

EFFICACY OF ACCEPTANCE AND COMMITMENT IN TREATMENT OF GENERALIZED ANXIETY SYMPTOMS AMONG UNIVERSITY STUDENTS

Original Article

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ABSTRACT

Background: Generalized Anxiety Disorder (GAD) is a prevalent and impairing condition among university students, often triggered by academic stress, financial concerns, and social pressures. Traditional therapeutic models such as Cognitive Behavioral Therapy are commonly used; however, newer approaches like Acceptance and Commitment Therapy (ACT), focusing on psychological flexibility and mindfulness, are emerging as promising alternatives. This study explored the effectiveness of ACT in managing GAD symptoms in university students.

Objective: To examine the efficacy of Acceptance and Commitment Therapy in reducing symptoms of Generalized Anxiety Disorder among university students using a structured intervention plan.

Methods: A quantitative, quasi-experimental study using a within-subject pre-posttest design was conducted. A total of 11 participants (8 females and 3 males), aged 18–29 years, were recruited via convenience sampling from universities in Karachi. Eligibility was determined based on moderate anxiety levels using the Generalized Anxiety Disorder-7 (GAD-7) scale. Participants underwent eight weekly, individual ACT sessions focused on mindfulness, acceptance, cognitive defusion, values clarification, and committed action. Pre- and post-intervention anxiety levels were measured using GAD-7, and data were analyzed using SPSS version 22. Paired sample t-tests and Pearson's correlation coefficient were applied to evaluate outcomes.

Results: The mean GAD-7 score significantly decreased from 10.64 (SD = 2.25) pre-intervention to 6.18 (SD = 2.18) post-intervention ($t(10) = -12.17, p < 0.001$). A strong positive correlation ($r = 0.841, p = 0.001$) was observed between pre- and post-scores. ANOVA results indicated no significant difference in post-intervention variance across participants ($p = 0.934$), confirming consistent therapeutic impact.

Conclusion: ACT was found to be a clinically effective and statistically significant intervention for reducing GAD symptoms in university students. The findings support its use as a viable alternative to conventional therapies in educational and clinical settings.

Keywords: Acceptance and Commitment Therapy, Anxiety Disorders, Cognitive Defusion, Generalized Anxiety Disorder, Mindfulness, Psychological Flexibility, Students.

INTRODUCTION

Anxiety has emerged as one of the most pressing mental health concerns of the 21st century, affecting individuals across all age groups, cultures, and socioeconomic backgrounds. Among the spectrum of anxiety disorders, Generalized Anxiety Disorder (GAD) is characterized by excessive and persistent worry about multiple life domains, often accompanied by symptoms such as fatigue, irritability, difficulty concentrating, and disturbed sleep. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), a diagnosis of GAD requires these symptoms to persist for at least six months and result in significant functional impairment (1). Despite the global presence of GAD, prevalence rates vary widely. For instance, in the United States, the lifetime prevalence of GAD ranges from 2% to 9% (2), whereas in urban regions of Pakistan, it has been reported to be as high as 50% (3). Notably, younger populations, particularly university students, exhibit higher vulnerability due to ongoing academic, financial, and social stressors (4). Several demographic and psychosocial factors contribute to the development of GAD, including age (15–45 years), gender (higher prevalence in women), socioeconomic status, and family dysfunction (5,6). A family history of psychopathology and substance abuse further compounds the risk (7). While pharmacological treatments such as selective serotonin reuptake inhibitors (SSRIs) and benzodiazepines are commonly prescribed, psychological interventions—especially Cognitive Behavioral Therapy (CBT)—remain the cornerstone of GAD treatment (8). CBT focuses on modifying maladaptive thoughts and behaviors through structured techniques like cognitive restructuring and behavioral activation (9). However, despite its broad applicability, CBT may not resonate with all individuals, and alternative therapies are increasingly being explored to enhance treatment efficacy and personalization.

One such approach is Acceptance and Commitment Therapy (ACT), a third-wave behavioral therapy that integrates mindfulness, acceptance, and value-based behavioral strategies to foster psychological flexibility (10). Unlike CBT, which emphasizes the modification of cognitive distortions, ACT encourages individuals to accept distressing thoughts and feelings without attempting to eliminate them. Instead, it helps individuals commit to behaviors that align with their personal values, even in the presence of emotional discomfort (11). ACT employs core processes such as cognitive defusion, present-moment awareness, acceptance, and committed action, which collectively enable individuals to disengage from unhelpful mental narratives and respond constructively to life's challenges (12). Clinical research supports ACT's effectiveness across a range of mental health conditions, including depression, chronic pain, social anxiety, and post-traumatic stress disorder (13,14). However, its empirical validation within non-Western contexts, particularly Pakistan, remains limited. The psychological burden of GAD in university populations is significant, often impairing cognitive functions like attention, memory, and information processing, which in turn negatively impacts academic performance and quality of life (15). Although CBT dominates current treatment protocols in academic settings, the stigma surrounding mental health, limited access to qualified therapists, and cultural mismatches in therapeutic models limit its reach and effectiveness. Recent evidence suggests that ACT may be particularly well-suited to address these challenges, given its emphasis on mindfulness and value-driven behavior, which may align better with collectivist cultural norms (16).

