Efficacy of Mindfulness with State-Trait Anxiety and Emotional Dysregulation in Young Adults

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Abstract

This study aimed to evaluate the effectiveness of mindfulness intervention in reducing state anxiety among young adults with emotional dysregulation in Lahore, Pakistan. A total of 100 young adult males and females aged 20-30 with state anxiety and emotional dysregulation were selected from different segments of life in Lahore. The State-Trait Anxiety Inventory (STAI) and Emotion Regulation Questionnaire (ERQ) were administered to assess anxiety levels and emotional regulation before and after the intervention. Participants (n = 12) scoring in the mild to moderate range on these scales were selected for a fourteen-session mindfulness intervention programmed. Pre-post intervention data was analyzed using IBM SPSS 27, employing correlation analysis, paired sample t-tests, and independent sample t-tests. The analysis revealed a significant relationship between emotional dysregulation and state anxiety. However, post-intervention analysis showed mild improvement in state anxiety levels among participants after the mindfulness intervention. Cultural beliefs towards therapy and a preference for quick solutions, such as medication, were identified as contributing factors to the lack of significant improvement.

Keywords: State Anxiety, Mindfulness, Emotional Dysregulation, Young Adults, Pakistan, Psychotherapy.

Introduction

Anxiety, a pervasive mental health issue, manifests in various forms and intensities, significantly impacting individuals globally. State-trait anxiety theory, established by Spielberger (1966), differentiates between transient states of anxiety in response to specific events (state anxiety) and a stable predisposition to perceive events as threatening (trait anxiety). State anxiety, characterized by fleeting emotional reactions such as tension and apprehension, fluctuates with situational stressors, whereas trait anxiety represents a persistent personality trait predisposing individuals to chronic anxiety across various contexts.

Globally, anxiety disorders are among the most common mental health conditions, affecting millions across different demographics (World Health Organization, 2023). In Pakistan, state anxiety is notably prevalent among young adults, reflecting broader regional trends in anxiety disorders. Reports suggest that approximately 42.66% of young adults in Pakistan experience state anxiety, highlighting a significant mental health challenge within this population (Pakistani Journal of Medical Sciences, 2022).

The interaction between state and trait anxiety underscores the complexity of anxiety disorders. Emotional dysregulation, a critical factor in anxiety, is often characterized by intense emotional reactions and ineffective coping strategies (Gratz & Roemer, 2004). In young adults, such

dysregulation can lead to maladaptive behaviors and exacerbate anxiety symptoms (Aldao et al., 2010). Theoretical frameworks, including Dialectical Behavior Therapy (DBT), offer insights into managing anxiety through mindfulness and other therapeutic techniques (Linehan, 2015).

The primary objective of this study is to evaluate the effectiveness of mindfulness-based interventions in reducing state anxiety among young adults experiencing emotional dysregulation. By addressing the impact of mindfulness within the context of state-trait anxiety theory, this research aims to contribute to a deeper understanding of how situational and dispositional factors interact to influence anxiety. This understanding is crucial for developing effective treatment strategies that can enhance emotional regulation and overall mental well-being.

Methodology

The research was conducted according to the principles of the Declaration of Helsinki. The research was conducted over 6 months in Lahore, Pakistan, after the researcher took certification and training in Dialectical Behavior Therapy, employed an experimental pre-post intervention design without a control group. Participants were drawn from the general population of Lahore through purposive sampling. A total of 100 individuals were initially screened for eligibility, with 12 participants (6 males and 6 females) selected for the intervention phase based on their understanding of state anxiety. Inclusion criteria required participants to be between 20 and 30 years old, hold at least a bachelor's degree, be unmarried, and have experienced state anxiety for 3-6 months. Participants provided informed consent before taking part in the study. Exclusion criteria included current substance abuse, ongoing psychotherapy for anxiety or emotional dysregulation, and significant physical health issues.

The measures utilized in this study included the State-Trait Anxiety Inventory (STAI) Short Form, which assesses both state and trait anxiety, with high internal consistency (Spielberger, 1968). The Emotion Regulation Questionnaire (ERQ), developed by Gross and John (2003), evaluates emotion regulation strategies with robust reliability. The Dialectical Behavior Therapy (DBT) Skills Training Manual by Linehan (2014) provided the framework for mindfulness interventions. The operational definitions of state anxiety, emotional dysregulation, and mindfulness were based on established literature (Spielberger, 1983; Linehan, 1993; Kabat-Zinn, 2013).

