



Research Article

Effect of Occupational Therapy with Mindfulness Training on the Mental Health of Parents of Children with Autism Spectrum Disorder: A Quasi-Experimental Study

Aswathi V.*¹, U. Ganapathy Sankar²

¹SRM College of Occupational Therapy, Kattankulathur, Chengalpattu – 603203, Tamil Nadu, India

²SRM Institute of Science and Technology, Kattankulathur, Chengalpattu – 603203, Tamil Nadu, India

Background: Parents of children with autism spectrum disorder (ASD) often face high levels of stress, anxiety, and depression due to the challenges of caregiving. Using occupational therapy (OT) along with mindfulness training has been suggested as a way to support the mental health of parents. However, evidence for this approach is still limited. **Objective:** To evaluate how occupational therapy with mindfulness training affects the mental health of parents of children with autism. **Methods:** A quasi-experimental design was employed, with pre- and post-tests. Sixty parents of children with ASD (N = 60) were recruited through convenience sampling. They were divided into an experimental group (n = 30, occupational therapy with mindfulness training) and a control group (n = 30, traditional occupational therapy). The severity of autism in children was assessed using the Indian Scale for Assessment of Autism (ISAA). Parental outcomes were measured at the beginning and after an eight-week intervention that involved weekly sessions of 45 minutes. We used the General Health Questionnaire-28 (GHQ-28) and the Five Facet Mindfulness Questionnaire-39 (FFMQ-39) for assessment. Changes within each group were analyzed using paired t-tests, while differences between groups were examined with independent-samples t-tests ($\alpha = 0.05$). **Results:** Both groups showed significant improvement from pre- to post-test on the GHQ-28 and FFMQ-39 scores ($p < 0.001$). At the end of the study, the experimental group showed significantly greater improvement than the control group on the GHQ-28 overall score ($t = 3.635$, $p < 0.001$) and on all FFMQ-39 scores ($p < 0.01$). Initial scores did not significantly differ between the groups ($p > 0.05$). **Conclusion:** Combining occupational therapy with mindfulness training led to greater improvements in psychological well-being and mindfulness than traditional occupational therapy. This supports its use as an affordable, accessible option for parents of children with autism.

Keywords: Autism spectrum disorder, Mindfulness training, Occupational therapy, Parental mental health, Caregiver stress.

INTRODUCTION

Autism spectrum disorder (ASD) is a condition that affects how a person communicates and interacts with others. It also includes behaviors and limited interests. The American Psychiatric Association says this in 2013. The World Health Organization says about one in one hundred children around the world has autism. This condition affects the person through life. It also affects the family the parents. Parents often take care of the child every day. They also handle therapy. Speak up for their child. Parents of children with

autism often feel stress, worry and sadness than parents of children who develop normally or children with other problems. Studies from 2009, 2013 and 2007 show this. The pressure comes from the child's behavior being alone not sleeping money problems. This leads to worry and less happiness. Things like how bad the symptoms are, family setup, support from a partner and who lives in the house can change how pressure a parent feels. Doctors usually treat stress in parents with medicine like drugs that help with mood.

They also use therapy like talking about thoughts and behaviors. These treatments help with symptoms. They have side effects and are not always easy to get. They also focus on controlling symptoms of helping with daily life. Occupational therapy is another way. It helps people take part in tasks and manage emotions. It uses methods like learning skills relaxing and training parents. Mindfulness is about being aware of the moment without judgment. It helps with stress, emotions and being more flexible. Science shows it makes the brain work better and helps with feelings. When it is added to therapy it helps parents feel better and have better relationships with their children. No one has looked at how combining therapy with mindfulness training helps parents of children with autism. This study did that. The goal was to see how well this combination works for parents mental health. The goals were to look at scores from two questionnaires in each group before and after. It also looked at the scores between groups. The idea was that combining therapy and mindfulness would help more, than therapy alone.

