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THE IMPACT OF MINDFULNESS-BASED COGNITIVE BEHAVIOR THERAPY (MBCT) ON REDUCING CAREGIVER BURDEN AND PARENTAL STRESS IN PARENTS OF CHILDREN WITH SPECIAL NEEDS

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ABSTRACT

Objectives: *This study intended to examine the effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) in reducing parental stress and caregiver burden among parents of children with special needs.*
Design of the study: *A single-group pre–post intervention design was employed.*
Place and duration of the study*: Feb to May, 2024 Rawalpindi.*
Sample and Method: *The participants were selected through the purposive sampling method from special education institutes in Rawalpindi and Islamabad. A total of 20 parents were selected for the study. The participants were required to complete the Parental Stress Scale (PSS) and the Caregiver Burden Inventory (CBI) before and after the eight-week group-based MBCT intervention.*
Results and conclusion*: Results indicated statistical significance in the reduction of parental stress and caregiver burden after the intervention. The results of this study indicate that MBCT can prove to be an effective psychological intervention for the emotional well-being of mothers of children with special needs. This study supports the inclusion of mindfulness-based interventions in the support of caregivers in Pakistan and other similar cultures.*

Keywords*: Mindfulness-Based Cognitive Therapy; Caregiver Burden; Parental Stress; Children with Special Needs*

INTRODUCTION

There is a substantial gap in the research on the emotional and physical stressors associated with the experience of having a child with special needs for both parents and caregivers. This is especially true in low-resource areas such as Pakistan, where the coping experience for parents is complicated by external factors such as society, cultural beliefs, and access to healthcare. In these situations, the demands of caregiving extend well beyond the immediate care and treatment of the child. According to the World Health Organization (2019), the mental and emotional toll placed on parent/caregivers through the complexities of raising a child with special needs is great. Parental stress, along with caregiver burden, are two key areas of concern that need immediate attention as they come with far-reaching implications for not only the individual parent or caregiver's but the entire family structures, socioeconomic stability, and mental health of the family unit (Hayes & Watson, 2013).

In the Pakistan, parental stress and caregiver burden related to children with special needs is compounded by cultural norms, non-existent mental health services, and pervasive disabilities-related discrimination (Husain et al., 2007; Mirza & Jenkins, 2004). Lack of awareness, low levels of education regarding disabilities, and persistent cultural beliefs related to disability create an environment in which caregivers often feel alone in their struggles without the necessary support to succeed in the role of caregiver (Mirza & Jenkins, 2004). Thus, this calls for an urgent need to understand the complexities of caregiving in this context, relative to the significant mental health challenges faced by parents. Understanding how caregiver burden and parenting stress impacts not just the quality of care provided to children with special needs but also the wellbeing of the caregiver has an impact on overall family stability, child development, and community development.

Parents of children with special needs experience significantly more stress over time than do parents of typically developing children due to multiple factors (Pinquart, 2018). In Pakistan, parents face additional barriers in addition to those associated with caring for their child with developmental delays or behavioral problems; these include; (1) The Consistent Emotional Toll of Coping with a Child's Developmental Delay or Behavior Problems and (2) Loss of Hope by Missing Out on Community Support. Most parents, especially mothers, experience extreme emotional pain from seeing their child struggle to integrate

into society and achieve educational success (Mirza & Jenkins, 2004; Rahman et al., 2008).. This often results in a feeling of powerlessness as well as high levels of emotional stress.

Caregiving has a significant burden on caregivers from both emotional and physical sources. For example, caregivers often have to schedule numerous appointments with doctors for their children and coordinate the logistics of multiple therapies (Turchi et al., 2018). These activities require extreme time commitments as well as a balance with work, domestic duties, and all other responsibilities and priorities caregivers had before the need to become a caregiver arose. All these factors lead to chronic stress, which commonly manifests into physical ailments, such as fatigue and insomnia. Caregivers also become so focused on caring for their children that they may fail to care for themselves and therefore become vulnerable to a host of physical illnesses (Schulz & Eden, 2016).

