

Research Article

Effectiveness of Mindful Meditation on Depression, Anxiety, and Stress among Adults with Disabilities in the National Capital Region: A Quasi-Experimental Study

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A B S T R A C T

Background: Adults with disabilities may experience psychological distress alongside functional limitations. Depression, anxiety, and stress may be influenced by dependence, social isolation, stigma, restricted participation, unemployment, and environmental barriers. Psychological well-being is therefore an important component of holistic rehabilitation. Mindful meditation offers a low-cost, adaptable, non-pharmacological approach that promotes present-moment awareness and may support emotional regulation.

Objective: To assess the effectiveness of mindful meditation on depression, anxiety, and stress among adults with disabilities in the National capital region.

Methods: A quantitative pre-experimental one-group pre-test-post-test design was used among 60 adults with disabilities recruited through convenience sampling at the National Career Service Centre for Differently Aabled. A socio-demographic questionnaire and DASS-21 were used. Participants received a structured mindful meditation programme and were reassessed after the intervention. Descriptive And Inferential Statistics, paired t-test, and chi-square test were used.

Results: At pre-test, moderate depression was present in 36.7%, moderate anxiety in 38.3%, and mild stress in 40.0%. After intervention, normal status increased to 50.0%, 53.3%, and 55.0%, respectively. Mean depression decreased from 15.77 ± 5.82 to 9.87 ± 7.21 , anxiety from 11.33 ± 3.94 to 7.57 ± 4.72 , and stress from 19.78 ± 6.34 to 12.97 ± 8.34 . The paired t-values were 4.96, 4.50, and 4.40, respectively, with $p < 0.001$.

Conclusion: The findings indicate significant reductions in depression, anxiety, and stress following mindful meditation. The intervention

may be a feasible complementary psychological-support strategy in disability and rehabilitation services.

Keywords: Mindful Meditation, Depression, Anxiety, Stress, Adults with Disabilities, DASS-21, Rehabilitation, Psychological Well-being

Introduction

Disability is a multidimensional phenomenon that can influence physical functioning, emotional well-being, interpersonal relationships, participation, independence, and quality of life. Adults living with disabilities may face persistent functional limitations as well as social and environmental barriers. These experiences can interact with psychological vulnerability and may contribute to depression, anxiety, and stress.^{14,15}

Depression is characterized by persistent low mood, loss of interest, reduced motivation, negative cognitions, and impaired psychosocial functioning. Anxiety involves excessive apprehension, fear, worry, and physiological or emotional tension. Stress represents a state of psychological strain that may arise when perceived demands exceed an individual's coping resources. In adults with disabilities, these conditions.^{10,13}

Dependence on others, restricted mobility, reduced employment opportunities, financial constraints, social stigma, and reduced community participation may compound these conditions. Dependence on others, restricted mobility, reduced employment opportunities, financial constraints, social stigma, and reduced community participation are all factors that can compound these conditions.^{14,15}

Psychological health is therefore not an optional component of disability care. Rehabilitation that addresses only functional limitations may fail to address important determinants of quality of life. Nurses and other health professionals have an important role in identifying psychological distress, providing supportive interventions, and facilitating referral when more specialized mental health care is required.^{14,15}

Mindfulness has emerged as a complementary psychological approach emphasizing intentional attention to present-moment experiences with openness and non-judgment. Mindful meditation may help individuals notice thoughts, emotions, and bodily sensations without immediately reacting to them. Through repeated practice, individuals may develop greater awareness of emotional responses and more adaptive regulation of distress.^{1,6,11}

Mindful meditation is particularly attractive for rehabilitation and disability-support settings because it can be delivered with minimal equipment and can be modified for different functional abilities. Seated practice, guided breathing,

body awareness, and brief attention exercises can be incorporated into routine programs without requiring complex infrastructure.^{5,12}

Evidence from mindfulness-based interventions suggests potential benefits for psychological stress and well-being. Research has also explored adaptations for people with intellectual and developmental disabilities. However, the evidence base specific to adults with disabilities in institutional and vocational-support settings in the National Capital Region remains limited.^{2,3,7,8}

The present study was therefore undertaken to examine the effect of a structured mindful meditation program on depression, anxiety, and stress. The study also explored whether selected demographic characteristics were associated with the psychological outcomes.