Despite growing international recognition of ACT's benefits, there is a critical gap in localized research evaluating its therapeutic potential among Pakistani university students. Addressing this gap is essential not only for diversifying mental health interventions but also for informing culturally sensitive practices that resonate with local populations. This study, therefore, aims to assess the effectiveness of Acceptance and Commitment Therapy in reducing symptoms of Generalized Anxiety Disorder among university students in Pakistan. By doing so, it seeks to provide evidence for a feasible and contextually relevant alternative to conventional cognitive therapies.

METHODS

The study utilized a quasi-experimental within-subject pre-posttest design to assess the effectiveness of Acceptance and Commitment Therapy (ACT) in reducing symptoms of Generalized Anxiety Disorder (GAD) among university students. A total of 11 participants, comprising 8 females and 3 males aged between 18 to 29 years, were recruited through convenience sampling from various universities in Karachi. Inclusion criteria required participants to be currently enrolled university students presenting with moderate symptoms of GAD, operationalized as a score between 10 and 14 on the Generalized Anxiety Disorder-7 (GAD-7) scale. Individuals were excluded if they were not enrolled in university, did not exhibit GAD symptoms, or reported severe anxiety (GAD-7 score ≥ 15), to ensure that the intervention targeted a population for whom brief psychological support would be appropriate without risking undertreatment of clinically severe cases requiring more intensive care (17). Participants provided informed consent after being briefed about the study objectives, voluntary participation, and confidentiality protections. Demographic data were collected via a structured form including

variables such as age, gender, birth order, financial status, and parental employment. Ethical approval for the study was obtained from the institutional review board, and all procedures adhered to the ethical guidelines for research involving human participants.

Anxiety symptoms were assessed using the GAD-7, a self-report screening tool that aligns with DSM-5 criteria and has demonstrated strong psychometric properties ($\alpha = 0.89$). It consists of seven items rated on a 4-point Likert scale, with total scores categorizing anxiety severity as mild (5–9), moderate (10–14), or severe (≥ 15). The scale was administered at baseline and again after completion of the intervention to evaluate change in symptomatology. The intervention consisted of nine structured weekly ACT sessions delivered individually. These sessions were based on ACT's six core therapeutic processes: Acceptance, Cognitive Defusion, Present-Moment Awareness, Self-as-Context, Values Clarification, and Committed Action. Each session integrated psychoeducation, mindfulness-based activities, metaphors, and experiential exercises. The first session focused on orientation and psychoeducation regarding anxiety and ACT principles. Subsequent sessions gradually introduced and developed therapeutic competencies such as thought defusion techniques, acceptance strategies, identification of personal values, and formulation of value-based goals. The final two sessions focused on post-assessment and termination. The penultimate session (Session 8) included the administration of the post-intervention GAD-7 and comprehensive review of therapeutic content. Session 9 served as a dedicated termination session, allowing time for reflective feedback, emotional closure, and reinforcement of therapy gains—an essential component in ensuring the continuity of therapeutic progress beyond the structured intervention.

Each session began with a mindfulness practice to foster present-moment awareness and readiness for therapeutic engagement. Homework assignments, including mindfulness logs, defusion exercises, and values worksheets, were provided to reinforce skill development outside the therapy room. All sessions were conducted in a one-on-one setting to ensure individualized attention and therapeutic depth. Data were analyzed using SPSS version 22. A comparison of pre- and post-intervention GAD-7 scores was conducted to determine the statistical significance of symptom reduction, providing a quantitative assessment of ACT's therapeutic effect. The within-subject design offered the advantage of minimizing inter-individual variability and focusing on change within the same participants over time. Throughout the study, ethical standards were strictly followed. Informed consent was obtained prior to enrollment, participation was entirely voluntary, and confidentiality of personal data was assured. No participant was subjected to harm or coercion at any point, and they retained the right to withdraw from the study without consequence.

