

The Effect of Mindfulness-Based Intervention on Caregivers of Person with Chronic Schizophrenia

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ABSTRACT:

When family members find out that a loved one has developed schizophrenia, they often feel helpless, angry, depressed, and anxious. As a result, the caregiver's psychological health is greatly affected, which increases both the caregiver's subjective and objective burden. As a result, they may require assistance and communication with mental health professionals at times. As a result, the study sought to assess the efficacy of mindfulness-based interventions on caregivers of people with chronic schizophrenia. **Objectives:** The study aimed to evaluate the effectiveness of a mindfulness-based intervention on various psychological parameters such as mindfulness, sense of control, and overall well-being in caregivers of people with chronic schizophrenia. **Methodology:** A total of 26 caregivers of persons with chronic schizophrenia, who fulfilled the inclusion and exclusion criteria were selected and formed into the Treatment As Usual (TAU) and Mindfulness Based Intervention with Treatment As Usual (MBITAU) groups. **The current intervention was found to be effective in increasing well-being and mindfulness, particularly action awareness, as the MBITAU group differed significantly from the TAU group in the post-assessment.** Thus, MBI can be an effective therapy to maintain the psychological health of caregivers.

Keywords: Mindfulness, General Well-being, Caregivers, Schizophrenia, Mindfulness Based Intervention

INTRODUCTION:

The initial reactions, a family has when one of its members is diagnosed with mental illness include shock, denial, blame, and suffering. The suffering of primary caregivers is exacerbated in the case of those with schizophrenia, the most prevalent serious disorder with a poor prognosis, by symptoms and signs, caregiving demands, an inability to accept the loved one's illness and the ensuing emotional distress, the financial burden of treatment, the

stigma associated with it, as well as other mental health conditions like anxiety, frustration, and a lack of coping mechanisms (Spaniol, Zipple & Lockwood, 1992). According to a review of the literature by Caqueo, Gutiérrez, and Miranda (2009), caretakers' quality of life can be negatively impacted by their own physical, emotional, and financial distress (Chenn et al., 2019), as a result of a variety of unmet needs, such as a lack of time for themselves, a significant financial burden, and a lack of improvement in the patient's capacity to perform family and social roles. Due to all of these circumstances, the stress levels of the primary caregivers are certain to increase and stay elevated. As a result, they may experience stress, worry, and depression, as well as high frustration, a loss of patience, and a lack of compassion for themselves and their patients (Chaddaa, 2014; Mehmood et al., 2022). Consequently, the expressed emotion towards the patient mounts, which could subsequently make the patient's condition worse. Thus, the vicious cycle of suffering is maintained, which hampers the psychological well-being of the caregiver.

Since expanded awareness of one's own feelings and experiences and acceptance are found to be predictors of psychological well-being (Lindsay & Creswell, 2017; McNall et al., 2021), an intervention that enhances these factors may be beneficial to improve the psychological well-being of the care givers. If the caretakers can accept, accommodate, and establish a non-judgmental attitude toward his moment-to-moment self-experience, they will not only secure their own well-being but also be able to get better control over their emotional reaction. As a result, they may be able to provide better care for the person suffering from schizophrenia.

The term "mindfulness-based intervention" refers to a variety of mindfulness therapy techniques that are often underpinned by a cognitive-behavioral perspective that promotes awareness, acceptance, and emotion control. John Kabat-Zinn made modern mindfulness psychotherapy popular by removing any religious components. According to Kabat-Zinn, mindfulness is "the consciousness that arises via paying attention on purpose, in the present, and non-judgmental acceptance of the unfolding of experience in the present moment" (Kabat-Zinn, 2003, p. 145). There are a few studies that have reported that MBI can reduce stress and increase mindfulness in caregivers (Putri & Bintari, 2018); Vignesh R., 2012). The study's main postulate is that MBI interventions that promote awareness and acceptance can aid in the primary enhancement of well-being and emotional regulation and, secondarily, prevent ill health of any kind in the caregiver, prevent the patient's relapse, and positively improve the emotional atmosphere for the patient's speedy recovery.