The effects of stress on parents in Pakistan are compounded by the stigma attached to disabilities. Many of the communities believe that there are either spiritual or divine reasons for a child's disability (Ahmad et al., 2021). As such, these misconceptions contribute to the isolation and rejection of the child. While parents have to deal with the blame of their child's disability, they often feel alone and lack support (Zafar et al., 2023). A study that was conducted in Lahore in 2021 found that nearly 40% of parents of children with special needs avoid public places due to fear of being ridiculed or called names (Zia et al., 2022). The stigma associated with disabilities not only impacts the integration of the child into society, but leaves the parents feeling socially marginalized, perpetuating the ongoing stress and emotional burden felt by the parents (Shaikh et al., 2023).

Although there may be some level of access to mental health support in big cities, current available programs are inadequate and culturally sensitive only to a specific subset of individuals in Pakistan. For instance, few mental health services recognize or accommodate the cultural beliefs and practices associated with mental health and therefore leave many caregivers feeling disconnected and unsupported by the system (Husain et al., 2024). Within this structure, many parents experience very little, if any, relief in their ability to handle stress, which negatively impacts their ability to respond to their caregiving duties.

Caregiver burden is an additional essential component that must be considered while examining the experiences of families with special needs children in Pakistan. Caregiver burden refers to the combination of physical, emotional, and financial pressures placed on parents when they care for a child who has disabilities (Ghafoor et al., 2021). Caregiver burden is comprised of many different types of stressors that, when combined, will impact on the overall health and well-being of the caregiver (Murtaza et al., 2021). Economic uncertainty is widespread throughout Pakistan and many parents are also struggling to pay for expenses directly related to caring for a child with special needs.

Due to difficulties obtaining therapy, medical treatment and specialized medical equipment due to high cost, many families are unable to access them (Batool et al., 2023). The situation is more difficult in countries like Pakistan with limited availability of public health care services and high out of pocket costs associated with private health care services. Consequently, many parents cannot afford to provide their children with the necessary medical treatment to keep them healthy, so they may choose not to or delay the medical treatment; thus, worsening their child's condition and increasing the burden on the parent/caregiver. Many parents are also forced to reduce or abandon their jobs due to having to care for their child, which results in loss of income (Ijaz et al., 2022).

In rural areas of Pakistan, this financial strain is further compounded by a lack of access to quality education and job opportunities, creating a cycle of poverty and increasing caregiver stress that is almost impossible to escape. Interestingly, emotional strain affects mental health and a parent's/guardian's mental health (Hameed et al., 2023). Some of the more common daily challenges caregivers face include managing their child's emotional/physical needs and overcoming societal stigma; as a result, many parents and caregivers experience frustration, grief, and hopelessness (Ali et al., 2023). Additionally, many caregivers, especially in rural areas experience feelings of isolation; therefore, there is little chance to share their pain with other parents. Consequently, this overwhelming isolation and lack of support can lead to feelings of burnout and depression, which further exacerbates caregiver burden overall (Sadiq et al., 2023).

Caregivers not only face emotional and financial strains, but also suffer from the effects of social isolation. The need to care for someone makes it difficult for caregivers to participate in social activities or have contact with family members as they normally would. In a country such as Pakistan, where family unity and community gatherings are important, being excluded from social functions due to a child's disability may create feelings of shame and rejection (Manzoor et al., 2023). The end result is a level of isolation that impacts the mental health of the caregiver and the way they interact with the family members and the overall function of the family.

Cultural and societal influences have a significant impact on parental stress and caregiver burden in Pakistan. Cultural norms regarding family honor and reputation are important variables that define the experiences of caregivers in a collectivist culture such as Pakistan. Many people view disabilities as being associated with stigma and/or failure, especially when the individual with a disability does not conform to societal expectations of "normal," or abled, individuals (Grut et al., 2012). Mothers of children with disabilities are often held accountable for their child's condition, as mothers are viewed as the primary caretakers of children, and thus there is a social expectation that they should be raising their children to be healthy and to conform. The stigma placed upon mothers as a result of this cultural expectation adds to the emotional burden placed upon mothers as a result of their child's disability, as they are frequently subjected to judgments and blame from both their family and community.

In Pakistan, religion has a substantial impact on how people experience caregiving (Hussain et al., 2023). Some caregivers may find comfort in their faith, while others might rely on spiritual healers or conduct religious ceremonies rather than turn to medical or psychological care, preventing them from obtaining timely access to appropriate treatment and making the caregiving experience increasingly difficult for them (Zakar et al., 2021). Moreover, caregivers may perceive mental health services with distrust since there are cultural connotations linking mental illness to a weakness or failings regarding one's character. Finally, the influence of culture on the stigma associated with discussing mental health challenges makes it difficult to confront the problems caregivers face in society.

