in cognitive processes and the role of cognitive therapy in preventing relapses. Mindfulness has emerged as a therapeutic technique for emotion regulation, treating symptoms of stress and anxiety and in preventing depression. Much of the interest in the clinical applications of mindfulness has been sparked by the introduction of Mindfulness-Based Stress Reduction (MBSR), a manual treatment program originally developed for the management of chronic pain (Kabat-Zinn, 1982).

Mindfulness is a way of paying attention that originated in Eastern meditation practices. Mindfulness or *Vipassana* meditation is one of India's most ancient meditative techniques. It was discovered by Gautama Buddha 2,500 years ago. "Mindfulness" is the English translation of the *Pali* word *Sati* and synonymous with being conscious, aware, taking heed, observing and paying attention (Sharma, 2002). Mindfulness has been described as a process of bringing a certain quality of attention to moment-by-moment experience (Kabat-Zinn, 1990). The relevance of mindfulness strategies in preventing the relapse of depressive episodes has been examined in a number of studies (Teasdale, Segal & Williams 1995;

Teasdale 1999; Segal, Williams, Teasdale & Gemar, 1996). Subsequently, Mindfulness-based Cognitive Therapy (MBCT) was developed by Segal, Williams and Teasdale (2002) as a relapse prevention program. MBCT is an eight-week program that combines training in mindfulness meditation with interventions from cognitive therapy (Beck, Emery, Shaw & Emery, 1979).

MBCT is based on the model of cognitive vulnerability of depression, which states that a ruminative cognitive and affective process is responsible for the relapse of depression. Research has suggested that mindfulness cultivated during MBCT decreases ruminative thinking by switching emotional processing modes through the intentional redeployment of attention and modifying dysfunctional beliefs, and significantly increases meta-cognitive awareness with respect to negative thoughts and feelings (Teasdale et al., 1995; Teasdale 1999; Segal et al., 1996), which significantly reduced relapses in depression (Ramel, Goldin, Carmona & McQuaid, 2004; Teasdale, Moore, Hayhurst, Pope, Williams, & Segal, 2002).

Mindfulness-based interventions have been applied to a variety of stress-related conditions, medical conditions and emotional disorders and have been found to be efficacious (Baer, 2003; Bishop, 2002; Fjorback, Arendt, Ørnbøl, Fink & Walach, 2011; Grossman, Niemann, Schmidt & Walach, 2004). Most of the published literature on mindfulness meditation as a therapeutic technique or interventions based upon it has been from Western countries. In India, few studies have provided evidence of their usefulness and efficacy in clinical and non-clinical samples (Goyal, 2007; Kaur, 2010; Majgi, Sharma & Sudhir, 2006; Mao, 2007; Parswani, 2009; Sharma, Kumaraiah, Mishra & Balodhi, 1990). Based on existing literature on MBCT in depression, we expected improvements to occur in measures of depression. The effectiveness of mindfulness in depression has not been examined in the Indian context. Therefore, the aim of this preliminary study was to examine the effectiveness of MBCT in reducing depressive symptoms and dysfunctional cognitions and improving work and social functioning and quality of life in patients with depression.

Method

Sample:

Five clients with an ICD-10 (World Health Organization, 1992) diagnosis of mild to moderate depressive disorder or recurrent depressive disorder were recruited from the outpatient Mental Health Services of NIMHANS, Bangalore. Clients with serious medical conditions, dysthymia, severe depression with psychotic symptoms, psychosis and other Axis-I disorders, current psychoactive substance use and those who had undergone psychological intervention in the past one year were excluded from the study. One client dropped out after completion of the pre-assessment. Thus, the final sample consisted of four clients who completed therapy. The research protocol was reviewed and approved by the Protocol Review Committee of the Department of Clinical Psychology for technical and ethical purposes. Informed consent was obtained from the clients, participation was voluntary and no incentives were offered. All five clients recruited for the study were males and were aged between 24 and 40 years, with a mean age of 28.6 years. A majority of the clients (three out of five) were single and all clients belonged to the middle socio-economic status. They belonged to nuclear families and had graduate-level education. All patients were on pharmacological treatment, which was not altered during the course of the therapy. They were stabilised on antidepressant medication for a period of two months. Two clients were diagnosed with Recurrent Depressive Disorder (RDD), one client had a diagnosis of RDD with anxiety, one client was diagnosed to have Major Depressive Disorder and one had a diagnosis of Depressive Disorder with somatic symptoms.

Tools:

A Socio-Demographic and Clinical Data Sheet (SDCS) was developed to obtain information about the demographic characteristics of clients and details of their illness and treatment history.

