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RESEARCH ARTICLE

Impact of Mindfulness Meditation Practices on Self-Efficacy among Parents of Children with Thalassemia Major

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ABSTRACT

Thalassemia is a hereditary blood disorder that poses significant physical, emotional and psychological challenges not only for children but also for their parents. Due to the chronic nature of the illness and long-term caregiving responsibilities, parents of those children often experience continuous psychological stress. Such challenges may negatively affect parents' belief in their ability to manage caregiving demands, referred to as self-efficacy. Mindfulness meditation has been recognized as an effective psychological intervention that promotes emotional regulation, awareness, and adaptive coping. The present study examined the effectiveness of mindfulness meditation practices in enhancing self-efficacy among parents of children with thalassemia major. A sample of 40 parents (20 mothers and 20 fathers) aged between 25 to 50 years were selected purposefully from Sharda Narayan Hospital, Mau, UP. A pretest-posttest control group design was used, wherein participants were randomly assigned to an experimental group and a control group. Participants of experimental group were provided with a structured mindfulness meditation sessions for a period of three month, while the control group did not receive any intervention. Self – Efficacy was measured using a standardized scale before and after the intervention. Mixed Analysis of Variance (ANOVA) was used for statistical analysis. The result revealed a statistically significant improvement in self- efficacy scores among experimental group as compared to control group. A significant difference was also observed between pretest and posttest scores. However, no significant gender difference was found between mothers and fathers. Thus, the intervention was found to be effective in improving self-efficacy among parents of children with thalassemia major.

Keywords: *Thalassemia Major, Mindfulness, Meditation, Self- Efficacy, Analysis of Variance (ANOVA)*

INTRODUCTION

Modernization of society clubbed with fast pacing competitiveness has given rise to mental health issues that play significant role in individual psychological functioning. Majority of people

suffer from problems like hyper-anxiety, panic attacks, mood swings, emotional exhaustion, burnout, stress, work stress, family/financial stress and many more. These situations negatively affect the ability to cope with adverse situations and thus

failing to maintain psychological balance. Situation worsens when one has to live with prolonged grief and pain of being a parent of a thalassemic child. Though, parenthood is one of the wonderful experiences of life, but not the same implies to rearing up a child with such severe disorder. To help adapt such unavoidable situations, enhance positive well-being and self-efficacy, practices of mindfulness meditation are an effective method.

Thalassemia: Types, Prevalence and Global Impact

Thalassemia is an inherited hematological disorder caused by a reduced or absent production of hemoglobin impairing the ability of red blood cells carrying oxygen throughout the body. Hemoglobin contains two protein chains, alpha globin and beta globin. Defects in the synthesis of these chains hamper the process of formation of RBC and sufficient supply of oxygen in body, leading to anemia. This condition typically manifests in childhood persisting throughout life (Bajwa and Basit, 2023).

Thalassemia affects hemoglobin production, resulting in symptoms such as fatigue, delayed growth, weakness, enlarged spleen and liver, cardiac arrest and several other health issues. Carriers of thalassemia gene may remain asymptomatic and lead normal life. Generally, those diagnosed with thalassemia minor do not require medical treatment (Romanello et al; 2018) (Galanello and Origa; 2010) but individuals suffering from thalassemia major require regular blood transfusions and are more susceptible to multiple infections and major health complications. That is the reason why thalassemia major, also called cooley's anemia is the most severe form of disease. The condition typically manifests within the first two years of life and is characterized by severe anemia, erythropoiesis, hemolysis, and related complications due to mutation in both copies of Hbb genes (Ribeil et al, 2013).

Generally, symptoms exhibited may be severe anemia, poor appetite, fatigue, delayed growth and bone deformities. Complications of long-term blood transfusion and other treatment procedures may lead to enlarged spleen, cardiac and liver dysfunctioning/damage, iron overload, etc. (Abu Shosha & Al kaladeh, 2018; Wahab. et al. 2011). To counter the complications, iron chelation therapy is routinely administered, whereas bone marrow transplant is the permanent curative options. However, due to high cost, donor unavailability and high risk, treatment is not feasible for all.

According to global estimates, more than 1.3 million individuals are affected by thalassemia worldwide. The WHO (2021) recognizes it as a significant global health concern. India has the largest number of children with thalassemia major in the world, with nearly 1 to 1.5 lakhs affected individuals representing about 25% of global health burden (India Today report, 21 may, 2024). Approximately 1000 to 15,000 babies are born annually with thalassemia major (Kumar et al. 2025).