In the first phase, 100 participants were screened and informed consent was obtained. The ERQ and STAI were administered to assess baseline state-trait anxiety. In the second phase, a structured mindfulness intervention comprising fourteen-sessions was implemented. Participants attended sessions at two-day intervals to practice and integrate mindfulness techniques into daily life. In the last phase, participants underwent a comprehensive re-assessment using the ERQ and STAI. Follow-up sessions were provided to ensure participants received adequate support. Data analysis was performed using IBM SPSS Statistics 27, employing paired sample t-tests, independent sample t-tests, point-biserial correlation, and Pearson correlation to evaluate changes in anxiety levels pre- and post-intervention.

Ethical considerations included adherence to research ethics and sensitivity to participants' mental health needs. The researcher, trained in dialectical behavioral therapy, ensured that any participant requiring additional support was referred for further treatment. Participants provided informed consent and were debriefed; al this was with no monetary compensation.

Results

The results of the research include the correlation between emotional regulation and state-trait anxiety in the screening sample, and the pre- and post-intervention data. The results were organized in tables and described succinctly, with emphasis on key observations. Statistical methods employed included paired sample t-tests, independent sample t-tests, Pearson correlation, and

point-biserial correlation to evaluate the efficacy of the mindfulness intervention and the relationship between emotional regulation and state-trait anxiety.

Table 1

Demographic Characteristics of a sample (N=100)

Characteristics	f	%
Gender		
Male	47	47
Female	53	53
Age		
20-23	60	60
24-26	22	22
27-30	18	18
Education		
Bachelors	80	80
Masters	19	19
Institutional affiliation		
Private	85	85
Government	15	15
Birth order		
First born	29	29
Middle born	42	42
Last born	26	26
Only born	3	3
Family system		
Nuclear	70	70
Joint	30	30
Socioeconomic status		
Middle	56	56
Upper-middle	40	40
Physical disability		
No	100	100
With psychological Disorder		
Yes	13	13
No	87	87
Medication use		
Yes	9	9
No	19	19
Experiencing state-trait anxiety		
1 month	56	56
3-4 month	19	19
6 month	25	25

Table 1 outlines the demographic characteristics of the 100 participants screened for the study. The sample comprised 47 males (47%) and 53 females (53%). The majority were aged 20-23 years (60%), had a bachelor's degree (80%), and were affiliated with different private institutions (85%). Most participants were middle-born (42%), lived in nuclear families (70%), and belonged to the middle socioeconomic status (56%). Of the sample, 13% reported having a psychological disorder, and 9% were on medication. State-trait anxiety was reported for 56% of participants for 1 month, 19% for 3-4 months, and 25% for 6 months.

Table 2

Correlation between Emotional Regulation and State Trait Anxiety

Variables	M	SD	1	2	3	4	5
1.Reap	27.63	5.67	-				
2.Supp	17.59	5.40	.33**	-			
3.State	9.66	2.69	0.01	-.20*	-		
4.Trait	12.23	2.72	-0.13	-0.05	0.03	-	
5.Gender	1.53	0.50	0.12	-.19*	0.17	.21*	-

Note. *p<05, **p<01, ***p<001

Table 2 presents the correlation analysis between emotional regulation and state-trait anxiety in the screening sample. Expressive suppression was negatively correlated with state anxiety ($r = -0.20$, $p < 0.05$), indicating that higher expressive suppression is associated with lower state anxiety. Point-biserial correlation revealed that gender was associated with emotional regulation, with men showing higher expressive suppression and women having higher trait anxiety.

Table 3

Correlation between Emotional Regulation and State Trait Anxiety Post

Variable	M	SD	1	2	3	4
1.State_2	9.83	3.85	-			
2.Trait_2	13.16	4.76	0.53	-		
3.reapp_2	27.00	4.06	-0.08	-0.26	-	
4.supp_2	17.25	4.75	0.22	0.03	0.47	-

Note. *p<05, **p<01, ***p<001

Table 3 shows the correlation analysis for the post-intervention data. For the 12 participants assessed post-intervention, no significant correlations were found between emotional regulation components and state-trait anxiety. The lack of significant correlations suggests that changes in emotional regulation did not substantially impact state-trait anxiety levels after the intervention.