Conceptually, mindfulness may influence psychological distress through several related processes. Attention is deliberately redirected toward current experiences rather than persistent worry about future events or repetitive thinking about past experiences. Recognition of emotional and bodily responses may increase the opportunity to pause before reacting. Acceptance may reduce secondary distress associated with attempts to suppress or avoid unpleasant internal experiences.^{1,6,9,11}

For adults with disabilities, these mechanisms may be relevant because distress can be recurrent and may be connected to situations that cannot be changed immediately. A mindfulness-based approach does not require the elimination of difficult circumstances; instead, it may provide an additional way of responding to thoughts and emotions while maintaining awareness of the present.^{11,12}

The intervention in the present study was designed as a brief and practical program. Its emphasis was not on replacing medical or psychological treatment but on providing an additional self-management strategy. This distinction is important because mindfulness should be viewed as a complementary intervention and not as a substitute for professional assessment or treatment when clinically indicated.^{2,8,12}

Objectives

- To assess the levels of depression, anxiety, stress among with disability
- To determine the effectiveness of mindful meditation by comparing pre-test and post-test depression, anxiety, and stress scores among with disability
- To determine the association between selected socio-demographic variables and depression, anxiety, and stress levels among with disability.

Methods

Study Design and Setting

A quantitative research approach and Pre Experimental one-group pre-test–post-test design were adopted. The study was conducted at the National Career Service Centre for Differently Abled (NCSCDA) in the National Capital Region. The setting provided access to adults with disabilities within an organized support and vocational environment.

Participants and Sampling

The study included 60 adults with disabilities who fulfilled the eligibility criteria. Non-probability convenience sampling was used. Participants were approached through the study setting and enrolled after providing informed consent.

Inclusion and Exclusion Criteria

Participants were eligible when they met the study's operational definition of adulthood and disability, were available during data collection, understood the study's information, and consented to participate. Individuals who were unable to participate in the intervention or assessment according to the predefined study criteria were excluded.

Study Instruments

Part I consisted of a socio-demographic questionnaire. Part II used the Depression Anxiety Stress Scale-21 (DASS-21). The DASS-21 contains three seven-item subscales assessing depression, anxiety, and stress. Each item is rated on a four-point response scale. Domain scores are interpreted according to the established DASS framework.

Validity and Reliability

The instruments were reviewed for content adequacy before use. Reliability assessment conducted during the pilot phase yielded a Cronbach's alpha of 0.86, supporting high internal consistency of the assessment procedure.

Intervention Programme

A structured mindful meditation programme was delivered over four sessions across two weeks, with approximately

20–30 minutes allocated to each session. The programme included guided breathing awareness, present-moment attention, body awareness, and sitting meditation. Activities were adapted according to participants' functional capacities and were delivered in a supportive, non-judgmental manner.

Data Collection Procedure

After obtaining institutional permission and ethical clearance, eligible participants were informed about the purpose, procedures, potential benefits, confidentiality, and voluntary nature of participation. Written informed consent was obtained. Pre-test DASS-21 assessment was conducted before the intervention. The mindful meditation programme was then delivered, followed by post-test assessment using the same outcome measure.

Ethical Considerations

Institutional Ethics Committee approval and administrative permission were obtained before data collection. Participants were informed that participation was voluntary and that they could withdraw without penalty. Confidentiality and privacy were maintained throughout the study.

Statistical Analysis

Descriptive statistics included frequency, percentage, mean, and standard deviation. A paired t-test was used to compare pre-test and post-test mean scores. The Chi-square test was used to examine associations between selected socio-demographic variables and psychological outcome categories. A p-value below 0.05 was considered statistically significant. Correlation analysis was not included because the documented study results did not provide correlation coefficients.

Results

Sixty participants completed the assessment. The results are presented in terms of pre-test distribution, post-test distribution, change in mean scores, and associations with selected demographic variables.