The moment child is diagnosed with this chronic disease; the parenting scenario changes completely. The role of parenting extends far beyond routine in childcare. The emotional and selfless journey of parents with their child becomes a combination of fear, conflict, perplexity, uncertainty of future and survival on one hand, whereas continuous episodes of regulating emotions, maintaining resilience and sustaining confidence in their caregiving ability on the other hand. Repeated hospital visits ongoing medical monitoring managing financial crunch, lack of social acceptability and support may lead to persistent stress, anxiety, fear of hopelessness/helplessness, leaving parents with complete emotional exhaustion and burnouts.

Due to these prolonged and multi-dimensional challenges, parents of these children clearly need structural psychological treatments to support their positive well-being. Various stress management programs like MM practices, counselling sessions not only enhances parental confidence in their ability but also improves the quality and consistency of care provided to the child.

Self-efficacy

The term was first introduced by Albert Bandura in 1997. Self-efficacy is not about processing skills, but also the willpower and confidence to use those effectively in challenging situations (Ben Zur et al. 2005; Sanyod et al. 2021). Individuals with high level of self-efficacy tend to set realistic goals persistently, face obstacles and failures and manage threatening situations effectively. In contrast to individuals who score low on self-efficacy as they exhibit self-doubt, avoidance, learned helplessness, anxiety, arousal and emotional distress, leading to depression.

Four main sources influencing the factor of self-efficacy are-

1. *Mastering Experiences*- One's own experience of success plays a crucial role in strengthening self-

efficacy benefits. Repeated successful experiences enhance the individual's confidence level, develops courage for initiating risk, taking task and ability to perform otherwise tough task effectively.

2. *Vicarious Experiences*- Self-belief is created and strengthened by observing social models ie. learning occurs by watching the success and failure of others.

3. *Social Persuasion*- This process inculcates the belief that capabilities are influenced by encouragement, feedback, guidance and evaluative comments from others as parents, teachers, counselors, etc.

4. *Emotional or Physiological States*- Mental states and moods affect performance negatively or positively. Those who control and manage anxieties and stressors in a better way perform effectively with strong self-efficacy and vice versa.

As far as the issue of parent of thalassemic children is concerned, the studies reveal that higher level of self-efficacy aids people in taking right decisions, handle adverse situations (medical financial, social, emotional) more effectively, face setbacks with resilience, and cope well with emotional distress in a long run.

Mindful Meditation Practices

The purpose of mindfulness meditation practice is to become familiar of one's own mental processes. Since ancient times rooted in Buddhist tradition as *Vipassana*, mindfulness meditation is a mental practice that involves focusing ones attention on the present moment with openness, curiosity and acceptance. (Remskar et al. 2024).

Western psychologist Dr. John Kabat-Zinn developed mindfulness-based stress reduction program in 1979 to address stress, pain and illness. Kabat Zinn (2003) state that mindfulness meditation involves systematic training of attention through present moment awareness, encouraging individuals to observe their thoughts, emotions and body relations with full acceptance and without any judgment. This practice cultivates inner calm and mental clarity instead of reacting impulsively or getting carried away by habitual

thinking pattern. Regular practice of mindfulness meditation helps learn to respond mindfully and with greater emotional stability and improved attention regulation (Hooi et al, 2025; Calderone et al. 2024).

Four Foundations of Mindfulness-

1. *Mindfulness of Body*- The practice begins with the process of breathing inhalation and exhalation. Attention is directed towards full body sensation and physical activities. Focus is on its internal compositions and elements within it, which are reflected to constant change in the body.

2. *Mindfulness of Feelings*- Through mindful practice, one gains insight into how attachment develops towards pleasant feelings and how efforts are made to avoid unpleasant feelings once thoughts and feelings begin to be guided by the tendency of attachment and aversion.

3. *Mindfulness of Mind*- It is explained how one observes the mind with mindful awareness whereas mind is filled with desires, delusions, concentration, hatred etc.

4. *Mindfulness of Mental States*- Gilbert and Choden (2013) states that this process helps in understanding the process of life at deeper level.

The process of mindfulness is through observation and insight the practitioner reflects upon the understanding of sufferings instead of controlling the thoughts, feelings or mental states. This is so because when the cause of suffering is clearly understood, suffering itself begins to diminish (Rao and Paranjpe 2017). The practice of mindfulness is the process of being fully present in the current moment, without evaluating or judging their mental states.