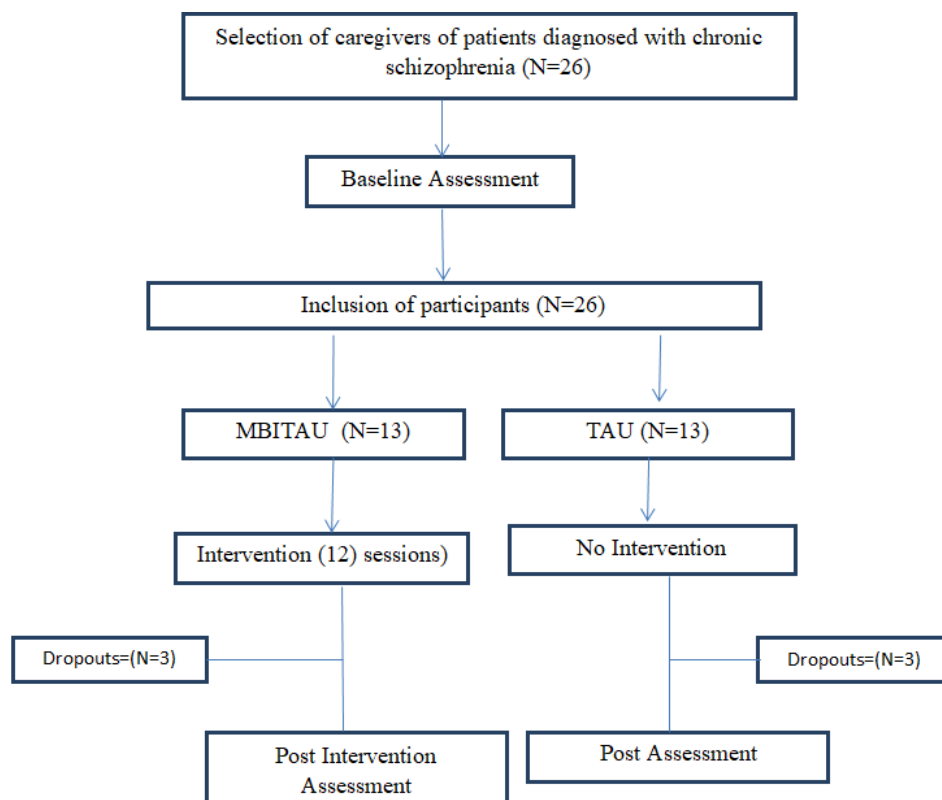
There is a scarcity of research on the effect of MBI on the psychological well-being of the same population. However, a number of studies done on caregivers of other psychological disorders and other serious physical illnesses with psychological symptoms reported that MBI improved mindfulness, psychological well-being, and emotional regulation. (Molero Jurado et al., 2020; Shapiro et al., 2007; Singh et al., 2004, 2016; Stjernswärd & Hansson, 2017). The caregiver burden and psychological distress are similar across caregiver types, though intensity and magnitude can vary. The positive effects of mindfulness on caregivers

and the general population provide a foundation for the development of a mindfulness-based intervention for caregivers of people with schizophrenia. Thus, the present study aimed at assessing the effectiveness of mindfulness-based interventions on the well-being and sense of control of caregivers of patients with chronic schizophrenia.

METHODOLOGY:

Sample

The study was a hospital-based intervention with a pre- and post-control group design. In this study, caregivers of both genders who are significant caregivers in terms of parents, spouses, or first-order family members and who reside with patients aged between 20 and 55 years and who have at least primary education and basic proficiency in Hindi and English were included in the study. Other requirements included informed consent, the absence of any other mental illness or serious physical illness, and the willingness to attend all intervention sessions without fail. Caregivers of patients with schizophrenia who were diagnosed within the last two years, as well as patients with schizophrenia who have a significant history of substance abuse or any other psychiatric illness, as well as a history of epilepsy, neurological disorders, or mental retardation, were excluded. Through purposive sampling, 26 caregivers of patients with schizophrenia who fulfilled the inclusion and exclusion criteria were selected. Randomly, 13 participants were assigned to MBI with treatment as usual (MBITAU) and 13 to treatment as usual (TAU).



