



Mindfulness Based Cognitive Behavior Therapy in Managing Persistent Pain

A Report of Experience in Clinic Setting and Training Healthcare Professionals

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Abstract: Persistent pain and sustained stress are interlinked complex conditions that require multimodal approaches to management. Cognitive Behavior Therapy (CBT) is an effective and well established adjuvant psychotherapeutic intervention that complements medical treatment in chronic pain management. Mindfulness is a concept developed from the ancient yoga philosophy and meditation traditions of India. Mindfulness has been integrated with psychotherapy and has been found to be an effective intervention in several chronic mental and physical conditions including persistent pain. Mindfulness Based Stress Reduction (MBSR) program for chronic pain is such a program used worldwide in recent times. This presentation reports the clinical experience of using a brief modified version of an office adaptation of the therapy termed Mindfulness Based Cognitive Behavior Therapy (MBCBT), in an Indian City clinical practice setting. It also reports the feasibility and effectiveness of a short-term training program in MBCBT for healthcare professionals engaged in managing persistent pain.

Index Terms: Cognitive Behavior Therapy, Mindfulness, Persistent Pain

INTRODUCTION

Persistent pain affects the body and the mind. The causes may vary but they show certain patterns of emotional distress. The pain can be associated with several other symptoms like weakness, fatigue, heaviness, tightness, numbness and tingling, disturbed sleep, loss of appetite, irritability, anxiety, sadness, decreased concentration and motivation. This restricts and modifies many of the activities and life decisions of the sufferer. This can considerably alter the course of his/her life [1]. Usually the patients seen in a neuropsychiatric clinic would have tried several medical treatments and visited many professionals with variable and short term relief. The challenge for the patient is in pain reduction, reduction of mental tension and optimization of social and occupational function. The challenge for the therapist lies in guiding and

empowering the patient in taking charge of their condition and successfully self-managing their symptoms so as to resume productive life. This requires a complete *acceptance* of their condition, a systematic *understanding* of their situation followed by a program of effective *management*.

Cognitive Behavior Therapy (CBT) is a form of psychological therapy. It can help manage several health related issues by a systematic process. CBT is about effectively managing our distress by changing the ways we think, feel and behave through awareness, training and practice. The principles and techniques can be easily incorporated into clinical practice to guide others, to empower them to effectively manage their distress and to lead meaningful lives. There is strong and accumulating scientific evidence for the effectiveness of CBT and its modifications in several conditions either alone or in combination with other therapies in adults, elderly, adolescents and school age and above children. CBT in chronic pain has been well studied and used as an adjuvant psychotherapeutic intervention that complements medical treatment [6].

Mindfulness is the skill of being aware of the present and 'being' in the present from moment to moment [5]. It can be learned and developed through training and practice. Such a skill has been shown to have profound positive outcomes in as diverse fields as learning and leadership to chronic pain management and mental health [2]. The techniques and practices have been derived from ancient Indian spiritual-philosophical traditions and practices of yoga and meditation [10]. We find the roots of mindfulness in the *Yoga Sutras of Patanjali* (circa 900 BCE), an ancient Sanskrit treatise on yoga [12]. The techniques that have been most studied in the West are based on *Vipassana* (circa 500 BCE) Buddhist meditation [4, 7]. Mindfulness based therapies have a mounting evidence base and are now being widely offered in several hospitals across USA and Europe [5]. Such therapies



have been developed and integrated into contemporary medical practice by Western healthcare services increasingly today [9]. But such structured integrated service is not widely available in India. This is slowly changing as there is a resurgence of interest both among patients and professionals in holistic and integrative approaches to medicine and healthcare and in our ancient heritage.

Mindfulness based intervention for chronic pain was first developed and studied in Massachusetts Medical Center, USA [4]. Their program is now more widely available throughout USA and Europe and spreading to other parts of the world as the Mindfulness Based Stress Reduction (MBSR) Program [4, 9]. Mindfulness Based Cognitive Therapy (MBCT) has been more widely used in the USA for chronic mental health conditions [2]. When we trace the origins of both CBT and Mindfulness separately we find that both have their historical origins in Buddhism and yoga tradition of ancient India [4].