Benefits of mindfulness meditation and its role in the case of parents of thalassemic children studies indicate that regular practice of mindfulness meditation benefit both physical or mental health by reducing stress, mood swings, depression etc. It also minimizes chronic physical pain, risk of strokes, attacks, etc. and to some extent, vulnerability to fatal diseases. etc. (Barrett et al, 2012).

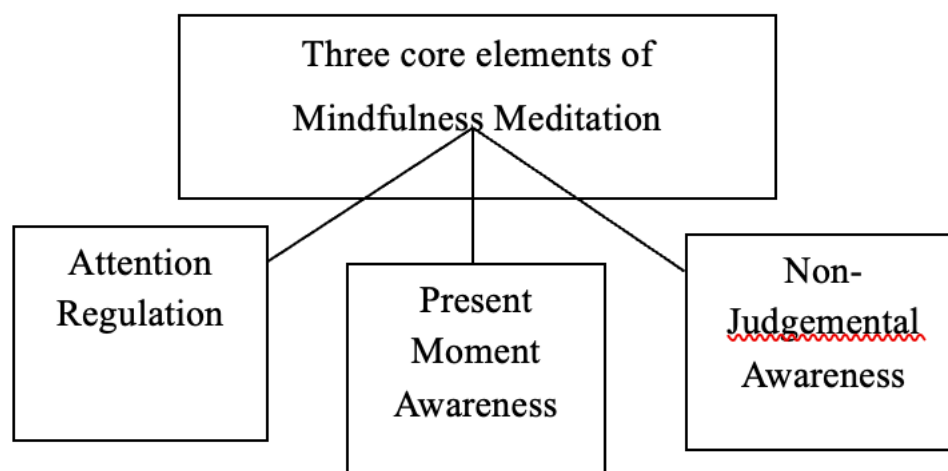


Figure 1.1: Three Core Elements of Mindfulness Meditation

Figure 1.1 illustrates the three core elements of Mindfulness Meditation which are:-

1. Attention Regulation
2. Present-Moment Awareness, and
3. Non-Judgemental Awareness

Attention regulation refers to the ability to focus and sustain attention on some object or condition, such as breathing, while gently bringing the mind back whenever it becomes distracted. Present-moment awareness involves consciously attending to one's current thoughts, feelings, bodily sensations, and experiences rather than becoming preoccupied with past or future concerns. Non-judgemental awareness refers to observing these experiences with openness and acceptance, without labeling them as good or bad or reacting immediately to them.

The mindfulness meditation practices are observed to help parents of thalassemic major children with practical techniques to confront challenges of life by cultivating present moment awareness, emotional regulation, and mental clarity. Mindfulness meditation enhances perceived parental self-efficacy by fostering confidence in their ability to manage stress, make thoughtful decisions, respond effectively to complex demands of caring chronically ill child. It encourages self-acceptance that is not borne out of self-blame or being judgmental, enabling parents to sustain caregiving roles while maintaining positive well-being and self-confidence.

The present study aims to find out the impact of mindfulness meditation (MM) practices on self-efficacy of parents with thalassemic children by comparing pre-test and post-test scores between the experimental group (receiving intervention of

mindfulness meditation) and the control group (not receiving the above intervention). Study focuses to address the gap and contribute meaningfully in the respective field.

Hypothesis

There will be a significant impact of mindfulness meditation practices on self-efficacy among parents of children suffering from major thalassemia.

METHOD

Research Design

In this study, a Pretest-Posttest control group design was used to find out the impact of Mindfulness Meditation practices on self-efficacy of parents. Two groups, an experimental group (intervention group) and a control group (no intervention group), were compared with pre and post-test measures of self-efficacy.

Sample Selection

Initially, 50 parents (25 mothers and 25 fathers) of major thalassemic children aged between 25 to 50 were selected purposefully from the Sharda Narayan Hospital, Mau, Uttar Pradesh. After taking consent, 46 out of 50 parents gave consent to participate in the study and intervention procedure. Six participants left the study during the intervention procedure. Then, the final sample of 20 mothers and 20 fathers (40 parents) were randomly assigned to two groups- Experimental Group and Control Group. Each group comprised 20 participants (10 mothers and 10 fathers). This balanced distribution enabled effective comparison across the experimental and control group while maintaining gender representation within each group.

Data Collection and Intervention Procedure

After taking consent from all the selected participants, the self-efficacy questionnaire was given to collect pre-test data, along with clear instructions for completion. Following the collection of pre-test data, the experimental group participated in a structured mindfulness meditation sessions led by an experienced mediator for three months duration (3 days in week for at least 45 minutes). The intervention Sessions included breathing awareness, body scan, and thought and feelings observation practices. The aim was to enhance parental self-efficacy by improving their emotional regulation and present –moment awareness. The control group did not participate in any such activity during this period. After completing the intervention, post-test data were collected from both groups. Additionally, experimental group participants were asked whether they noticed any improvement following the intervention.