Beck's Depression Inventory (BDI; Beck, 1961): It is a 21-item self-report measure of depressive symptoms with good psychometric

properties. This scale has been widely used in the Indian clinical setting (Nalini, Kumaraiah & Subbakrishna, 1996). The cut-off score on this scale is 9 or above.

Hamilton's Depression Rating Scale (HDRS; Hamilton, 1969): The HDRS, a clinician rated scale was used to rate the severity of depressive symptoms. It is a widely used measure of depressive symptoms that are rated by the interviewer. The scale yields a total score and severity scores, from no depression (less than 6) to severe depression (>24). The HDRS is one of the earliest measures of depression and has good psychometric properties (Knesevich, Biggs, Clayton & Ziegler, 1977). It has been extensively used in Indian research and clinical settings as an objective measure of depressions.

*The Dysfunctional Attitude Scale (DAS; Wesimann & Beck, 1978)***:** The DAS is a 40-item self-report scale that assesses dysfunctional beliefs on a 7-point scale, ranging from "totally agree" through "neutral" to "totally disagree". The range of possible scores is 40 to 280. Researchers (Sahin & Sahin, 1993) have found that the total mean scores are higher in non-Western samples (M=138.69 ± 23.64; M=142.81 ± 23.84) as compared to Western samples (M =117.00 ± 26). In the Indian setting, the test-retest reliability of the DAS for a three-month period was 0.73 (p< .01) and the coefficient alpha of 0.68 indicates that it is reliable, internally consistent and detects dysfunctional cognitions reliably in the Indian setting (Nalini et al., 1996; Sharma, 2007).

Work and Social Adjustment Scale (WSAS; Mundt, Marks, Shear & Greist, 2002): The WSAS was used to assess the clients' work and social adjustment. It is a simple, reliable and valid measure of self-reported functional impairment. It is easy to understand and rate. Scores are stable over intervals of at least two weeks, in the absence of intervention. Data from studies indicate strong psychometric properties for the WSAS and support its broader use in clinical research (Rush, Giles, Schlesser, Fulton, Weissenburger & Burns, 1986). The total possible score on the scale ranges from 0 to 40.

World Health Organization Quality of life Assessment-Brief (WHOQoL-BREF): The WHOQoL Group (1998) is a 26-item measure of quality of life across 4 domains, namely, physical, social, psychological and environmental. Higher scores indicate better quality of life. The 26 items are extracted from 100 items of WHOQoL— 100 after validation and reliability studies conducted in 15 field trial centres around the world. It has been used in different cultural settings, including Indian, and found to be comparable across cultures (Power, Harper & Bullinger, 1998).

Procedure:

Five clients fulfilling specific inclusion criteria for the study were recruited. One client dropped out after pre-assessment and the therapeutic program was carried out on four clients. All measures were administered in English. The therapeutic program consisted of about 10-12 weekly sessions, with specific goals and tasks for each week, including assessments. The duration of each session was approximately 90 minutes, for each client individually. The contents of the intervention were adapted from Segal et al.'s (2002) work with some modifications for individual therapy. It included psycho-education, training and practice of different versions of mindfulness meditation and modification of dysfunctional cognitions. Post-intervention assessment was carried out using outcome measures after completion of the treatment.

Results and Discussion

Tables 1 and 2 show the individual scores at the pre and post-therapy assessment points and the changes in outcome measures between pre and post-therapy in terms of improvement percent (IP) for all four clients.

Scores on BDI and HDRS (Table 1, Figure 1) reveal a reduction in the severity of depression for all four clients. On BDI, the improvement ranged between 24% and 100% and on HDRS, improvement ranged between 21% and 100%. Except Client-D, all other clients satisfied the criterion of clinically significant improvement on both the measures. This suggests that MBCT was efficacious in reducing symptoms of depression on subjective and objective measures of depression. This reduction in severity of depression may be explained on the basis of reduction in ruminative patterns of thinking, increased accessibility of meta-cognitive sets,

improvement in mindfulness skills and other mechanisms associated with the practice of mindfulness meditation (Cebolla, Miró & Barrachina, 2008; Jimenez, 2009; Mason & Hargreaves, 2001; Shapiro, Oman, Thoresen, Plante & Flinders, 2008). However, clinically non-significant improvement in Client-D suggests a need for more therapeutic inputs in terms of a higher number of therapy sessions to bring about clinically significant improvement. Other possible reasons for inadequate improvement in Client-D could be the inadequate motivation for therapy, irregularity in attendance at therapy sessions and non-compliance with homework assignments. It is possible that for some clients, MBCT may not be a suitable intervention because of specific or non-specific client characteristics. The BDI also taps negative cognitions, such as self-criticality, hopelessness, helplessness and worthlessness. It is possible that these factors influence the overall report of mood and may take more time to change.