II. MATERIALS AND METHODS

A. Study Design and Ethical Considerations

A quasi-experimental approach was used with a pre-test and post-test design. The study had approval from the Institutional Ethics Committee of SRM Medical College Hospital and Research Centre. The approval number was SRMIEC-ST0424-1316. All participants gave written consent before they joined the study.

B. Participants

We had sixty parents of kids with Autism Spectrum Disorder. These parents were from the SRM Autism Centre of Excellence in Kattankulathur and the Safe Hands Multi-Speciality Therapy Centre in Chrompet. We divided them into two groups: one group had thirty parents and the other group also had thirty parents. To be in the study parents had to be between twenty-two and thirty five years old. Their child with Autism Spectrum Disorder had to be between three and eighteen years old. The child also had to have a score between seventy and one hundred fifty three on the ISAA test. We did not include parents who had done mindfulness therapy before. We also did not include parents who had a health problem or were

taking medicine for their mental health. If a parent had more than three kids we did not include them either. We looked at how occupational therapy and mindfulness training affected the health of parents of kids with Autism Spectrum Disorder.

C. Outcome Measures

Indian Scale for Assessment of Autism (ISAA). The ISAA is a 40-item clinician-administered screening tool used to grade autism severity on a five-point scale. The total scores classify severity as normal if less than 70, mild if between 70 and 106, moderate if between 107 and 153, or severe if more than 153. The scale has shown test-retest reliability of 0.83 ($p < 0.001$). General Health Questionnaire-28 (GHQ-28). The GHQ-28 is a 28-item self-report measure of psychological distress. It has four seven-item subscales: somatic symptoms, anxiety/insomnia, social dysfunction and severe depression. The total score ranges from 0 to 84, with higher scores indicating greater distress. The measure has internal consistency between 0.88 and 0.92 and shows convergent validity with other distress measures (Goldberg & Hillier, 1979). Five Facet Mindfulness Questionnaire-39 (FFMQ-39). The FFMQ-39 assesses five facets of mindfulness: observing, describing, acting with awareness, non-judging of inner experience and non-reactivity to inner experience. Higher scores indicate greater mindfulness. The instrument has adequate to good internal consistency for each facet, ranging between 0.75 and 0.91 (Baer et al., 2006).

D. Intervention Protocol

Participants first completed the GHQ-28 and FFMQ-39. They then took part in an eight-week programme with one 45-minute session every week. The experimental group received occupational therapy and also learned mindfulness skills. The mindfulness component followed a plan drawn from Ferraioli and Harris, Kabat-Zinn, and Sarang and Telles, covering non-judgemental awareness, stress management, communication, present-moment awareness, engagement in valued activities, coping skills, parent training, relaxation techniques and social skills. The control group received occupational therapy without the mindfulness component. They received coping-skills training, parent training, relaxation techniques,

social-skills training and group therapy. Attendance and adherence were monitored throughout. After the eight weeks, all participants completed the GHQ-28 and FFMQ-39 again.

E. Data Analysis

Data were analysed using IBM SPSS Statistics, version 25.0. Descriptive statistics summarised demographic characteristics. Within-group pre-to-post change was analysed using paired-samples t-tests, and between-group comparisons were analysed using independent-samples t-tests. Statistical significance was set at $\alpha = 0.05$.

III. RESULTS

A. Demographic Characteristics

The sample (N = 60) was 70.0% female (n = 42) and 30.0% male (n = 18). Autism severity among participants' children was moderate in 55.0% (n = 33) and mild in 45.0% (n = 27) of cases. Most participants belonged to nuclear families (65.0%) and had no siblings for the index child (71.7%). The majority of participants were married (71.7%), and 75.0% of households were male-headed. A family history of similar illness was reported by 15.0% of participants, and 28.3% reported a history of previous treatment. Full demographic details are presented in Table 1.