Table I. Frequency and percentage distribution of adults with disability according to demographic variables

n=60

S.No	Variable	Category	Frequency	Percentage
1	Age group	19-22	18	30.0
		23-26	22	36.7
		27-30	20	33.3

2	Gender	Male	28	46.7
		Female	24	40.0
		Non- binary	3	5.0
		Third- Gender	2	3.3
		Prefer not to say	3	5.0
3	Education	No Formal Education	3	5.0
		Primary Education	8	13.3
		Secondary Education	16	26.7
		Higher Secondary	14	23.3
		Graduate	12	20.0
		Postgraduate & above	7	11.7
4	Monthly Family Income	Below 15,000	12	20.0
		15,000-30,000	20	33.3
		30,000-50,000	18	30.0
		Above 50,000	10	16.7
5	Current Residential Area in NCR	Delhi	12	20.0
		Gurgaon	9	15.0
		Faridabad	8	13.3
		Greater Noida	11	18.3
		Noida	9	15.0
		Ghaziabad	7	11.7
		Others	4	6.7
6	Type of Residential Area	Urban	32	53.3
		Semi-Urban	18	30.0
		Rural	10	16.7
7	Type of Physical Disability	Both Hands Affected	6	10.0
		Both Legs Affected	18	30.0
		One Hand Affected	7	11.7
		One Leg Affected	12	20.0
		One Hand & One Leg Affected	5	8.3
		Multiple Disability	8	13.3
		Others	4	6.7

8	Onset of Disability	Congenital	24	40.0
		Acquired	36	60.0
9	Duration of Disability	Less than 1 Year	6	10.0
		1-5 Years	18	30.0
		5-10 Years	14	23.3
		More than 10 Years	22	36.7
10	Current Course / Stream of Study	Academic	18	30.0
		Professional	14	23.3
		Competitive Exam Preparation	10	16.7
		Skill Development	12	20.0
		Special Education Programme	6	10.0

Table 1 shows that 36.7% of the participants belonged to the age group of 23–26 years, 33.3% belonged to 27–30 years, and 30.0% belonged to 19–22 years. Male participants constituted 46.7% of the sample, followed by females (40.0%). Most participants had secondary education (26.7%) or higher secondary education (23.3%). One-third of the participants had a monthly family income of ₹15,000–30,000. In relation to the place of residence within NCR, 20.0% belonged to Delhi and 18.3% to Greater Noida. More than half of the participants resided in urban areas (53.3%). The most common disability type was both legs affected (30.0%), followed by one leg affected (20.0%). Acquired disability was more common (60.0%) than congenital disability (40.0%). More than one-third (36.7%) had disability for more than 10 years. With regard to the current course/stream of study, 30.0% were enrolled in academic programmes, followed by professional courses (23.3%) and skill development programmes (20.0%).

At baseline, moderate depression was the most frequent

depression category, representing 36.7% of participants. Moderate anxiety was observed in 38.3%. Mild stress represented 40.0%, followed by moderate stress in 33.3%. The relatively small normal-category proportions indicate that psychological distress was common before the intervention.

After the intervention, the proportion of participants in the normal category increased markedly across all three outcomes. Normal depression increased to 50.0%, normal anxiety to 53.3%, and normal stress to 55.0%. At the same time, severe depression declined to 10.0%, severe anxiety to 11.7%, and severe stress to 6.7%.

The mean depression score declined by 5.90 points, anxiety by 3.76 points, and stress by 6.81 points. The paired t-test demonstrated statistically significant reductions in each outcome at $p < 0.001$. Thus, the null hypothesis of no pre-test to post-test difference was rejected for depression, anxiety, and stress.

Table 2. Pre-Test Levels of Depression, Anxiety and Stress (N = 60)