The primary author has been a trained practitioner of CBT for about 15 years and has incorporated *mindfulness* in clinical practice for about 10 years. Over the years this has led to the development a brief intervention program combining CBT with mindfulness: Mindfulness Based Cognitive Behavior Therapy (MBCBT). This emphasizes the behavioral component in equal importance to the cognitive and mindfulness components (cf. MBCT).

The components of a typical MBCBT session are: (1) Assessment/Reassessment (2) Counseling (3) Behavior Awareness and Homework (4) Education (5) Mindfulness and Self-Care Training (6) Cognitive Restructuring. These are not mutually exclusive and there is overlap. Each weekly session lasts for about an hour or more. In the sessions the patients are imparted the knowledge and skills to reduce distress and resume productive lives through: (1) *Acceptance* (2) *Understanding* and (3) *Management* (AUM). They are taught how to be more in control of their pain thereby empowering them to make positive choices in life. The modifications incorporated were prompted by experience, intuitive clinical judgement, cultural expectations of patients and the environment of an ambulatory small office clinical practice of a busy metropolitan city.

OBJECTIVES AND PURPOSE

This report highlights two aspects of clinical experience in treating persistent pain with MBCBT in an outpatient clinic setting: (1) To demonstrate the clinical effectiveness of brief Mindfulness Based CBT (MBCBT) in patients with persistent pain due to Work-Related Musculoskeletal Disorders (WMSDs) in IT Professionals with Repetitive Strain Injury (RSI) (due to chronic computer use a significant cause for morbidity and socio-occupational dysfunction in Bengaluru. The IT Capital) [11]. (2) To demonstrate the effectiveness

and feasibility of a short-term training program in Mindfulness Based CBT (MBCBT) to Healthcare Professionals managing patients with persistent pain conditions due to WMSDs.

The purpose is to create an awareness especially among healthcare professionals of the existence of powerful psychotherapeutic interventions for persistent pain that can be used in a clinic setting and to encourage healthcare professionals who manage persistent pain to learn and incorporate these or similar approaches in their clinical practice.

DESIGN AND METHOD

The study was an open clinical observational study with mixed semi-quantitative and qualitative components. Complementing the objectives and purpose two simple studies have been presented: (1) Use of MBCBT in Patients with Persistent Pain due to WMSDs in a Clinic Setting. (2) Short-Term Training Program in MBCBT for Healthcare Professionals treating Persistent Pain due to WMSDs

- (1) Use of MBCBT in Patients with Persistent Pain due to WMSDs in a Clinic Setting: Subjects: A cohort of 10 patients, nine IT Professionals and one journalist, with persistent pain in WMSDs due to RSI resulting from chronic computer use, referred to a neuropsychiatric clinic were randomly chosen and followed-up for six months. Six were male and four females. Age range was between 20 and 50 years. Duration of the condition ranged from 1.5 years to 10 years. They were asked to rate two aspects: 1. Pain Intensity and 2. Subjective Distress (due to pain). A simple visual pain-distress rating scale (0 – 10) (routinely used in clinical practice) was used (Appendix 1) [8]. Baseline scores were the ratings taken on the first assessment before the commencement of therapy. Subsequent ratings were those taken during the Week 4, Week 12 and Week 24 follow-ups respectively. Table I (a) and I (b) give the patient details and scores respectively.

TABLE I (a): Patients (Pt) Receiving MBCBT

Subject	Sex	Age (Yrs.)	Duration of WRMSD (in Yrs.)	No. of MBCBT sessions attended before 4-week follow-up
Pt 1	M	50	10	4
Pt 2	F	40	6	4
Pt 3	M	35	5	4
Pt 4	F	20	2	2
Pt 5	F	22	2	4
Pt 6	M	30	1.5	2
Pt 7	M	29	5	4
Pt 8	F	25	3	4
Pt 9	M	21	2	2
Pt 10	M	30	3	4