Data Collection Tool

Self-Efficacy Scale (SES)

It has been developed by Dr. A. K. Singh and Shruti Narayan (2014). It measures optimistic self-belief used to cope with a variety of demands in life. This

scale consists of 20 items, measures self-efficacy in four areas – self-confidence, efficacy expectation, positive attitude, and outcome expectation. It was found to have a high degree of test-retest reliability (0.82) and good validity when administered on Indian population.

Statistical Analysis

The SPSS 26 version was used to conduct the analysis. Mixed Analysis of covariance (ANOVA) was used in this study because it involves both within subject factor (Time of Measurement) and between subject factors (Group and Parent Type). The significance level in this study was $p < 0.05$.

RESULT AND DISCUSSION

The present study aimed to examine the effectiveness of mindfulness meditation practices on self-efficacy among parents of children with thalassemia major. The mixed analysis of variance (Mixed ANOVA) was conducted to examine the impact of mindfulness meditation practices on self-efficacy among parents, measures across time of measurement (pre-test and post-test), group (experimental and control) and parent type (mother and father).

Table 1: Mean and Standard Deviation of Self-Efficacy Scores of Experimental and Control Group by Parent Type and Time

Time of Measurement	Participants' groups	Parent Type	Mean	SD
Pre-Test Self-Efficacy	Experimental Group	Mothers	60.2	3.91
		Fathers	68.5	3.274
	Control Group	Mothers	61.1	5.547
		Fathers	65.7	4.877
Post-Test Self-Efficacy	Experimental Group	Mothers	85.6	5.296
		Fathers	88.7	2.869
	Control Group	Mothers	62	4.19
		Fathers	66.7	4.855

The result presented in Table-1 indicate changes in self-efficacy among mothers and fathers in both the experimental group and control group for pre-test and post-test assessments. Prior to the intervention of MM practices, the mean self-efficacy scores of mothers in the experimental group ($M=60.20$, $SD=3.91$) and control group ($M=61.10$, $SD=5.55$) were almost similar. Similarly, scores of fathers in experimental group ($M=68.50$, $SD= 3.27$) and control group ($M=65.70$, $SD= 4.88$) were also quite similar. These findings show that

both groups were almost same in terms of self-efficacy before the intervention of mindfulness meditation practices.

After the intervention, at the post-test level, a noticeable increase in self-efficacy scores was found among both mothers and fathers in the second experimental group as compared to the control group. Mothers ($M= 85.60$, $SD= 5.30$) and fathers ($M= 88.70$, $SD= 2.87$) both scored higher in the experimental group than pre-test. In contrast, the control group scores of mothers ($M=$

66.70, SD= 4.19) and fathers (M= 66.70, SD= 4.86) showed only a minimal increase. These findings indicate that mindfulness meditation practices were associated with a significant improvement in self-efficacy among parents of children with thalassemia major. Fathers

demonstrated slightly higher self-efficacy scores than mothers at both pre-test and post-test levels; however both mothers and fathers in the experimental group showed improvement after the intervention.

Table:2 Mixed ANOVA Results for Self-Efficacy among Parents of Major Thalassemic Children

Source	Sum of Squares	df	Mean Squares	F	P	Partial eta square
Within Subjects						
Time	2820.313	1	2820.313	395.911	.000	.917
Time x Group	2387.112	1	2387.112	335.099	.000	.903
Time x Parent Type	32.512	1	32.512	4.564	.040	.113
Time x Group x Parent Type	35.113	1	35.113	4.929	.033	.120
Error (within)	256.450	36	7.124			
Between Subjects						
Group	2820.312	1	2820.312	87.133	.000	.997
Parent Type	535.612	1	535.612	16.548	.000	.708
Group x Parent Type	5.512	1	5.512	.170	.682	.005
Error (between)	1165.250	36	32.368			

Findings displayed on Table-2 showing the result obtained for within subjects' effects and between-subject effects.