Measures

Clinical Interview Schedule (CIS): A semi-structured form used to get detailed information about the socio-demographics of the participants. It combined a clinical case history format with a checklist of anxiety symptoms. **The PGI general well-being scale (PGIWBS)** developed by S.K. Verma and Anita Verma in 1989, was used to assess caregivers' subjective general sense of well-being. **The Five Facet Mindfulness Questionnaire (FFMQ)** was used to assess the mindfulness state of the participants, developed by Bear et al. in 2006. Deane H. Shapiro's (1994) **Shapiro Control Inventory (SCI)** was used to assess caregivers' sense of control. These measures were used for pre- and post-assessment. Reliability and validity were adequate for all the scales.

Mindfulness Based Intervention Package

A group-oriented, suitable intervention package was prepared for the caregivers of patients with schizophrenia, which included a guided interview with the caregivers and standardised techniques from existing modules and related literature. The module was developed by three registered clinical psychologists. On a weekly basis, 12 sessions lasting approximately one hour were conducted by one trained clinical psychologist. The outline of the module is as follows

Table 1; intervention package description

Sessions	Techniques/activities	Home work
1	<ul style="list-style-type: none"> Group Orientation Pre-assessment: tools administration assessing understanding and psycho education about schizophrenia 	1. Handouts on understanding schizophrenia and related burden
2.	<ul style="list-style-type: none"> Feedback and discussion of previous session Introduction of mindfulness and automatic pilot Demonstration of raisin exercise 	1. Hand out of mindfulness 2. Mindful eating exercise (breakfast, lunch and dinner)
3	<ul style="list-style-type: none"> Feedback and discussion of previous session Demonstration of body scan (sitting posture) 	1. Mindfulness eating exercise (breakfast, lunch and dinner) 2. Practice of body scan with the help of audio track 2 times in a day (preferably while patient is sleeping) and just before sleeping in the night (lie-down posture)

4	<ul style="list-style-type: none"> • Feedback and discussion of previous session • Group understanding related to effect and coping with difficult behaviour of patients • Demonstration of mindfulness of breath and discussing suitable time to practice it 	<ol style="list-style-type: none"> 1. Mindfulness of eating in routine life 2. Practice of body scan 3. Mindfulness of breath-3 times in a day with the help of audio track as well as when patient is having difficult emotions and behaviour
5	<ul style="list-style-type: none"> • Feedback and discussion of previous session • Learning alternative strategies to deal with difficult behaviour of patients • Practice of mindfulness of breath 	<ol style="list-style-type: none"> 1.Practice of body scan 2.Using alternative ways to deal with difficult behaviour of the patient in stress-full situation 3. Mindfulness of breath
6	<ul style="list-style-type: none"> • Feedback and discussion of previous session • Practice of self-guided body scan • Thought and feeling exercise 	<ol style="list-style-type: none"> 1.Practice of self-guided body scan once in a day and once before sleeping 2. Handout of mindfulness of thought and emotions 3. Practice of mindfulness of breath (Self-guided)
7	<ul style="list-style-type: none"> • Feedback and discussion of previous session • Demonstration of mindfulness of thought and emotions • Practice of mindfulness of breath 	<ol style="list-style-type: none"> 1. Practice of self-guided body scan 2. Mindful observation of thought and emotions once in a day(using audio track) 3 Practice of mindfulness breath (self-guided)
8	<ul style="list-style-type: none"> • Feedback and discussion of previous session • Practice of mindfulness of thought and emotions • Demonstration of 3MBS 	<ol style="list-style-type: none"> 1. Mindful observation of thought and emotions once in a day 2.Practice of 3MBS 3 Times in a day and in emergency or difficult situation (using audio track) 3. Self-guided body scan just before sleep
9	<ul style="list-style-type: none"> • Feedback and discussion of previous session • Practice of 3MBS • Demonstration of mindfulness of sound 	<ol style="list-style-type: none"> 1. Practice of 3MBS(using audio track) 2. Practice of mindfulness of sound (using audio track) 3 times in a day 3. Body scan