TABLE I (b): Pain Intensity /Subjective Distress Scale Scores

Subject	Baseline (Pain/Distress)	4 Weeks Follow-up	12 Weeks Follow-up	24 Weeks Follow-up
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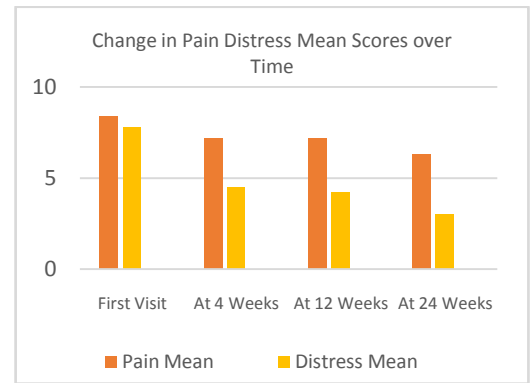


Pt 1	8/8	7/5	7/5	7/3
Pt 2	8/8	8/5	7/5	7/4
Pt 3	9/7	7/4	7/3	6/2
Pt 4	8/8	8/7	8/7	7/3
Pt 5	9/8	7/4	7/6	6/3
Pt 6	8/8	7/4	8/2	3/1
Pt 7	9/8	6/2	6/2	7/3
Pt 8	9/8	8/6	7/4	7/4
Pt 9	8/8	8/5	8/5	6/4
Pt 10	8/7	6/3	7/3	7/3

III shows the mean of the scores for Pain Intensity and Subjective Distress. Figure 1 depicts the same in the form of a bar-diagram.

TABLE III: Mean Scores of Pain Intensity and Subjective Distress

	Pain Mean	Distress Mean
Baseline (First Visit)	8.4	7.8
Week 4 Follow-Up (1 month)	7.2	4.5
Week 12 Follow-Up (3 months)	7.2	4.2
Week 24 Follow-Up (6 months)	6.3	3.0



x-axis = Follow-up time, y-axis = Pain/Distress Score

Fig. 1: Change in Pain Intensity and Subjective Distress over time

(2) Short-Term Training Program in MBCBT for Healthcare Professionals Treating Persistent Pain due to WMSDs: Subjects: Eight Healthcare Professionals, seven physiotherapist and one occupational therapist, treating persistent pain for WMSDs who completed the full course of the program. The program was for four days of six hours each staggered over two weeks. None of them had any previous knowledge of CBT or Mindfulness. The experiential course consisted of didactic lectures, videos, mock therapy sessions, homework, Mindfulness and Self-Care skills training and discussions. A pre-program test was completed by the participants consisting of MCQs and short note which were scored. At the end of the program they had to complete a final test comprising of both theory and practical evaluation that were scored. Table II gives the details and scores.

TABLE II: Healthcare Professionals participating in Short-Term 4-day MBCBT Program, Pre-Program Test and Post-Program Test Scores

	Profession	Sex	Pre-Program Test Score (5 Band)	Post-Program Cumulative Score (5 Band)
Pro1	PT	F	2.2	4.6
Pro2	PT	M	3.0	4.4
Pro3	PT	M	2.5	4.4
Pro4	PT	F	1.7	4.3
Pro5	OT	M	3.0	4.8
Pro6	PT	F	2.7	4.4
Pro7	PT	M	2.0	4.2
Pro8	PT	M	2.7	4.6

PT = Physiotherapist, OT = Occupational Therapist

Score Bands: Excellent = > 4.5, Good = 3.5 – 4.5, Need Attention = < 3.5

ANALYSIS AND RESULTS

(1) Clinical Use of MBCBT in Patients with Persistent Pain due to WMSDs: The 10 patients were available for follow-up for six months (24 weeks). Though the patients were expected to have received four weekly-sessions of MBCBT before the fourth-week follow-up report, seven patients attended the four sessions and three attended two sessions only. The patients had the flexibility of reporting follow-up progress either by attending clinical follow-up appointments or through phone or E-mail follow-up. Table

We can see that there is a reduction in both the scores at all the follow-ups. The improvements are sustained over the time period. One thing of note is that the reductions in pain intensity are relatively less than the reductions in subjective distress. Is this significant? A Two-Factor ANOVA (Analysis of Variance) with Repeated Measures on Both Factors was computed. The summary of the results are given in Table IV.

