



## IMPACT OF MINDFULNESS BASED COGNITIVE THERAPY ON RESPONSE INHIBITION IN ADULTS WITH OBSESSIVE COMPULSIVE DISORDER

**Mrs Neha Farheen Mushtaq\***

M.Sc., M.Phil, Assistant Professor, Department of Clinical Psychology, Adichunchanagiri Institute of Medical Sciences, Adichunchanagiri University, BG Nagara, Nagamangala Taluk, Mandya District, Karnataka, India. \*Corresponding Author

**Dr G Venkatesh Kumar**

PhD., Professor and Chairman, Department of Psychology, Manasagangotri, University of Mysore, Mysore District, Karnataka, India.

### ABSTRACT

#### Background:

**1. Aim:** The present study attempts to see the impact of Mindfulness Based Cognitive Therapy on response inhibition ability in adults with Obsessive Compulsive Disorder (OCD)

**Methods and Materials:** MBCT was applied on Pre- and post-assessments as intervention with a control group design were used to conduct this study including 34 patients with OCD. Clients were equally distributed in two groups where one group was given intervention Mindfulness based cognitive therapy (MBCT) sessions for 8 weeks. Pre- and post- intervention assessment was done using The Stroop Color and Word Test (SCWT) and the results were compared.

**Results:** Obtained research data indicates that there was no significant in the stroop effect between the group which had been undergone MBCT as compared to the other group.

**Conclusion:** Findings revealed that MBCT did not had significant effect on overall enhancement of stroop effect in adults with OCD.

**KEYWORDS :** Mindfulness Based Cognitive Therapy, Obsessive Compulsive Disorder, Response Inhibition.

#### 1. Introduction:

Obsessive compulsive disorder (OCD) is a debilitating, chronic condition which has impacted up to 3% of the general population.<sup>1</sup> OCD is associated with significant impairment in social, academic, and family functioning<sup>2</sup> and is considered one of the ten most handicapping conditions by the World Health Organization.<sup>3</sup> OCD is characterized by symptoms that include intrusive thoughts, images and urges that are unwanted and continuous which cause marked anxiety which is distressing (i.e., obsessions) as well as repetitive mental or behavioral rituals (i.e., compulsions) that are performed in response to obsessions in order to decrease, or prevent the associated anxiety or distress (American Psychiatric Association, 2013).

One neurocognitive function that may be particularly relevant to OCD is Response inhibition (RI). RI is defined as the ability to suppress inappropriate but inadvertently activated, prepotent responses to stimuli.<sup>4</sup> The ongoing feedback loop in which intrusive, uncontrollable obsessions trigger repetitive, habitual compulsions may represent a deficit in RI.<sup>5-7</sup>

This study was conducted to evaluate the feasibility of the MBCT on response inhibition in adults with obsessive compulsive disorder.

#### 1. Methods And Materials

Participants included 32 adults. Out of them 16 participants were enrolled in the control group and 16 were in the experimental group. Initial baseline assessment was done using Stroop test and scores were noted. The control group were given Mindfulness based cognitive therapy as an intervention. The present study was conducted in a private hospital. Potential participants were identified by their treating consultants and offered the opportunity to join this study. Inclusion criteria were: a primary diagnosis of OCD according to the DSM-5, age between 18-45years, informed consent. The participants were divided into two group (n=16) in each group.

#### Tools For Assessment

2.1 Semi-Structured proforma: It contained sociodemo-

graphic details like age, gender, year of education, residential background, family, and Religion.

#### 2.2 Response Inhibition – Stroop Test

One of the neurological tests which is extensively used is the Stroop Color-Word Test (SCWT; Stroop, 1935) is for examining executive functions and response inhibition. There are different versions of the task, some of them have been translated into various languages and modified accordingly for use with diverse populations, including adolescents, children, adults, and clinical patients. In the standard form of the task, a participant is asked to read words that are the names of colors (i.e., word reading) and later name the color of ink patches (i.e., color naming), and finally name the color of the ink in which incongruent color words are printed (e.g., say "yellow" when the word yellow is printed in pink ink). This requires response inhibition.