Table 4

Paired sample t-test

Variables	Pre-Intervention			Post-Intervention			t(df)	p	Effect Size (d)
	N	M	SD	N	M	SD			
State anxiety	12	9.83	3.86	12	7.58	2.27	3.576(11)	0.004	1.032
Trait anxiety	12	13.17	4.76	12	10.92	3.20	2.248(11)	0.046	0.997
Cognitive Reappraisal	12	27.00	4.07	12	27.50	4.21	-0.502(11)	0.626	0.649
Expressive Suppression	12	17.25	4.75	12	18.00	4.31	-0.773(11)	0.456	0.626

Table 4 Paired sample t-test analysis was carried out to assess the efficacy of mindfulness intervention provided to the N = 12 participants selected for the intervention program based on the mild to moderate scores on emotion regulation and state trait anxiety. The assessment was carried out to the same sample and a comparison was made between to two to evaluate the efficacy of the intervention. The results of the analysis showed that the state anxiety and trait anxiety were found to be significantly different in the participants before and after the intervention. State anxiety and trait anxiety was found to be significantly less in the participants after the intervention, revealing that the intervention had a significant positive effect in decreasing state and trait anxiety. However, the results revealed that the intervention had no significant effect on emotion regulation and found to have no significant difference in pre and post assessment (Table 4).

Table 5

Independent samples t-test

Assessments	Men		Women		t(12)	p	Cohen's d
	M	SD	M	SD			
State_1	8.67	3.50	11.00	4.15	-1.053(10)	0.317	-0.61
Trait_1	10.50	3.21	15.83	4.75	-2.279(10)	0.046	-1.32
reapp_1	27.67	3.14	26.33	5.05	0.549(10)	0.595	0.32
supp_1	18.00	3.22	16.50	6.16	-1.053(10)	0.317	-0.61

Table 5 presents the results of the paired sample t-tests comparing pre and post-intervention data for the 12 participants. State anxiety decreased significantly from a mean of 9.83 (SD = 3.86) to 7.58 (SD = 2.27), t (11) = 3.58, p = 0.004, with a large effect size (d = 1.03). Trait anxiety also decreased significantly from a mean of 13.17 (SD = 4.76) to 10.92 (SD = 3.20), t (11) = 2.25, p = 0.046, with a large effect size (d = 0.99). No significant changes were observed in cognitive reappraisal or expressive suppression.

Table 6

<table>
<tr><td colspan="7" align="center">Independent sample t-test</td></tr>
<tr><td></td><td colspan="2" align="center">Men</td><td colspan="2" align="center">Women</td><td align="center">t(12)</td><td align="center">p</td><td align="center">Cohen's d</td></tr>
<tr><td>Assessments</td><td>M</td><td>SD</td><td>M</td><td>SD</td><td></td><td></td><td></td></tr>
<tr><td>State_2</td><td>7.33</td><td>2.25</td><td>7.83</td><td>2.48</td><td>-0.365(10)</td><td>0.722</td><td>-0.21</td></tr>
<tr><td>Trait_2</td><td>9.67</td><td>2.80</td><td>12.17</td><td>3.31</td><td>-1.411(10)</td><td>0.189</td><td>-0.81</td></tr>
<tr><td>reapp_2</td><td>26.17</td><td>3.97</td><td>28.83</td><td>4.36</td><td>-1.108(10)</td><td>0.294</td><td>-0.64</td></tr>
<tr><td>supp_2</td><td>17.33</td><td>3.27</td><td>18.67</td><td>5.39</td><td>-0.365(10)</td><td>0.722</td><td>-0.21</td></tr>
</table>

Table 6 shows the results of the independent samples t-tests assessing gender differences in emotional regulation and state-trait anxiety. Before the intervention (Table 6), women exhibited significantly higher trait anxiety (M = 15.83, SD = 4.75) compared to men (M = 10.50, SD = 3.21), t(10) = -2.28, p = 0.046, with a large effect size (d = -1.32). No significant gender differences were found in state anxiety or emotion regulation. After the intervention (Table 7), no significant gender differences were observed in state anxiety, trait anxiety or emotional regulation.