TABLE IV: Summary of Two-Factor (Pain and Distress) ANOVA with Repeated Measures on Both Factors

Source	SS (Sum of Squares)	df (Degree of Freedom)	MS (Mean Square)	F (F-Statistic)	P (Probability)
Subjects	28.05	9			
Within Subjects					
A (Row variables)	115.2	1	115.2	152.461	< 0.0001
Subjects x A	6.8	9	0.7556		
B (Column variables)	126.45	3	42.15	35.5097	< 0.0001
Subjects x B	32.05	27	1.187		
A x B	22.5	3	7.5	16.1987	< 0.0001
Subjects x A x B	12.5	27	0.463		
Total	243.55	79			

We can see that the probabilities (p values) of the within-subjects measures are significant. It is the



Fig. 2: Short MBCBT Training Program for Healthcare Professionals: Pre-Program and Post-Program Test Scores

subjective distress that is significantly reduced as compared with the pain intensity itself. This is expected as the MBCBT approach brings about change in attitude towards the condition and hence a change in perception of pain thereby reducing the distress experienced. The patients reported that the knowledge and skills acquired clarified concepts about chronic pain, produced a positive state of mind, better coping with stress, improved thinking and better decision making.

- (2) Short-Term Training Program in MBCBT for Healthcare Professionals Treating Persistent Pain due to WMSDs: Eight healthcare professionals treating chronic musculoskeletal pain completed the full program of four days, though 13 professionals had enrolled initially. The reasons for non-attendance were work commitments and ill-health. All the professionals had only heard of CBT but had not received training to use it. None were aware of Mindfulness or its application in therapy. Table II shows the difference in the scores between the Pre-Program Test and the Post-Program Cumulative (Theory and Practical) Test Scores. The practical assessment was done through observing and evaluating mock therapy sessions. All participants were asked to provide feedback of their experience of the program. These outcomes are a reflection only of a cognitive awareness of a skill and not indicative of any expertise. The value and effectiveness of a skill can be known only once they start using the skills with patients regularly, receive further supervision and are evaluated subsequently. Figure 2 shows the Bar-Diagram highlighting the change in knowledge and skill awareness. Table V summarizes the results of a One-Way ANOVA of Correlated Samples.

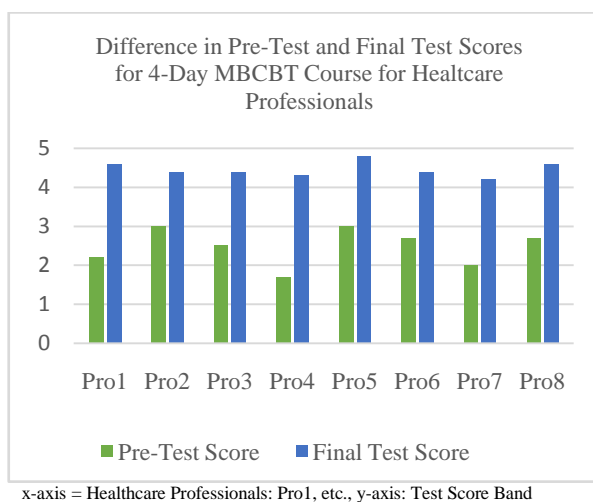


TABLE V: Summary of One-Way ANOVA for Correlated Samples

Source	SS	df	MS	F	P
Treatment	15.8006	1	15.8006	207.09	<0.0001
Error	0.5344	7	0.0763		
Subjects	1.2794	7			
Total	17.6144	15			

The probability p value is less than 0.0001 which is significant. Subjectively the participants reported that they had a better understanding of persistent pain, personally learnt techniques to reduce their own stress, became aware of counselling skills, learnt new ways of assessing pain, and they were motivated to use mindfulness in their own lives and in therapy for patients.

DISCUSSION

Normal pain is a sensory and emotional experience. It is a normal psychophysiological response to damage or threat to the integrity of the organism. It triggers a defensive response. Once the immediate threat is effectively managed it then activates the healing process in order to restore the integrity.

Persistent pain is abnormal pain. It is pain that occurs without damage or threat to the integrity (of the body/mind). Or the pain lasts beyond natural time for healing. Or the pain is out of proportion to any defects noted on examination or lab tests. This pain is not serving any useful purpose. Therefore 'normal' ways of dealing with abnormal pain are not effective [3]. But the mind-body becomes sensitized and conditioned to certain default ways of responding as if there is an acute pain situation. This then requires an awareness of this process, an understanding of the aberrant mind-body responses, breaking habitual and maladaptive ways that have been learnt by default in dealing with the pain, reestablishing normal sensitivity and reconditioning the mind-body system [1].