10	<ul style="list-style-type: none"> • Feedback and discussion of previous session • Practice of 3MBS • Practice of mindfulness of sound • Demonstration of <i>loving and kind meditation</i> 	<ol style="list-style-type: none"> 1.Practice of 3MBS(self-guided) 2 times per day and in emergency and difficult situation 2.Practice of loving and kind meditation (using audio track)
11	<ul style="list-style-type: none"> • Review of whole sessions • Practice of loving and kind meditation • Preparing a list of mindfulness activities in day to day life 	<ol style="list-style-type: none"> 1.Practice of mindfulness in day to day life
12	<ul style="list-style-type: none"> • Termination and post assessment 	<ol style="list-style-type: none"> 2.Mindfulness in day to day life

PROCEDURE OF THE STUDY:

This study was conducted with the aim of assessing the application and effectiveness of mindfulness-based interventions on the well-being and sense of control of caregivers of patients with chronic schizophrenia. The patients who fulfilled inclusion and exclusion criteria were identified, and their significant caregivers were contacted. Caregivers were given information about the study and the mode of intervention during personal interview sessions. The consent of caregivers was obtained after observing their strong willingness to participate in the intervention study. The caregivers were screened on the basis of inclusion and exclusion criteria, and a total of 20 caregivers were selected for the proposed study using purposive sampling techniques. 13 were assigned to the "Treatment As Usual group," and 13 were assigned to the "MBI with Treatment As Usual group." One week Prior to the intervention, a pre-assessment of both groups was conducted. The "MBITAU" was then subjected to an intervention package with necessary follow-up homework assessment and feedback. Having completed 12 sessions and related requirements, a post-session assessment of both groups was conducted. Both sets of data were examined, and data cleaning was performed. Having failed to fulfil their homework and not complying with the time and action plan of the session, two of them were removed from the intervention group, and due to incomplete assessment data, two were removed from the control group. One participant from each group left the hospital due to the discharge of their patients. The final data set included 20 patients' caregivers, with 10 in each group.

DATA ANALYSIS:

SPSS 24 was used to analyse the data. A descriptive statistic was used for analysing sociodemographic data. The mean score of all scales and subdomains on the pre- and post-assessment is also determined using descriptive analysis. The Shapiro-Wilk Z test of normality indicated that the data was not normally distributed, therefore, higher level non-

parametric tests were carried out to measure variance in order to test the hypotheses. The Kolmogorov-Smirnov Z test was done to test the significance of the difference between two groups on the means of scores obtained from the FFMQ, PGI Well-being, and SCI in the pre- and post-assessment periods. To compare pre- and post-test scores within the group, a Mann-Whitney U test was used.

RESULTS:

Table 2: showing descriptive statistic of socio- demographic variables

		Frequency TAU	% TAU	Frequency MBI TAU	% MBI TAU	Mean /SD
Gender	Male	7	70	7	70	
	Female	3	30	3	30	
SES	Lower	2	20	3	30	
	Middle	7	70	7	70	
	Upper	1	10	0	0	
Residence	Rural	7	70	6	60	
	Urban	3	30	4	40	
Duration of illness	2 to 3 years	4	40	5	50	
	4 to 5 years	4	40	4	40	
	5 years above	2	20	1	10	
Duration of treatment	2 to 3 years	7	70	7	70	
	4 to 5 years	3	30	3	30	
	5 years above	0	0	0	0	
Age	TAU					37.90 (± 19.35)
	MBI TAU					44.90 (± 19.66)
Education	TAU					14.4 (± 1.26)
	MBI TAU					11.1 (± 4.40)
Total		10		10		