Research indicates that caregiver burden and stress are the results of unresolved feelings of exhaustion, emotional distress, and a lack of resources to cope with stress (Van et al., 2010). The Interpersonal Psychological Stress Model (IPTS) illustrates how low perceived social support, an increased demand for

emotional support, and chronic stress result in the caregivers' psychological distress. Studies conducted thus far have produced mixed results regarding the association between psychological care and the health of caregivers. Additionally, it has not been determined whether or not the effect of MBCT on the caregiver burden is due to a lack of other variables, including socioeconomic standing, cultural expectations, and access to resources in the healthcare system, or whether it has a direct effect on the caregiver burden by providing a method for alleviating their burden. Therefore, this research aims to investigate ways to decrease the caregiver burden of parents caring for their special needs child through MBCT. This research contributes to the growing body of evidence supporting the efficacy of Mindfulness-Based Interventions for improving caregiver resilience and mental health.

Despite the presence of considerable international research on the effectiveness of mindfulness-based interventions in reducing caregiver stress, there is a considerable research gap in exploring the effectiveness of MBCT in resource-constrained and culturally unique societies such as Pakistan, where caregiving is challenged further by issues of stigma, lack of mental health resources, and socioeconomic difficulties. Most studies conducted in Pakistan have centered on providing a descriptive understanding of caregiver stress. There is limited research on structured intervention studies targeting the mental health of parents. Additionally, few studies have assessed the effectiveness of structured interventions such as MBCT in reducing caregiver burden in parents of children with neurodevelopmental disorders. Keeping this in mind, this research aims to investigate the effectiveness of Mindfulness-Based Cognitive Therapy in reducing caregiver burden among mothers of children with special needs. The following hypotheses were formulated:

1. Mindfulness-Based Cognitive Therapy (MBCT) will reduce the level of parental stress among parents of children with special needs.

2. Mindfulness-Based Cognitive Therapy (MBCT) will reduce the level of caregiver burden among parents of children with special needs.

METHOD

The present study used a single group pre-post intervention design with repeated measurements, which falls in the ABA (baseline-intervention-post-intervention) design format that is often used in research on psychosocial interventions. The baseline (A) phase was conducted before the intervention, followed by the intervention phase (B) using the Mindfulness-Based Cognitive Therapy (MBCT) intervention, and then the post-intervention (A) phase. This design enables the measurement of change in caregiver stress and burden after the intervention.

Participants

20 parents were purposively selected from registered special education and rehabilitation centers, which were primarily focused on catering to children with neurodevelopmental disorders.

Characteristics of Children

The children of participating mothers were formally diagnosed with Neurodevelopmental Disorders such as Autism Spectrum Disorder (ASD), Attention-Deficit/Hyperactivity Disorder (ADHD), Intellectual Disability (ID), or Mixed Developmental Conditions. The severity levels ranged from mild to moderate. These were recorded in institutional reports and from the parents themselves. Children with Profound or Severe Disabilities that require Full-Time Medical Care were not part of this study to ensure homogeneity in the caregiving demands and to control for confounding variability in severity levels.

Inclusion Criteria

These participants were mothers who had been carrying out a primary caregiving role for at least six months, and the participants had a minimum educational level of matriculation. Additionally, the participants had a child who was formally diagnosed with a neurodevelopmental disorder, and the participants were willing to commit themselves voluntarily to the research study. There was

also a need for the participants to commit themselves to the full MBCT intervention schedule.

Exclusion Criteria

Mothers who had a severe psychiatric disorder diagnosed, or who were undergoing intensive psychiatric treatment, were not included in the research. Also, mothers who had a history of substance abuse within the previous year were not considered for the research. In addition, mothers who had severe medical conditions, such as being pregnant, were not included to ensure that the mothers would be able to commit to the entire MBCT program. Mothers who were not able to commit to the entire MBCT program were not included.

Measures

Demographic Information Form

A demographic form was utilized to obtain information on the following variables: age, marital status, education level, occupation, family structure, socioeconomic status, monthly income, mental health history, number of children, and information on children with special needs (type and severity level).