Mindfulness brings about greater awareness and greater control over responses [4, 5]. Behavior activation techniques help learn new ways of engaging in activity and coping. Cognitive restructuring is a technique of cognitive therapy that helps identify, challenge and modify habitual thinking patterns so as to change those and establish adaptive ways of thinking and feeling reducing distress and aiding better decisions [3]. Thus MBCBT helps the individual to gain new insights, providing for a paradigm shift in relation to his/her pain and suffering and so be empowered to take charge of the pain. Persistent pain due to WMSDs shares the underlying mechanisms of chronic pain. The basic principles of CBT and mindfulness can be applied to several conditions but has to be adapted and modified according to the condition and also the



person being treated. This can come through training, supervised practice and experience [3, 4].

All of the patients referred for MBCBT included in this study were on different pain medications for a long time with variable relief and were also receiving physical therapy. They continued to be on these treatments all through the MBCBT program. While most patients were referred for psychotherapy as part of a multi-disciplinary approach to persistent pain management, a few of them were referred as they had reported psychological symptoms like depression and excessive anxiety. Psychological symptoms are common in patients with persistent pain and are seen in almost all patients that are referred to the neuropsychiatric clinic as a detailed psycho-social and mental state assessment is done. This may not otherwise happen routinely in a medical/surgical clinic. MBCBT particularly helps deal with the psychological issues which sometimes may not be related to the chronic pain per se. We can say that MBCBT can be a part of an integrative approach. It can be complementary to other therapies thus providing a holistic approach to pain management. Some patients have needed further 'booster' sessions to refresh, retrain, rehearse and reinforce their skills of self-management. But by and large, in my experience, the changes are long lasting even after a few sessions. This may possibly dependent on certain personality characteristics and traits of the patient.

Training in MBCBT is an experiential process. As the human conditions of pain and suffering are universal, therapists are not immune to them. Besides in order to be able to impart new knowledge and teach new skills to patients, healthcare professionals need to be knowledgeable and skillful in the techniques themselves. In this context it is true that in order to be a good teacher one should be a good student. This requires that we ourselves regularly practice and know how to use these skills effectively. No intervention is without their adverse effects. It is imperative that the therapist is fully aware of the potential hazards of psychological therapies in general and mindfulness and related practices in particular [2, 4, 9]. It is important that therapists who want to use them solely or integrate such psychotherapeutic approaches into their practice, receive training and supervision from experts.

I. CONCLUSION

Current approaches to management in healthcare are changing. When it comes to managing chronic conditions like persistent pain, integrative and multidisciplinary approaches have better outcomes in terms of reducing morbidity, reducing financial burden, reducing loss of productivity and man-hours. Transformative care is the new paradigm where the healthcare professional and the patient have equal participation in healthcare decision making and the emphasis is on empowerment for effective self-care [3].

This report is only a brief clinical observation of therapeutic tools that have not been widely accessed or used in routine clinical practice. This may be mainly due to lack of awareness both among the general public and healthcare professionals in this country, inability to provide the time for psychotherapy in a busy clinic schedule, and cost of good quality psychotherapy.

This report is severely limited. The samples are small and the study designs lack the required rigor of a randomized controlled study. Research with psychotherapeutic interventions is always difficult as we are dealing with the mind and human emotions which are very subjective, do not follow linear dynamics, can fluctuate widely and frequently and the accuracy of measurements cannot be certain. But the hope of this effort is that more people will be open to try and incorporate at least aspects of these approaches and also academic clinicians conduct more research into these approaches in our country, the land of their origins.

sarve bhavantu sukhinaha. sarve santu niramayaha.

sarve bhadrani pashyantu. makaschid dukha bhagbavet.

aum shanti shanti shantihi

May all be happy. May all be healthy. May all our perceptions be good. May none suffer. May there be peace everywhere.

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APPENDIX 1

PAIN-DISTRESS SCALE