Table 1. demographic distribution of the study sample (n = 60)

variable	category	n	%
Gender	Male	18	30.0
	Female	42	70.0
Severity of autism	Mild	27	45.0
	Moderate	33	55.0
Siblings	Younger sibling	12	20.0
	Elder sibling	5	8.3
	No sibling	43	71.7
Family structure	Joint family	21	35.0
	Nuclear family	39	65.0
Spouse's living status	Married	43	71.7
	Divorced	10	16.7
	Widowed	6	10.0
	Separated	1	1.7
Head of family	Male	45	75.0
	Female	15	25.0
Family history of similar illness	Yes	9	15.0
	No	51	85.0
History of previous treatment	Yes	17	28.3
	No	43	71.7

B. Within-Group Comparison: GHQ-28

Paired t-tests showed statistically significant improvement (reduction) from pre-test to post-test on the GHQ-28 global score and all four component

scores in both the experimental and control groups ($p < .001$ for all comparisons; Table 2), indicating a reduction in psychological distress in both groups over the intervention period.

Table 2. within-group comparison of ghq-28 pre-test and post-test scores

subscale	group	pre-test m (sd)	post-test m (sd)	t	p
Somatic symptoms	Experimental	11.37 (3.11)	6.93 (2.91)	6.34	<0.001
	Control	11.80 (2.91)	9.10 (2.37)	6.25	<0.001
Anxiety/insomnia	Experimental	13.50 (3.21)	6.33 (2.83)	8.69	<0.001
	Control	13.07 (3.06)	7.13 (2.75)	7.41	<0.001
Social dysfunction	Experimental	12.93 (3.55)	4.97 (2.43)	10.48	<0.001

	Control	11.27 (3.36)	8.47 (2.58)	4.96	<0.001
Severe depression	Experimental	12.47 (2.76)	8.97 (2.87)	4.91	<0.001
	Control	13.97 (3.43)	7.87 (3.38)	6.09	<0.001
Global score	Experimental	50.27 (5.91)	27.20 (5.44)	15.31	<0.001
	Control	50.10 (5.71)	32.57 (5.98)	11.98	<0.001

note. higher ghq-28 scores indicate greater psychological distress.

global score and all five facet scores ($p < .001$ for all comparisons; Table 3), indicating increased dispositional mindfulness following both interventions.

C. Within-Group Comparison: FFMQ-39

Both groups also showed statistically significant increases from pre-test to post-test on the FFMQ-39

Table 3. within-group comparison of ffmq-39 pre-test and post-test scores

facet	group	pre-test m (sd)	post-test m (sd)	t	p
Observing	Experimental	13.47 (2.30)	31.07 (4.15)	21.99	<0.001
	Control	13.47 (2.30)	21.13 (5.56)	8.37	<0.001
Describing	Experimental	13.63 (1.96)	30.77 (4.33)	21.88	<0.001
	Control	13.63 (1.96)	22.00 (4.87)	10.35	<0.001
Acting with awareness	Experimental	13.57 (2.30)	26.10 (7.17)	9.46	<0.001
	Control	13.73 (1.87)	21.10 (5.04)	8.54	<0.001
Non-judging	Experimental	13.60 (1.99)	28.97 (7.00)	11.49	<0.001
	Control	13.47 (2.06)	23.80 (4.28)	20.24	<0.001
Non-reactivity	Experimental	14.53 (2.16)	27.20 (5.01)	11.86	<0.001
	Control	14.40 (2.09)	23.03 (4.69)	13.87	<0.001
Total score	Experimental	68.67 (10.11)	144.10 (12.96)	26.16	<0.001
	Control	68.70 (9.81)	111.07 (17.74)	18.79	<0.001

note. higher ffmq-39 scores indicate greater dispositional mindfulness. t-values are reported as absolute values.

D. Between-Group Comparison: GHQ-28

Independent-samples t-tests showed no statistically significant difference between the experimental and

control groups on any GHQ-28 subscale or global score at baseline ($p > .05$), confirming comparability of the groups prior to intervention. At post-test, the experimental group showed significantly greater reduction in distress than the control group across all subscales and the global score ($p < .01$; Table 4).