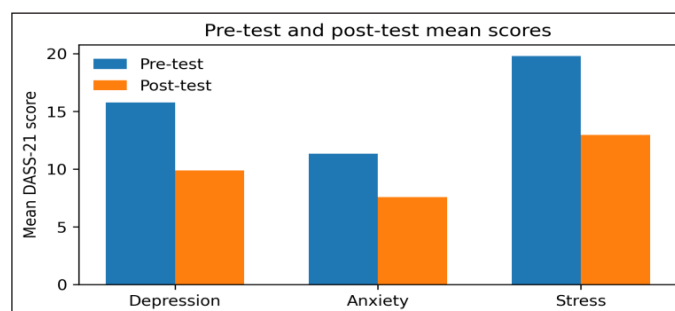
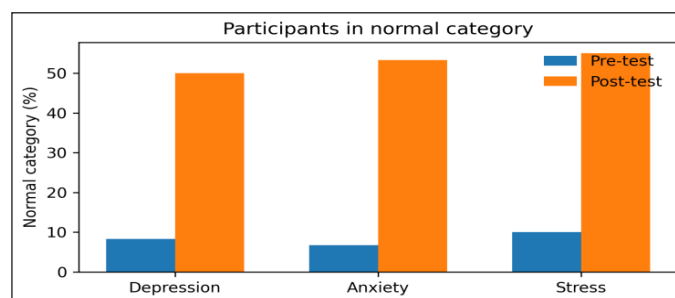
Level	Depression n (%)	Anxiety n (%)	Stress n (%)
Normal	5 (8.3)	4 (6.7)	6 (10.0)
Mild	21 (35.0)	20 (33.3)	24 (40.0)
Moderate	22 (36.7)	23 (38.3)	20 (33.3)
Severe	12 (20.0)	13 (21.7)	10 (16.7)
Extremely severe	0 (0.0)	0 (0.0)	0 (0.0)

Table 3. Post-Test Levels of Depression, Anxiety and Stress (N = 60)

Level	Depression n (%)	Anxiety n (%)	Stress n (%)
Normal	30 (50.0)	32 (53.3)	33 (55.0)
Mild	13 (21.7)	12 (20.0)	12 (20.0)
Moderate	11 (18.3)	9 (15.0)	11 (18.3)
Severe	6 (10.0)	7 (11.7)	4 (6.7)
Extremely severe	0 (0.0)	0 (0.0)	0 (0.0)

Table 4. Comparison of Pre-Test and Post-Test Mean Scores (N = 60)

Outcome	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	Mean Difference	t	p
Depression	15.77 $\pm$ 5.82	9.87 $\pm$ 7.21	5.90	4.96	<0.001
Anxiety	11.33 $\pm$ 3.94	7.57 $\pm$ 4.72	3.76	4.50	<0.001
Stress	19.78 $\pm$ 6.34	12.97 $\pm$ 8.34	6.81	4.40	<0.001

**Figure 1. Comparison of pre-test and post-test mean DASS-21 scores****Figure 2. Change in the proportion of participants classified as normal**

Interpretation of Findings

The simultaneous reduction in the three DASS-21 domains (Figure 1) suggests an overall improvement in psychological distress after the intervention period. The categorical

results complement the continuous mean-score findings: improvement was not limited to a small change in average score but was also reflected in movement of participants toward the normal category (Figure 2).

Table 5. Significant Chi-Square Associations

Assessment	Variable	Outcome	χ^2	df	p
Pre-test	Age group	Anxiety	13.26	6	.039
Post-test	Age group	Anxiety	13.11	6	.041
Post-test	Educational status	Anxiety	25.90	15	.039

Association with Selected Demographic Variables

Age group showed a statistically significant association with pre-test anxiety ($\chi^2 = 13.26$, $df = 6$, $p = .039$). At post-test, age remained significantly associated with anxiety ($\chi^2 = 13.11$, $df = 6$, $p = .041$). Educational status was also significantly associated with post-test anxiety ($\chi^2 = 25.90$, $df = 15$, $p = .039$). These findings indicate that anxiety levels may vary across selected demographic characteristics; however, the study was not designed to establish causal explanations for these associations.

Discussion

The present study examined whether a structured mindful meditation programme was associated with improvement in depression, anxiety, and stress among adults with disabilities. The results showed significant reductions in all three psychological outcomes, providing preliminary support for the use of mindfulness as a complementary intervention in disability-support settings.^{2,3,8}

At baseline, moderate depression was observed in more than one-third of the participants, and moderate anxiety represented the largest anxiety category. Stress was most frequently classified as mild, although a substantial proportion also experienced moderate or severe stress. These findings emphasize that adults receiving disability-related services may have psychological needs that warrant systematic assessment.^{14,15}

Following intervention, the proportion classified as normal increased substantially. The normal category for depression rose from 8.3% to 50.0%; anxiety from 6.7% to 53.3%; and stress from 10.0% to 55.0%. This pattern was accompanied by reductions in moderate and severe categories. The categorical shift is clinically meaningful because it indicates that improvement occurred across the distribution rather than only in the group mean.