Parental Stress Scale (PSS; Berry & Jones, 1995)

The Parental Stress Scale is a 18-item self-report measure that evaluates stress associated with parenting roles. The scale has good psychometric properties: it has good internal consistency reliability from $\alpha = .83$ to .89, good test-retest reliability from $r = .81$, and construct validity.

Caregiver Burden Inventory (CBI; Novak & Guest, 1989)

The Caregiver Burden Inventory is a 24-item measure of multidimensional caregiver burden, which includes emotional, physical, social, time-related, and developmental burden. It has good internal consistency reliability, with alpha coefficients greater than .80, and established construct validity through factor analytic support.

Intervention : Mindfulness-Based Cognitive Therapy (MBCT) (Segal et al., 2018)

Mindfulness-Based Cognitive Therapy is a scientifically supported, organized form of psychological intervention that combines the principles of mindfulness meditation with cognitive behavioral techniques. This intervention helps individuals become more mindful, decrease the occurrence of automatic negative thinking patterns, and increase adaptive ways of coping with life.

Core Components of MBCT Used in the Study

The MBCT intervention included mindfulness and cognitive components such as mindfulness of breathing and body through guided body scan techniques, and the development of awareness of thoughts and emotions without judgment. Cognitive decentering was emphasized to enable participants to become aware of their thoughts and relate to them as mental processes. Furthermore, stress reactivity and mindful responding were emphasized to enable caregivers to develop more adaptive responses to emotions, which is important in caregiving. In addition, compassion-focused and self-care techniques were included to build the caregivers' emotional resilience, and informal mindfulness techniques were included to facilitate integration into daily caregiving activities.

Intervention Format and Duration

The MBCT intervention was conducted in a structured format, consisting of a total of eight sessions conducted over a period of eight weeks. Each session was conducted once a week, with each session lasting around 90 minutes. The MBCT intervention was conducted in a group format, with a total of 5 to 7 participants in a single group to facilitate active participation, mindfulness practice, and discussion, while creating an optimal therapeutic environment.

The sessions were conducted based on a standardized MBCT manual, which was modified for caregivers of children with special needs. Each session included components such as psychoeducation, guided mindfulness practice, and discussion, and homework assignments.

Procedure

Recruitment was done in collaboration with special education institutions after permission was obtained. Mothers who met the inclusion criteria were recruited and informed about the purpose of the study. Informed consent was obtained prior to the recruitment.

Table 1

Sessional plan for intervention group:

Aims and Objectives	*Sessions*
Session 1 ● *Automatic Pilot (Introduction to Mindfulness)*	Orientation to the program was established and ground rules were set collaboratively. An ice-breaking activity was conducted. The raisin exercise introduced mindful awareness and participants reflected on experiences of "automatic pilot." Psychoeducation regarding present-moment awareness was provided. Home practice (, mindful eating, mindfulness of a routine activity) was assigned and summarized using handouts.
Session 2 ● *Dealing with Barriers*	Mindulness practice was conducted followed by review of home assignments. Common barriers to practice were explored and normalized. A thoughts–feelings–body exercise highlighted automatic thinking patterns and early warning signs of low mood. A brief sitting meditation was practiced. Home practice included mindfulness of breathing,

	Pleasant Events Calendar, and mindful routine activity.
Session 3 ● *Mindfulness of Breath and Body*	A brief sensory awareness exercise and 20-minute sitting meditation were conducted. Home practice was reviewed, and relapse signatures were introduced. The 3-Minute Breathing Space and mindful movement were practiced. Home assignments included mindful yoga/stretching, Unpleasant Events Calendar, and regular breathing space practice.
Session 4 ● *Staying Present*	Extended sitting mindfulness with choiceless awareness was practiced. Home practice and relapse signatures were reviewed. Automatic thoughts and the "territory of depression" were discussed. Mindful walking and Breathing Space were reinforced. Mid-program progress was reviewed. Structured sitting, and breathing space were assigned.
Session 5 ● *Allowing / Letting Be*	Mindfulness focused on observing reactions to difficulty. Practice review emphasized acceptance rather than avoidance. Relapse response planning was expanded. Breathing Space (regular and coping) was reinforced. Continued practice and working with difficulty were assigned.