The significant improvements in three clients in the present study are similar to those reported by other researchers who have also observed that MBCT was efficacious in reducing symptoms of depression in currently depressed patients from pre- to post-assessment (Kenny & Williams, 2007; Splevins, Smith & Simpson, 2009). However, there are methodological differences between the reported studies and the present study in terms of sample size and format of therapy (individual vs. group).

The improvement in DAS between pre-post assessments is between 5% and 32%. Though there was a change in the positive direction, it is not found to be clinically significant. This suggests that change in dysfunctional attitudes and beliefs takes place at a slower pace than a decline in

depressive symptoms. This is apparent in case of Client-D who has shown only 5% improvement in his dysfunctional cognitions. matching the minimal improvement in his depressive symptoms on BDI and HDRS. Although, change did not meet the criterion of clinical significance, three clients have shown considerable improvement in their dysfunctional cognitions. This change may be attributed to the mechanisms of exposure, acceptance and cognitive change, which are integral to the technique of mindfulness (Baer, 2003; Hayes, 2004). They help the client realise the fact that thoughts are just passing mental events and they do not reflect the reality about self or the world. This awareness plays a significant role in changing dysfunctional cognitions, reducing symptoms of depression and preventing relapse (Ma & Teasdale, 2004; Segal et al., 2002). Dysfunctional cognitions are also considered trait-like, and it is likely that more sessions may be required for change to occur (Ingram, Miranda & Segal, 1998). Moreover, some studies indicate that they remain slightly elevated even when depressive symptoms remit (Teasdale, 1988).

This trend in changes in dysfunctional assumption has also been seen in other studies using MBCT. Mao (2007), in her study on MBCT for patients with anxiety disorders, did not find a
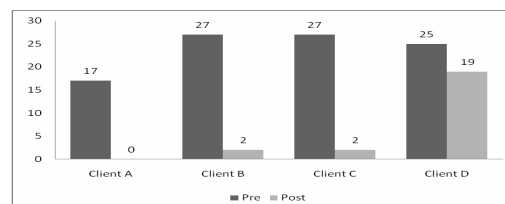

Figure 1. Pre and post therapy scores on BDI for each client BDI= Beck's Depression Inventory

Table 1. Pre and post assessment scores and improvement percent on measures of depression, dysfunctional assumptions and work and social adjustment score

Client No.	BDI			HDRS			DAS			WSAS		
	Pre	Post	IP	Pre	Post	IP	Pre	Post	IP	Pre	Post	IP
A.	17	0	100*	20	0	100*	185	132	29	13	0	100*
B.	27	2	92*	23	9	60*	151	102	32	28	4	85*
C.	27	2	92*	21	6	71*	151	102	32	23	2	91*
D.	25	19	24	19	15	21	103	98	5	32	27	15

IP= Improvement Percent, BDI= Beck's Depression Inventory, HDRS= Hamilton's Depression Rating Scale,

DAS= Dysfunctional Attitudes Scale, WSAS= Work and Social Adjustment Scale   *Clinically Significant

Table 2. Pre and post assessment scores and improvement percent on quality of life (WHOQoL)

Client	WHOQoL Domain 1			WHOQoL Domain 2			WHOQoL Domain 3			WHOQoL Domain 4			WHOQoL Total		
	Pre	Post	IP	Pre	Post	IP	Pre	Post	IP	Pre	Post	IP	Pre	Post	IP
A.	17	27	59*	17	25	47	11	14	27	32	36	12	82	105	28
B.	18	25	39	16	26	62*	11	14	27	23	30	30	73	100	36
C.	18	25	39	14	19	36	12	14	17	32	35	9	88	98	11
D.	15	16	7	12	14	16	7	10	42	6	8	33	44	52	18

IP= Improvement Percent, WHOQOL-BREF= World Health Organization Quality of life Assessment-Brief, Domain 1= Physical, Domain 2= Psychological, Domain 3= Environmental and Domain 4=Social. *Clinically Significant

significant reduction in dysfunctional cognitions on DAS. Her study did not report clinically significant reduction in worry, which is a cognitive component of anxiety (Mao, 2007). However, Goyal (2007) observed clinically significant reduction in dysfunctional cognitions on DAS in patients with OCD, who received mindfulness-based cognitive behaviour therapy of longer duration. Thus, the findings of the present study indicate that MBCT is effective in reducing dysfunctional cognitions in clients with depression, although there is a need to have longer follow-up to assess significant changes.

The results in Table 2 also indicate an improvement in work and social adjustment from pre- to post-intervention assessment on WSAS in all four clients. Clients-A, B and C have reported 100%, 85% and 91% improvement respectively. However, Client-D reported 15% improvement, which is understandable in terms of clinically non-significant improvement in depressive symptoms. This suggests that work and social functioning also improve with a decline in depressive symptoms and highlights the importance of

assessing the client's overall functioning when delivering psychological interventions.