#### The Intervention

Mindfulness can be explained as process of purposely bringing attention to moment by moment in a non-judgmental way Mindfulness Based Cognitive Therapy and Psycho education is an 8-week manualized clinical intervention program. This program consists of cognitive behavioral therapy (CBT). The MBCT was delivered in eight two-hours sessions once a week. Each MBCT session consists of brief reporting of the previous week session, homework review and the preview of the homework for the following week session. In every session the participants were given handouts with summary of the very important session contents.

#### 3. Statistical Analysis

**Table 1 Mean Scores And Other Descriptive Statistics For Stroop Tests For The Experimental And Control Groups**

Time taken	Group	N	Mean	Std. Deviation	Std. Error Mean
Naming	Exptl	16	112.81	8.681	2.170
	Control	16	101.25	4.509	1.127
Reading	Exptl	16	239.88	11.769	2.942
	Control	16	228.25	10.988	2.747
Stroop effect	Exptl	16	127.81	13.273	3.318
	Control	16	127.81	9.551	2.388

**Table 2 Results of Independent samples t-tests for Mean scores on Stroop tests (cognitive inhibition tests) for the Experimental and Control Groups**

Variables	t-test for Equality of Means			
	t' value	df	P value	Mean Difference
Naming	4.728	30	.000	11.563
Reading	2.888	30	.007	11.625
Stroop effect	.000	30	1.000	.000

In the case of cognitive inhibition tests, significant mean differences were observed between the experimental and control groups, for naming and reading tests, where t values of 4.778 and 2.888 were found to be significant at .001 and .007 respectively, wherein the naming experimental group had higher scores and in reading control group had higher scores. Hence, randomization between experimental and control groups was not confirmed. However, in the stroop effect, non-significant difference was observed between groups ( $t=0$ ;  $p=1.0$ ).

#### 4 DISCUSSION

There have been several studies examining RI in adults with OCD using these types of tasks. Most have shown that adults with OCD perform poorly on RI tasks.<sup>8-11</sup> Based on these findings, as well as findings showing impaired RI in first-degree relatives of patients with OCD, RI has been proposed as a candidate endophenotype of OCD. However, there have been studies that did not find RI impairment related to OCD.<sup>12</sup> Explanations for these inconsistencies are likely related to the heterogeneous nature of both RI and OCD. A systematic review was recently done on the impact of MBCT on neurocognitive findings of bipolar disorder which was reported that there was an evidence to support a positive effect on anxiety, residual depression, mood regulation, and broad attentional and frontal executive control.<sup>15</sup> The results of our present study indicates that there is no significant mean difference between the experimental and control groups in their response inhibition which was done using stroop effect scores. But, significant mean differences were observed between the experimental and control groups, for naming and reading tests, where t values of 4.778 and 2.888 were found to be significant at .001 and .007 respectively, wherein the naming experimental group had higher scores and in reading control group had higher scores.

#### CONCLUSION

The findings of this study led us to conclude that there is significant difference between the scores for naming and reading test in patients with obsessive compulsive disorder among the control and experimental group. But, overall stroop effect was not found to be statistically significant. On the basis of our results there is a strong evidence that Mindfulness being included as adjunct to existing treatment for enhancing the response inhibition in adults with obsessive compulsive disorder. Mindfulness also appears to operate on a sensory, cognitive behavioral and psychological level and presents a way to treat a patient with OCD in an holistic way.

#### LIMITATIONS

There is a need to conduct multi-centric longitudinal studies involving larger samples to arrive at the generalizability of this finding. Another limitation intended to study of a specific intervention modality that might restrict generalizability to the population with OCD on the whole; It is evident that the OCD participants in this study may have 'self-selected' for willingness to indulge in this program, in turn likely results in the symptom reduction significantly.

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