RESULTS

The analysis included 11 university students who completed both pre- and post-intervention assessments. The average age of participants was 20.09 years ($SD = 1.3$), with a gender distribution of 81.8% female and 18.2% male. All participants belonged to middle socioeconomic status, and none were employed at the time of the study. The majority were undergraduate students (81.8%), and all met inclusion criteria with moderate symptoms of Generalized Anxiety Disorder based on the GAD-7 scale. Descriptive statistics revealed a pre-intervention mean GAD-7 score of 10.64 ($SD = 2.25$), while the post-intervention mean dropped to 6.18 ($SD = 2.18$), indicating a notable reduction in anxiety symptoms. Skewness and kurtosis values suggested acceptable distribution normality, with pre-intervention skewness = -0.09 and kurtosis = 2.03, and post-intervention skewness = -0.34 and kurtosis = -1.10. The internal consistency of the GAD-7 was assessed using Cronbach's alpha, which was found to be 0.163. This result indicated low internal reliability within this specific sample, potentially influenced by small sample size or item redundancy. A paired sample t-test was conducted to compare the pre- and post-intervention anxiety scores. Results showed a statistically significant difference between the two phases ($t(10) = -12.17$, $p < 0.001$), with a 95% confidence interval for the mean difference ranging from -5.27 to -3.64, confirming the effectiveness of ACT in reducing GAD symptoms among participants.

Further analysis using ANOVA for post-intervention scores across participants indicated no statistically significant variation ($F(2, 7) = 0.068$, $p = 0.934$), suggesting that participants responded similarly to the intervention, and the treatment effect was uniformly experienced across the sample. Post Hoc analysis comparing individual GAD-7 items (1, 3, and 4) revealed no statistically significant differences among the item scores, with p-values ranging from 0.940 to 0.993, indicating that symptom reduction occurred consistently across items. The relationship between pre- and post-intervention anxiety scores was further explored through Pearson's correlation analysis. A strong positive correlation was observed between pre-test and post-test GAD-7 scores ($r = 0.841$, $p = 0.001$), indicating that participants who exhibited higher anxiety levels prior to the intervention also tended to show proportionally higher—but reduced—scores after the ACT sessions. This consistency suggests that symptom reduction followed a predictable pattern across individuals, thereby reinforcing the reliability of the intervention's impact.

Table 1: Demographics of the Participants (N = 11)

Variables	F	%	M(SD)
Age	11	100.0	20.09(1.3)
Gender			
Female	8	81.8	
Male	3	18.2	
Birth order			
Only Child	1	9.1	
First Born	3	27.3	
Last Born	3	27.3	
Middle Born	4	36.4	
Number of Siblings			
1	1	9.1	
2	4	36.4	
3	3	27.3	
4	2	18.2	
5	1	9.1	
Family Structure			
Joint	3	27.3	
Nuclear	8	72.7	
Education			
BDS	1	9.1	
MBBS	1	9.1	
Undergraduate	9	81.8	
Marital Status			
Engaged	1	9.1	
Single	10	90.9	
Employment Status			
Unemployed	11	100.0	
Socioeconomic Status			
Middle Class	11	100.0	
Medical Illness			

Variables	F	%	M(SD)
Iron Deficiency	1	9.1	
Epilepsy	1	9.1	
Lumber Pain	1	9.1	
No	7	63.6	
Thalassemia Minor	1	9.1	
Family History of Illness			
Anxiety History	1	9.1	
No	10	90.9	

Note: N = Total Participants, f = frequency, % = Percentage, M= Mean, SD= Standard Deviation.

Table 2: Cronbach's Alpha Reliability Test of Generalized Anxiety Disorder Scale (GAD-7)

	Cronbach's α
Generalized Anxiety Disorder Scale (GAD-7)	0.163

Table 3: Descriptive Statistics for the Generalized Anxiety Disorder Scale (GAD-7) of Experimental Group (N=11)

	No. of items	M	SD	SK	K
Pre-Test	7	10.64	2.248	-0.09	2.03
Post-Test	7	6.18	2.183	-0.34	-1.096

Note: M=Mean, SD=Standard Deviation, K=kurtosis and SK=skewness of pre and post scores

Table 4: Paired Sample t-Test Results Showing Comparison of General Anxiety Disorder b/w Pre Test and Post Test of Experimental Group (n=11)

95% CI						
	M	SD	t(df)	p	LL	UL
Pre-Test	6.18	2.183	-12.174	0.000	-5.27	-3.64
Post Test	10.64	2.248				

Note: *p<0.05

Table 5: Analysis of post scores using ANOVA.