Session 6 ● *Reacting vs. Responding*	Mindfulness emphasizing response over reaction was conducted. Mood-thought exercises highlighted alternative perspectives. The Breathing Space was reinforced as a pause before action. Daily 30-minute practice, mindful parenting, and mastery activities were assigned.
Session 7 ● *Responding & Self-Care*	Extended mindulness and practice review were conducted. Links between activity and mood were explored. Pleasure and mastery activities were planned. Relapse signatures and response plans were finalized. Personalized ongoing practice plan was assigned.
Session 8 ● *Maintaining Gains*	Body scan and practice review were conducted. Early warning signs and response plans were consolidated. Participants reflected on values and sustaining practice long-term. The course was reviewed, evaluations collected, and the program concluded with commitment to continued mindfulness practice.

Baseline Phase (Pre-Assessment – A)

Before the intervention, participants completed the Demographic Form, Parental Stress Scale, and Caregiver Burden Inventory. These assessments served as baseline measures of stress and burden.

Intervention Phase (B)

The participants were then subjected to the 8-week MBCT group intervention program. Their attendance was monitored during this phase. Participants were advised to practice home-based mindfulness exercises for 15-20 minutes daily.

Post-Intervention Phase (Post-Assessment – A)

The participants were immediately reassessed after the end of the intervention program using the standardized tools (PSS and CBI) to assess the change.

The tools were administered in English. Confidentiality was ensured through anonymization of the data collected. The participants had the right to withdraw from the study at any given time.

Scoring and Statistical Analysis

Analysis of the data was done using SPSS version 25. Descriptive statistics were carried out for the demographic data. In order to assess the effectiveness of the MBCT intervention, paired sample t-tests were carried out for the assessment of the parental stress and caregiver burden scales before and after the intervention. In all the analyses, the level of significance was set at $p < 0.05$.

RESULTS

Table 1

Age of the participants of the study (N=20)

Age	*f*	*%*
25-30	4	20%
31-36	7	35%
37-42	7	35%
43-54	2	10%

Table 2
Demographic Characteristics of the participants of the study (N=20)

Characteristics		*f*	*%*
Marital Status			
	Married	19	95%
	Divorced	1	5%
Education			
	Intermediate	3	15%
	Bachelors	13	65%
	Masters	4	20%
Occupation			
	Working	6	30%
	Housewife	14	70%
Family System			
	Joint	10	50%
	Nuclear	10	50%
Accommodation			
	Own	7	70%
	Rent	3	30%
Socioeconomic status			
	Lower	3	15%
	Middle	13	65%
	Upper	4	20%
Number of Children			
	1	3	15%
	2	10	50%
	3	4	20%
	4	2	10%
	5	1	5%

Number of children with special needs			
	1	18	90%
	2	2	10%
Diagnosis			
	ADHD	6	30%
	ASD	10	50%
	ID	4	20%

Table 1 shows the Descriptive statistics of the sample characteristics.

Table 3

Means, Standard Deviations, and Statistical Comparisons for Outcome Variables Before and After the MBCT Intervention

Measure	*Pre-Test*	*Post-Test*	*t*	*p*
	M (SD)	*M (SD)*		
Parental Stress	48.20 (11.43)	40.20 (9.40)	-6.12	< .001
Caregiver Burden	52.05 (10.61)	43.40 (8.29)	-7.34	< .001
Caregiver Reaction	72.25 (15.94)	49.80 (8.90)	-8.17	< .001

Table 3 presents statistically significant reductions in all measured outcomes following the Mindfulness-Based Cognitive Behavior Therapy (MBCT) intervention. Parental stress decreased from a pre-test mean of 48.20 (SD = 11.43) to a post-test mean of 40.20 (SD = 9.40), with a large effect size ($p < .001$). Caregiver burden scores dropped substantially from 52.05 (SD = 10.61) to 43.40 (SD = 8.29), reflecting reduced perceived burden ($p < .001$). The most pronounced improvement was observed in caregiver reactions, with scores decreasing from 72.25 (SD = 15.94) to 49.80 (SD = 8.90), suggesting enhanced adaptive responses to caregiving challenges ($p < .001$).

DISCUSSION

The results obtained in this study reveal that MBCT is an effective intervention in reducing parental stress and caregiver burden among mothers of children with special needs. These results are in line with previous studies conducted in different countries that have shown that mindfulness-based interventions are associated with reduced levels of psychological distress and improved well-being among caregivers of individuals with neurodevelopmental and chronic health conditions (Bazzano et al., 2015; Zhang et al., 2019).