Within-Subject Effect

The main effect of time was found significant ($F(1,36) = 395.911, p < .05$). High effect size (partial eta square = .917), indicating that self-efficacy scores of parents changed significantly from pre-test to post-test. The interaction between time and participants' group was also found significant ($F(1,36) = 335.099, p < .05$). High effect size (partial eta square = .903) projecting that the change in self-efficacy overtime was different for parents in the experimental group and control group. The time x parent type interaction was also found significant, $F(1, 36) = 4.564, p < .05$ showing that mothers and fathers projected different levels of improvement in self-efficacy across time but low effect size (partial eta square = .113) minimizes the effectiveness of the difference. The time x group x parent type interaction was also significant, $F(1, 36) = 4.929, p < .05$, but low effect size (partial eta square = .120) minimizes the effectiveness of the difference.

Between-Subject Effect

The results of between subject effects assessed overall differences in self-efficacy between the independent groups, irrespective of time. The main

effect of group was found highly significant, $F(1, 36) = 87.133, p < .05$, suggesting that the overall self-efficacy scores differed significantly between the experimental and control groups. High effect size (partial eta square = .708), indicating the effectiveness of the intervention. The main effect of parent type was also found significant, $F(1, 36) = 16.548, p < .05$, partial eta square = .315, projecting that mothers and fathers differed significantly in their levels of self-efficacy. The interaction between group and parent type was not found significant, $F(1, 36) = 0.170, p > .05$, partial eta square = .005, indicating that the difference in self-efficacy between groups did not depend on the parent type, when averaged across time.

Thus the findings revealed significant improvement in self-efficacy over time with parents in the experimental group demonstrating substantially greater gains compared to those in the control group. Hence, the research hypothesis formulated for the study has been approved.

These results can be explained in context to the theoretical framework proposed by Albert Bandura (1986), whose social cognitive theory emphasizes that self-efficacy develops through mastery experiences, emotional management, social persuasion and cognitive restructuring. Mindfulness meditation may have enhanced parents' mastery experiences in managing their

child's illness by improving their emotional stability and reducing psychological distress, thereby strengthening their coping ability. These findings suggest that the intervention of mindfulness meditation not only facilitated self-confidence and psychological adjustment but also empowered parents to deal more effectively with day to day life challenges.

The findings may be understood in light of the core principles of mindfulness meditation, which emphasize non-judgmental awareness of present feelings, thoughts and emotions, attention awareness and acceptance of the situation. Mindfulness practices may have enabled participants to become more aware of their emotional reactions and thought patterns, thereby reducing psychological distress and increasing competence and perceived self-control over stressful situations. Through repeated mindfulness practice, parents of such critically ill children may have developed greater confidence in their ability to manage caregiving challenges effectively, which contributed to the enhancement of parental self-efficacy.

Another possible explanation for the observed improvement is that mindfulness meditation practices may have reduced cognitive burden and excessive future oriented worry or anxiety among parents. They may have gradually shifted from maladaptive patterns such as overthinking, emotional reactivity, and helplessness toward greater emotional awareness, self-regulation and proactive engagement with responsibilities. This shift may have strengthened participants, sense of competence and perceived ability to manage difficult caregiving situations effectively.

The present findings are also consistent with previous psychological literature conducted by Ruskin et al. (2021), suggesting that mindfulness and acceptance-based interventions have been associated with reductions in distress and anxiety and improvements in self-control, coping ability, emotional stability and adaptive functioning. Such changes may contribute to increased confidence in one's ability to manage tough life situations. These positive changes are closely associated with enhanced parental self-efficacy.

The findings revealed that fathers scored higher than mothers on self-efficacy. A possible explanation is that fathers often play a central role in making treatment-related decisions, managing financial responsibilities, and planning for the future of their family. These responsibilities may strengthen their belief in their ability to effectively

handle difficult life situations, which is the core component of self-efficacy. Mindfulness meditation may have further enhanced this confidence by improving attention, emotional management, and stress regulation. This further enables fathers to feel more capable of coping with the challenges associated with raising a child with thalassemia major.

CONCLUSION

The present study was conducted to assess the impact of Mindfulness Meditation Practices on self-efficacy among parents of children with thalassemia. The focus of the study included quantitative method. Through this method variables were assessed and interpreted at length. On examining the impact of Mindfulness meditation practices upon the factor of self-efficacy in reference to quantitative analysis, it has been observed that there has been significant impact of intervention on experimental group of parents as compared to control group in the course of time. Scores obtained for the sample of fathers was higher than that of mothers. Thus, the hypothesis formulated for the study has been approved.

Limitations

- Due to small sample size, result may be limited. They cannot be generalized in large sample groups.
- Area for sample collection was restricted to Mau district of Uttar Pradesh only.
- Age range for thalassemic victims could have been extended.
- Duration of intervention sessions were short that is three months.

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Conflict of Interest- None

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