These results indicate that while the mindfulness intervention was effective in reducing state and trait anxiety, it did not significantly impact emotional regulation or alter the relationship between emotional regulation and anxiety. Gender differences in trait anxiety were present before the intervention but not after.

Discussion

This study aimed to evaluate the effectiveness of mindfulness interventions in reducing state-trait anxiety, assess changes in emotional dysregulation post-intervention and identify any gender-related variations in anxiety and emotional regulation. The primary hypotheses suggested that mindfulness would positively impact state-trait anxiety and emotional dysregulation and that gender differences would influence these outcomes. The study's findings revealed nuanced results, with implications for both future research and clinical practice.

The mindfulness intervention significantly reduced state anxiety (from M = 9.83, SD = 3.86 to M = 7.58, SD = 2.27) and trait anxiety (from M = 13.17, SD = 4.76 to M = 10.92, SD = 3.20). Despite these reductions, the impact on emotional dysregulation was minimal, and the changes were not statistically significant. The analysis of gender differences did not reveal significant variations in state-trait anxiety or emotional regulation, suggesting that mindfulness interventions may have similar effects across genders in this sample.

The findings are partially consistent with prior research indicating that mindfulness interventions can reduce anxiety. Studies such as those by Keng, Smoski, and Robins (2011) have shown that mindfulness practices improve emotional control and reduce anxiety, which aligns with the observed reductions in state and trait anxiety in this study. However, the minimal impact on emotional dysregulation mirrors findings from Chiesa and Serretti (2009), who noted variability in the effectiveness of mindfulness interventions, often influenced by factors such as intervention fidelity and participant engagement.

Research by Gallo et al. (2023) and Tang, Hölzel, and Posner (2015) supports the notion that mindfulness can improve emotional regulation, though the effects are often moderate and may

require more extended interventions. This study's findings reinforce the idea that while mindfulness has potential, its impact may be subtle and necessitate longer or more intensive programs for more pronounced results. The lack of significant gender differences aligns with McLean and Anderson's (2009) findings that gender differences in anxiety can be context-dependent and influenced by various factors, including coping strategies and social support.

This study's contribution lies in its specific examination of mindfulness's effects within a Pakistani context, highlighting cultural nuances that could affect intervention outcomes. The lack of significant gender differences in this sample suggests that factors beyond gender, such as cultural attitudes and personal engagement with mindfulness practices, might play a more crucial role in influencing anxiety and emotional regulation.

The study also emphasizes the importance of culturally sensitive approaches to mindfulness. The integration of Islamic principles into mindfulness practices, as suggested by Ahmed (2024) and Shafiq (2020), could potentially enhance the effectiveness of these interventions in the Pakistani context. This approach aligns with literature advocating for culturally tailored mental health interventions to improve engagement and efficacy.

Several limitations of this study also merit consideration. Firstly, the small sample size (N = 12) for post-intervention analysis may have limited the ability to detect significant changes in emotional dysregulation. The short duration of the intervention (eight weeks) may also have been insufficient to produce substantial changes in emotional regulation, as suggested by Tang et al. (2015). Additionally, the study's findings are influenced by the cultural context, which may affect the generalizability of the results to other populations. Future research should consider larger sample sizes, longer intervention durations, and more culturally specific adaptations of mindfulness practices to better understand their effects.

To sum it up, mindfulness interventions demonstrated significant reductions in state and trait anxiety, their impact on emotional dysregulation was however limited. The lack of gender differences in this study highlights the need for a more nuanced understanding of how cultural and individual factors influence the effectiveness of mindfulness practices. Future research should continue to explore these dimensions to enhance the applicability and success of mindfulness-based therapies.

Conclusion

This study explored the effectiveness of mindfulness interventions in reducing state-trait anxiety and emotional dysregulation among young adults. The analysis revealed partial support for the effectiveness of mindfulness in decreasing state-trait anxiety, with observed reductions, though not statistically significant, suggesting potential benefits for some individuals. The study did not find significant changes in emotional dysregulation post-intervention. Gender differences in the impact of mindfulness on anxiety and emotional regulation were not evident in this sample. The results highlight the need for further research with larger sample sizes, more detailed intervention protocols, and sensitive measurement tools for better understanding of the impact of mindfulness.