The reduction in parental stress among the caregivers also supports previous studies that have shown that mindfulness interventions improve present-moment awareness and reduce rumination and emotional reactivity, which are major contributors to chronic caregiver stress (Baer, 2003; Cheng et al., 2021). MBCT's cognitive decentering component may have helped the participants to become aware of their stressful thoughts about caregiving without over-identifying with these thoughts, which may have led to a reduction in emotional exhaustion. This is in line with cognitive-behavioral and mindfulness-based theories that describe stress as a cognitive and emotional process that results from maladaptive cognitive appraisals and emotional reactions (Van et al., 2010).

Likewise, the marked reduction in caregiver burden aligns with other studies indicating an improvement in mindfulness-based interventions for caregivers, which results in an improved balanced perception of caregiving burden (Fernández-Portero et al., 2021; Hayes & Watson, 2013). In the Pakistani context, where the burden of caregiving is mainly shouldered by mothers and psychosocial support services are scarce, MBCT may prove to be an effective tool for providing emotional support. Previous studies have highlighted the prevalence of caregiver burden among parents of children with autism and other neurodevelopmental disorders in Pakistan, indicating the need for psychological interventions (Aslam et al., 2022).

From a theoretical perspective, the results support the stress and coping approach with its focus on perceived control, emotions, and social support in reducing caregiver burden (Raina et al., 2005). The group format of the MBCT may also have contributed to the social component of shared experience and normalcy, which is known to buffer the impact of stigma and social isolation in

collectivist societies (Qidwai, 2018). This may contribute to the large effect size found with the caregiver reactions.

Overall, the results contribute to the growing body of evidence supporting mindfulness-based interventions as effective psychosocial tools for caregivers and extend this evidence to a South Asian, low-resource setting. The study highlights the potential of MBCT as a scalable and culturally relevant intervention for improving caregiver mental health and reducing long-term caregiving burden.

Conclusion

The results from this study provide evidence that Mindfulness-Based Cognitive Behavioral Therapy (MBCT) significantly improves caregivers' overall wellbeing, reduces stress and anxiety, and decreases the level of burden experienced by parents of children with special needs. With this research we see the potential for MBCT to be an effective addition to mental health programs for family caregivers. The findings indicate that, in addition to the reduction of caregiver burden, parent stress, and negative reactions from their children, the use of MBCT creates a greater level of emotional stability and resilience for family caregivers. Family caregivers experience a tremendous amount of psychological and emotional difficulty and incorporating MBCT into the formal support systems for family caregivers would subsequently create a more positive caregiving experience. Future research should include follow-up evaluations of the long-term effects of using MBCT on family caregivers, the differences between fathers as compared with mothers, and the effectiveness of MBCT in varying cultural and socioeconomic regions. Developing culturally-appropriate adaptations of MBCT to meet the needs of caregivers in low-income settings would further improve the accessibility and effectiveness of MBCT.

Limitations and Recommendations

There are a number of limitations associated with this study's results despite its promising findings that need to be noted. First, the sample was made up predominantly of mothers (i.e., female caregivers), which means that the findings may not apply to other family members who take on caregiving roles (like Fathers). Given the likelihood of having different experiences regarding caregiving based on gender, future studies looking at Male Caregivers should explore how these differences will affect the results of the study in relation to the

effectiveness of MBCT. Second, the study was conducted primarily in Urban/Semi-Urbans Areas and may not yield the same results if conducted in rural communities, where access to a mental health services is limited. In addition, self-reporting may bias responses as they can be subject to social desirability bias (meaning respondents may give responses that they feel will be accepted socially). Another limitation is the short-term follow-up period, which limits our ability to know if the benefits observed with MBCT are sustainable over time. Future studies should consider using longer term follow-ups in order to evaluate whether reductions in Stress/Burden last over time. Lastly, although a few external variables were controlled for in this study, there are many unmeasured variables (such as: Socioeconomic Status, Family Support, and Severity of Health Conditions) that could also affect the results. By taking all of the above-mentioned limitations into consideration, future research will work towards providing an evidence-based foundation relating to the efficacy of MBCT in caregiver support programs.

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