Table 3; showing descriptive statistics of study variables

Pre scores			Post scores		
Variables	Mean	S.D	Variables	Mean	S.D
V1 TAU	13.9000	3.78447	V1 TAU	14.1000	4.35762
V1 MBITAU	9.3000	3.59166	V1 MBITAU	17.5000	2.54951
V2 TAU	28.9000	6.13641	V2 TAU	27.7000	6.37791
V2 MBITAU	26.6000	5.33750	V2 MBITAU	27.3000	8.28721
V3 TAU	33.1000	4.88649	V3 TAU	32.5000	3.30824
V3 MBITAU	28.5000	4.17000	V3 MBITAU	31.3000	5.59861
V4 TAU	33.2000	5.13809	V4 TAU	32.2000	4.68568
V4 MBITAU	26.4000	5.35828	V4 MBITAU	36.7000	2.58414
V5 TAU	25.8000	4.46716	V5 TAU	27.0000	5.55778
V5 MBITAU	23.7000	7.33409	V5 MBITAU	25.2000	7.88529
V6 TAU	29.9000	3.63471	V6 TAU	27.0000	4.87625
V6 MBITAU	28.4000	3.09839	V6 MBITAU	28.6000	6.07728
V7 TAU	150.9000	11.00959	V7 TAU	146.4000	9.37135
V7 MBITAU	132.6000	15.24030	V7 MBITAU	149.7000	20.91278
V8 TAU	196.3000	46.05806	V8 TAU	177.6000	24.08872
V8 MBITAU	161.6000	36.13001	V8 MBITAU	182.8000	7.78603

*V1= PGI, V2= Observe, V3 = Describe, V4 = Act aware, V5 =Non -judge, V6 = Non- react, V7 = TFFMQ, V8 = SCI.

Table 4: Kolmogorov-Smirnov Z showing difference between the pre score TAU and MBI TAU and post score TAU and MBI TAU

The pre score TAU and MBI TAU									The Post score TAU and MBI TAU							
Variables	V1	V2	V3	V4	V5	V6	V7	V8	V1	V2	V3	V4	V5	V6	V7	V8
Z	1.34	.67	1.12	1.57	.89	.45	1.57	.89	.89	.45	.45	1.12	.67	.67	.89	.89
Asymp. Sig.	.06	.76	.16	.02	.40	.99	.02	.40	.40	.99	.99	.16	.76	.76	.40	.40

*V1= PGI, V2= Observe, V3 = Describe, V4 = Act aware, V5 =Non judge, V6 = Non react, V7 = TFFMQ, V8 = SCI.

Table 5 Mann Witney U showing difference between the pre and post scores in TAU group and MBITAU group

Variables	Assessment condition	The pre and post scores TAU				The pre and post scores MBITAU			
		Mean Rank	Sum of Ranks	U	Asymp. Sig.	Mean Rank	Sum of Ranks	U	Asymp. Sig.
V1	1	4.83	14.50	-.085 ^b	.932	5.50	55.00	-2.809 ^b	.005
V1	2	3.38	13.50			.00	.00		
V2	1	4.40	22.00	-.060 ^c	.952	4.25	25.50	-.356 ^b	.722
V2	2	5.75	23.00			6.50	19.50		
V3	1	4.17	12.50	-.254 ^c	.799	5.64	39.50	-1.226 ^b	.220
V3	2	3.88	15.50			5.17	15.50		
V4	1	2.33	7.00	-.135 ^c	.892	5.50	55.00	2.807 ^b	.005
V4	2	4.00	8.00			.00	.00		
V5	1	5.75	23.00	-.059 ^b	.953	5.50	27.50	-.595 ^b	.552
V5	2	4.40	22.00			4.38	17.50		
V6	1	3.50	10.50	-1.423 ^c	.155	3.50	10.50	-1.423 ^b	.155
V6	2	5.75	34.50			5.75	34.50		
V7	1	4.00	16.00	-1.176 ^c	.240	5.88	47.00	-1.988 ^c	.047
V7	2	6.50	39.00			4.00	8.00		
V8	1	3.50	10.50	-1.734 ^c	.083	7.00	42.00	-1.478 ^b	.139
V8	2	6.36	44.50			3.25	13.00		

*V1= PGI, V2= Observe, V3 = Describe, V4 = Act aware, V5 =Non judge, V6 = Non react, V7 = TFFMQ, V8 = SCI.