The mean-score analysis strengthened this interpretation. Depression decreased by 5.90 points, anxiety by 3.76 points, and stress by 6.81 points. The corresponding t-values were 4.96, 4.50, and 4.40, with $p < 0.001$. The statistical significance of all three comparisons supports rejection of the null hypothesis for the documented pre-test/post-test comparisons.

One possible explanation is that mindfulness practice increases attention to present-moment experiences and reduces automatic engagement with distressing thoughts. Guided breathing may also provide a structured opportunity to slow physiological and cognitive responses during periods of tension. Repeated practice may strengthen awareness of emotional triggers and create a brief pause between an internal experience and an immediate behavioural response.^{1,6,9,11}

These mechanisms may be particularly relevant for adults with disabilities because some sources of stress cannot be rapidly removed. Mindfulness does not necessarily change the external situation; instead, it may provide a practical strategy for responding to difficult internal experiences. The ability to practice while seated and with minimal equipment may also improve feasibility within rehabilitation settings.^{5,11,12,14}

The findings are broadly consistent with the established literature on mindfulness-based interventions and psychological well-being. Previous systematic reviews have reported reductions in psychological distress in selected populations, while research involving people with intellectual disabilities has demonstrated that mindfulness-based approaches can be adapted to participant needs.^{2,3,7,8}

The demographic findings require cautious interpretation. Age was associated with anxiety at both assessment points, while educational status was associated with post-test anxiety. These associations may reflect differences in developmental stage, expectations, social participation, educational demands, or coping with resources. Because subgroup sample sizes were not designed for causal comparisons, these findings should be viewed as exploratory rather than definitive.

The absence of a control group is an important consideration. A one-group pre-test–post-test design cannot separate intervention effects from natural change, regression to the mean, repeated-testing effects, participant expectations, or other events occurring during the study period. Therefore, the present findings support an association between the intervention period and improved outcomes but should not be interpreted as definitive proof of causal efficacy.^{2,8}

Implications for Nursing Practice

Nurses working in rehabilitation, community health, disability support, and mental health settings may incorporate brief mindfulness-based activities into holistic care when appropriate. Nurses can provide guided breathing, present-moment awareness, and relaxation-oriented attention exercises while monitoring participant comfort and referring individuals with substantial psychological symptoms for appropriate professional assessment.

Implications for Nursing Education

Mindfulness-based supportive approaches may be introduced in nursing education as part of non-pharmacological psychological care, therapeutic communication, stress management, and rehabilitation of nursing.

Implications for Administration

Nursing administrators may consider structured, brief psychological-support activities within disability and

rehabilitation programmes, provided adequate staff training; participant choice, privacy, and referral pathways are available.

Strengths and Limitations

The study has several strengths. It evaluated three important psychological outcomes simultaneously, used a structured intervention, employed a standardized DASS-21 assessment, established instrument reliability, and was conducted in a real-world disability-support setting. The intervention was brief and potentially adaptable to routine rehabilitation environments.

Several limitations should also be recognized. The one-group pre-test–post-test design limits causal inference. Convenience sampling may reduce generalizability, and the sample size was 60 participants. Participants had different disability profiles, which may introduce heterogeneity. Outcomes were based on self-report, and no long-term follow-up was available to determine whether improvements were sustained.

Conclusion

The present study demonstrated statistically significant reductions in depression, anxiety, and stress following a structured mindful meditation programme among adults with disabilities in the National Capital Region. Improvement was demonstrated through both categorical distributions and mean scores. The findings suggest that mindful meditation may be a feasible, low-cost, and accessible complementary psychological-support strategy in disability and rehabilitation services.

Nevertheless, the absence of a control group means that causal conclusions cannot be drawn. Future studies should use randomised controlled designs, larger samples, disability-specific subgroup analysis, standardised intervention fidelity procedures, and longer follow-up. Such research would help determine the durability and generalisability of the observed psychological improvements.

Declarations

Ethics approval and consent to participate: Institutional Ethics Committee approval and administrative permission were obtained before commencement of the study. Written informed consent was obtained from all participants. Confidentiality, privacy, and voluntary participation were maintained.

Source of Funding: None

Conflict of Interest: None

Authors' Contributions: Prof. Nithya N. – supervision, academic guidance and manuscript review; Prof. Neha Tiwari – academic support and manuscript review; Riya Gupta,

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