Table 4. between-group comparison of ghq-28 scores at pre-test and post-test

subscale	timepoint	experimental m (sd)	control m (sd)	t	p
Somatic symptoms	Pre-test	11.37 (3.11)	11.80 (2.91)	0.56	0.579
	Post-test	6.93 (2.91)	9.10 (2.37)	3.16	0.002
Anxiety/insomnia	Pre-test	13.50 (3.21)	13.07 (3.06)	0.54	0.595
	Post-test	6.33 (2.83)	7.13 (2.75)	2.11	0.003
Social dysfunction	Pre-test	12.93 (3.55)	11.27 (3.36)	1.87	0.067
	Post-test	4.97 (2.43)	8.47 (2.58)	5.41	<0.001
Severe depression	Pre-test	12.47 (2.76)	13.97 (3.43)	1.87	0.067
	Post-test	8.97 (2.87)	7.87 (3.38)	2.36	0.004
Global score	Pre-test	50.27 (5.91)	50.10 (5.71)	0.11	0.912
	Post-test	27.20 (5.44)	32.57 (5.99)	3.64	<0.001

E. Between-Group Comparison: FFMQ-39

No significant between-group difference was observed on any FFMQ-39 facet or global score at baseline ($p > .05$). At post-test, the experimental

group scored significantly higher than the control group on the global score and on all five facets ($p \leq .003$; Table 5), indicating a greater gain in mindfulness in the group receiving occupational therapy with mindfulness training.

Table 5. between-group comparison of ffmq-39 scores at pre-test and post-test

facet	timepoint	experimental m (sd)	control m (sd)	t	p
Observing	Pre-test	13.50 (2.30)	13.50 (2.30)	0.00	1.000
	Post-test	31.07 (4.15)	21.13 (5.56)	7.84	<0.001
Describing	Pre-test	13.70 (1.96)	13.70 (1.96)	0.00	1.000
	Post-test	30.77 (4.33)	22.00 (4.87)	7.37	<0.001
Acting with awareness	Pre-test	13.60 (2.30)	13.70 (1.87)	0.31	0.759
	Post-test	26.10 (7.17)	21.10 (5.04)	3.12	0.003
Non-judging	Pre-test	13.60 (1.99)	13.50 (2.06)	0.26	0.800
	Post-test	28.97 (7.00)	23.80 (4.28)	3.45	0.001
Non-reactivity	Pre-test	14.50 (2.16)	14.40 (2.09)	0.24	0.809
	Post-test	27.20 (5.01)	23.03 (4.69)	3.33	0.002
Total score	Pre-test	68.60 (10.11)	68.70 (9.80)	0.01	0.990
	Post-test	144.10 (12.95)	111.06 (17.74)	8.24	<0.001

DISCUSSION

This study looked at how occupational therapy with mindfulness training affects the health of parents of children with autism spectrum disorder. Both groups of parents got better over the eight weeks of therapy, and the group that received mindfulness training along with therapy did even better than the group that received only occupational therapy. The parents who received mindfulness training showed greater psychological well-being and were more mindful in their daily lives.

A. Sample Characteristics

Most of the parents in this study were mothers, which was expected, since mothers usually take on more of the caregiving and can feel more stressed and tired as a result. More than half of the children in this study had moderate autism, meaning their parents had substantial caregiving demands. Most of the families in this study were nuclear, so parents often carried out caregiving with less extended-family support. In most families the father was recorded as the head of the household, which is common in this setting; this pattern can still leave mothers with most of the day-to-day caregiving. Some parents in this study had a family history of illness or had received treatment

before, which can make them more vulnerable to caregiving-related difficulties. Autism spectrum disorder and the mental health of parents of children with autism spectrum disorder are both important considerations in this study of occupational therapy with mindfulness training.