** 1= Pre assessment, 2 = Post

Table 6: Cohen -d showing effect size

Variable	Z score	N	Square root of N (\sqrt{N})	Cohen d	Interpretation
PGI	2.8	20	4.472	0.63	Moderate to High Sign.
Act Awareness	2.81	20	4.472	0.62	Moderate to High Sign.
TFFMQ	1.99	20	4.472	0.44	Small to Moderate Sign.

The total sample of 20 consisted of 14 males and 6 females, evenly distributed between the TAU (7 males and 3 females) and the MBI with treatment as usual (7 males and 3 females). Similarly, the duration of treatment for the patients in the sample was distributed equally between the two groups. Other socio-demographic variables were slightly different in both groups. The mean age of the control group was 37.90 (± 19.35) and that of the experimental group was 44.90 (± 19.66). The control group's mean education score was 14.4 (1.26), while the experimental group's mean score was 11.1 (4.40) (table 2). The mean scores of the outcomes in the pre assessment duration were relatively high in the TAU group. However, MBITAU group means increased after psychological intervention (Table 3).

The pre score of Total FFMQ was significantly different between the TAU and MBI with TAU ($Z(8) = 1.565$, $p = 0.015$), and one of the domains of FFMQ (act awareness) was also significantly different between the two groups ($Z(8) = 1.565$, $p = 0.015$). However, these significant differences observed in the pre score did not exist in the post score as there was no significant difference in the TAU and MBI with TAU in any of the outcome measures (Table 4). A significant difference was observed in the PGI scores between pre- and post assessment in the MBI with TAU. The act awareness domain of the FFMQ was significantly different between pre- and post assessment of MBI with TAU at ($U(8) = -2.809$), $p > 0.001$. The total score of the FFMQ was also significantly different between the pre- and post-assessment at $U(8) = -1.988$, $p > 0.001$ (Table 5). While the scores of pre post scores of TAU were not significantly different between pre and post assessment duration. Thus, it is obvious that there was a significant improvement in well-being and in total scores of mindfulness in the MBITAU group; however, sense of control and some domains of mindfulness did not improve significantly.

DISCUSSION:

The objectives of the study were to see the applicability of the mindfulness-based intervention on various psychological parameters like mindfulness, sense of control, and general well-being of the caregivers of patients with schizophrenia. The study was conducted on 20 caregivers of patients with chronic schizophrenia who were first degree relatives of the patients diagnosed with schizophrenia as per ICD-10 (DCR). The sample was divided into two groups: MBITAU and TAU. Along with treatment for the patient, the "MBITAU" group received 12 sessions of mindfulness intervention in a group format. Both groups underwent pre- and post-assessments on mindfulness, sense of control, and general well-being.

The results of the study indicate that MBI for caregivers is effective in improving mindfulness and wellbeing. Although the mean scores of the TAU group were higher than those of the MBITAU group in all outcome measures, the act-aware domain of the FFMQ and the total mean score of the FFMQ showed a significant difference. However, there was no significant difference in any of the outcome indicators when comparing the post-test scores between groups. As a result, the previously significant difference was reduced to

insignificance, suggesting that the intervention was successful. The outcome of the comparison conducted within the group provided further confirmation of the same. The MBITAU method shows a significant difference between two assessment periods in the outcome measures, which are mindfulness and well-being. The TAU group, on the other hand, did not show a significant difference between two assessment periods.