The WHOQOL-BREF total scores in Table 2 suggest an improvement in the overall quality of life in all clients ranging between 11% and 36%. However, the improvement observed is not proportionate to the improvement observed in depressive symptomatology. Client-A has reported a clinically significant improvement of 59% in his physical domain of quality of life. Similarly, Client-B has reported a 62% improvement in the psychological domain of quality of life. The lesser
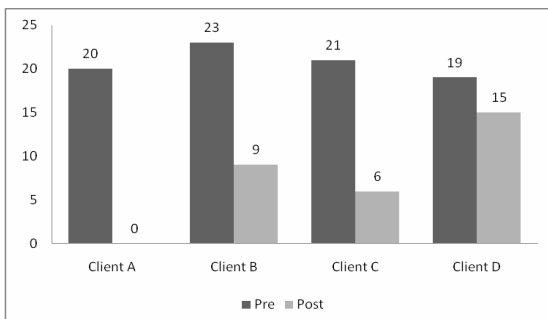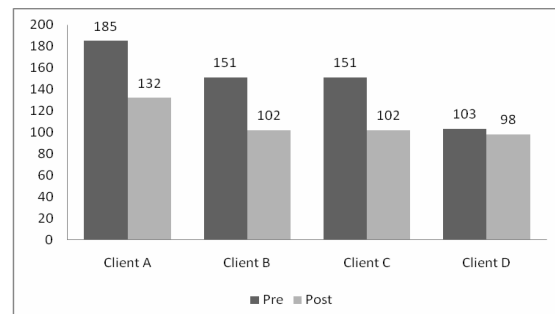

Figure 3: Pre and post therapy scores on DAS for each client DAS= Dysfunctional Attitude Scale

Figure 2. Pre and post therapy scores on HDRS for each client HDRS= Hamilton Depression Rating Scale
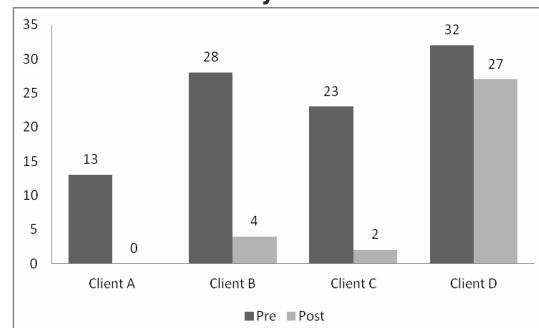

Figure 4: Pre and post therapy scores on WSAS for each client WSAS= Work and social adjustment

degree of improvement in quality of life may be due to a smaller perceived impact by the clients on their functioning. The period of intervention was relatively short and may not be sufficient to observe a change in the perceived quality of life. Improvement in depressive symptomatology was also reflected by scores for domain 1 (physical health) and domain 2 (psychological health) on which three clients have reported improvement ranging between 39% and 59% and 36% and 62% respectively. Goyal (2007) has observed similar trends in quality of life in patients with Obsessive Compulsive Disorder. Since the quality of life of an individual is influenced by a multitude of social and environmental factors, the generalisation of therapeutic gains to real-life situations becomes difficult.

The results of the present study indicate that MBCT was effective in reducing depressive symptoms on subjective and objective measures, and improving work and social functioning at clinically significant levels in three clients. The results of the present study are encouraging and require further replication and validation for clients with depression in the Indian setting.

The study has several limitations. It has adopted a single case design, the sample size is small and all clients were male. This reduces the power of the study and the generalizability of the findings. The absence of follow-up does not allow us to examine the long-term effects of MBCT on the gains made during therapy. However, the strengths of the study lie in its individual case approach and observation of changes from pre- to post-therapy points. The assessment of work and social adjustment and quality of life are also important aspects of the study. The use of the single case approach helps in addressing relevant problems in each patient, while adhering to an overall framework.

This is one of the few studies from India to examine MBCT in the treatment of depression. The study suggests an effective, alternative treatment protocol for clients with depression. The training and application of mindfulness is cost-effective and can be adopted in a wide variety of settings. The findings of the present study suggest that more-intensive research efforts are needed

in this area. In the future, a larger sample with a control group should be included, to enhance the reliability and confidence in the findings. More-comprehensive assessments of other relevant variables, such as meta-cognitive measures would widen the applicability of the findings. The long-term efficacy of the therapeutic program should be established by follow-up.

In conclusion, MBCT was found to be effective in reducing depressive symptoms in persons with depression on subjective and objective measures of depression, as well as in improving the work and social functioning of the patients. Following MBCT, there was some reduction in dysfunctional beliefs and an improvement in quality of life; however, these were not clinically significant and require further examination.

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