B. Effect of Occupational Therapy with Mindfulness Training

The experimental group demonstrated large, statistically significant improvements on both the GHQ-28 and FFMQ-39 following the combined intervention, supporting the alternative hypothesis. This finding aligns with previous work showing that structured mindfulness programmes integrated with occupational therapy reduce stress, anxiety, and depression while enhancing psychological well-being in parents of children with developmental disabilities (Ridderinkhof et al., 2018; Sarang & Telles, 2020). Mindfulness-based practices such as breath awareness, meditation, and body scanning are thought to enhance interoceptive awareness, helping parents recognise and regulate somatic markers of chronic stress (Grossman et al., 2004; Kabat-Zinn, 1990). These behavioural gains are consistent with neuroscientific accounts of mindfulness training, which describe increased prefrontal cortical

engagement and reduced amygdala reactivity, together with structural changes in the hippocampus and insula that support emotional regulation and bodily awareness (Brewer et al., 2011; Farb et al., 2007; Hölzel et al., 2011; Tang et al., 2015). It is plausible that the mindfulness component of the experimental protocol contributed to the larger post-intervention gains observed in this study through these same mechanisms, although this study did not directly assess neurophysiological outcomes.

C. Effect of Conventional Occupational Therapy

The control group received training in coping strategies, parent training, relaxation techniques, group therapy and social skills training, without any mindfulness component. This group also showed improvement on the outcome measures. Coping-strategy training is beneficial because it helps people manage their emotions and problems, building resilience and reducing anxiety and depression (Aldao et al., 2010; Folkman & Moskowitz, 2004), including among parents of children with autism (Lin et al., 2023). Parent training supports emotional and behavioural regulation (Bearss et al., 2015; Rutherford et al., 2015). Relaxation techniques help reduce stress (Zeidan et al., 2010), and social-skills training helps people become more empathetic and get along better with others (Iacoboni, 2009; Laugeson et al., 2012; Lindenberg et al., 2011). These components, which are all normally part of occupational therapy practice, likely accounted for the improvement observed in the control group even without any mindfulness training.

D. Between-Group Comparison

Baseline GHQ-28 and FFMQ-39 scores did not differ significantly between groups, indicating that allocation to experimental and control conditions produced comparable groups prior to intervention. At post-test, the experimental group showed significantly greater improvement than the control group across all GHQ-28 and FFMQ-39 domains, indicating that the addition of structured mindfulness training conferred an incremental benefit over conventional occupational therapy alone. This pattern is consistent with prior findings that an eight-week mindfulness-based stress reduction programme integrated with occupational therapy produces greater

gains in grey matter density, connectivity, and cortical thickness, alongside reduced amygdala activity, than standard care (Sarang & Telles, 2020). Within occupational therapy practice, cultivating present-moment, non-judgemental awareness may complement standard strategies that promote engagement in meaningful roles and routines, offering a combined behavioural and attentional pathway to improved emotional regulation and resilience in parents caring for a child with autism.

E. Limitations

This study has several limitations. The sample was drawn predominantly from mothers, limiting representation of fathers and other caregivers. Convenience sampling from two centres may limit generalisability of the findings to the wider population of parents of children with autism. Reliance on self-report outcome measures introduces potential response bias. Finally, the study assessed only parental outcomes and did not examine corresponding changes in child behaviour or family functioning.

CONCLUSION

Occupational therapy with mindfulness training produced significantly greater improvements in psychological well-being and dispositional mindfulness than conventional occupational therapy alone among parents of children with autism spectrum disorder. Both interventions were associated with meaningful within-group improvement, but the addition of structured mindfulness training conferred a clear incremental benefit. Given its low cost, minimal equipment requirements, and suitability for delivery in both clinical and home settings, occupational therapy with mindfulness training merits consideration as an adjunct intervention to support the mental health of parents caring for children with autism, in both resource-limited and well-resourced settings.

Recommendations for Future Research

Future studies would benefit from incorporating objective physiological markers alongside self-report measures, examining gender differences in caregiver response to intervention, extending recruitment to caregivers beyond parents, and assessing child

behavioural outcomes following parent-directed intervention.

DECLARATIONS

Ethical Approval: This study was approved by the Institutional Ethics Committee of SRM Medical College Hospital and Research Centre (SRMIEC-ST0424-1316). Written informed consent was obtained from all participants.

Conflict of Interest: The authors declare no conflict of interest.

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