There was no significant difference in the TAU group's pre and post scores (cf; tables 4 and 5), indicating that the caregivers' mindfulness behaviour and psychological well-being were not improved as a result of the patient's compliance with the treatment and symptom management. It was apparent that medical attention or any psychological or physiological treatment provided for the patient's care and management had no direct effect on the caregiver's mindfulness behaviour or well-being. It can be understood that the caregiver's mindful behaviour was not the result of a random occurrence. If it was a coincidental or situational confounding variable, there should have been a considerable improvement in the TAU group, just as there was in the MBITAU group. Stjernswärd & Hansson (2017) finding that MBI increased mindfulness and reduced the stress of the caregivers of people with schizophrenia validates the findings of the present study. Although studies examining the effects of MBI on well-being in the same population were available to validate the present study's findings, a growing body of research with caregivers of people with a wide range of psychiatric disorders and serious medical illnesses who also experience psychological symptoms confirms the efficacy of MBI in improving both mindfulness and well-being. (Molero Jurado et al., 2020; Shapiro et al., 2007; Singh et al., 2004, 2016; Stjernswärd & Hansson, 2017).

The mindfulness intervention had an effect on the participants' general well-being. Table 5 shows significant improvement in the post-assessment. General well-being is probably one of the most important aspects of human beings, and the state of general well-being can be attained through a healthy body with a healthy mind. According to a review of the literature, caregivers of schizophrenia have poor quality of life and poor well-being, which is a construct referring to the harmonious functioning of the physical and psychological aspects of the personality, providing satisfaction to the self and benefit to society (Siwach, 2000).

Improvements in mindfulness and general well-being are concurrent. Theoretically, improving well-being may be explained by the improvement in mindfulness. A caregiver who had been lost in thought and worry about a patient's serious psychotic condition and related problems was not in touch with his own feelings, emotions, and psychological process. The attention was on the patient, but at the same time, the quality of attention was not maintained due to mechanical actions without having given any thought to personal emotions and feelings. In the intervention, participants started to focus more on self-awareness and act-awareness, a domain that was significantly different between the two groups. Thus, they were able to be in touch with their actions and related emotions and stress, and that probably increased their general well-being. The other possibility was that

mindfulness intervention helped the participant be more focused on their general well-being and, consequently, mindful actions evolved. Thus, well-being increased mindfulness. Mediation or moderation analysis could be a better measure of deciding what mediated or moderated the other variable. This was not in the scope of this research.

There was not any significant difference between MBITAU group and TAU group in sense of control of caregivers of patients with schizophrenia in pre & post assessment. However, table 3 indicated that there was a slightly higher score in the post-assessment of MBI with TAU in comparison to the pre-assessment, which suggested that self-control had upward progress but not enough to make statistical significance, which probably could have been achieved if there had been a follow-up assessment because sense of control is achieved through prolonged practice and it needs more time to develop into a habit or state. Surprisingly, there was downward progress in post-SCI scores for the TAU group, as shown in Table 3. The reasons are not known, but one could be assumed: a prolonged stay with the patient in the hospital and having no other personal resource to share the burden of caring for the patient caused a dwindling in self-resource to maintain a sense of control. However, with the help of a therapist and other participants, the MBITAU group participants were able to maintain a better sense of control than they had previously. This might be due to the feedback and discussions that take place in every session with the therapist and the participants as a whole. Though it was no way of a claim of effectiveness of this particular intervention but it was an indication that supportive therapy of this kind or any kind having same elements could be beneficial to caregivers to maintain or improves their sense of control.

CONCLUSION:

As a result of the findings, the study concludes that mindfulness-based intervention is an effective treatment strategy that can aid and assist caregivers of people with schizophrenia in improving their well-being and mindful disposition. Despite a few limitations, such as the small sample size and single location and setting for sample selection, as well as assessing only the immediate effect of the intervention and not looking into follow-up effects after a longer period of practise, the findings encourage clinicians to work with caregivers of people with schizophrenia using MBI. Since it was a treatment modality in the hospital, where their patient was receiving treatment for schizophrenia, the applicability was found to be high, as well as it could aid better patient care and the self-care of the caregiver.

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