Sum of Squares	df	Mean Square	f	P
Between Groups	0.9	2	.450	.068
Within Groups	46	7	6.571	.934

Table 6: Post Hoc Analysis of Items of General Anxiety Disorder (GAD-7)

GAD-7 Items (I)	GAD-7 Items (J)	Mean Difference (I- J)	95% CI			
			S.E	p	LL	UL
1	3	0.5	1.813	.959	-4.84	5.84
	4	-0.25	2.220	.993	-6.79	6.29
3	1	-0.5	1.813	.959	-5.84	4.84
	4	-0.75	2.220	.940	-7.29	5.79
4	1	0.25	2.220	.993	-6.29	6.79
	3	0.75	2.220	.940	-5.79	7.29

Note: GAD= Generalized Anxiety Disorder, S. E= Standard Error, LL= Lower Limit, UL= Upper Limit, CI= Confidence Interval

*p<0.05

Table 7: Correlation Coefficients Table

Variables	Pearson Correlation (r)	p-value
Pre-Test Scores vs Post-Test Scores	0.841	0.001

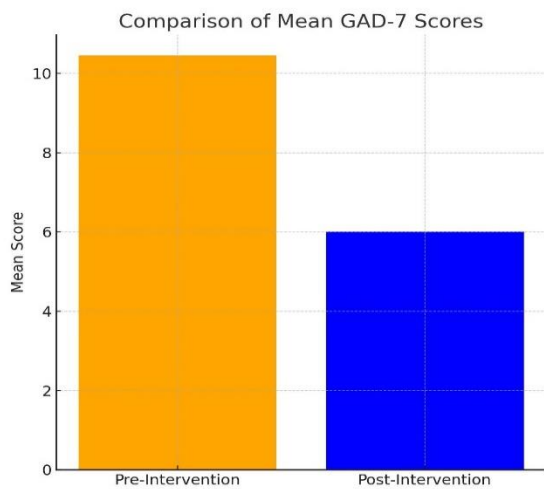


Figure 1 Comparison of Mean GAD-7 scores

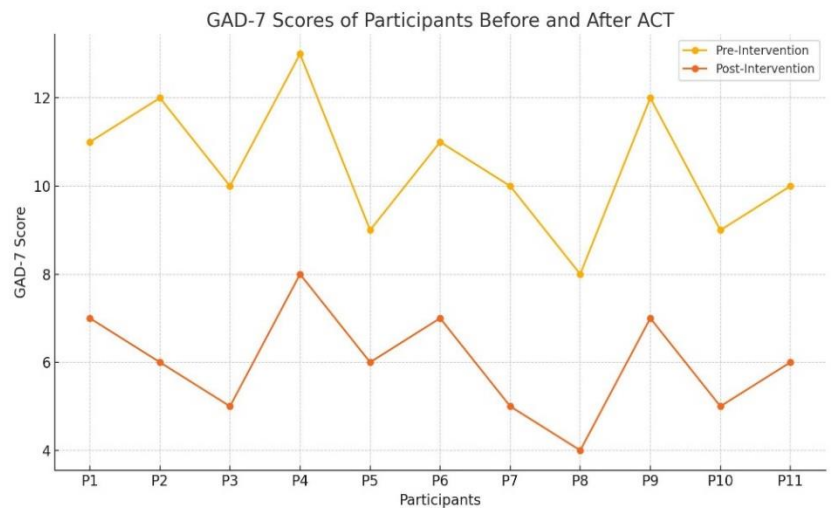


Figure 2 GAD-7 scores of Participants Before and After ACT

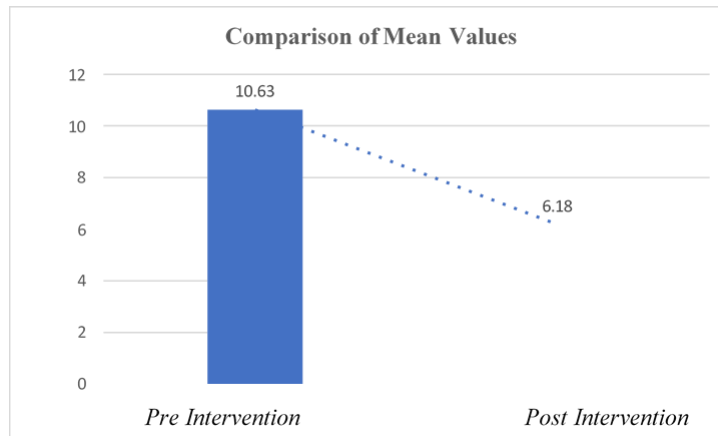


Figure 3 Comparison of Mean values

DISCUSSION

The present study aimed to evaluate the efficacy of Acceptance and Commitment Therapy (ACT) in reducing symptoms of Generalized Anxiety Disorder (GAD) among university students. The findings demonstrated a statistically significant decrease in anxiety levels following the intervention, suggesting that ACT is an effective therapeutic approach for managing generalized anxiety symptoms in this population. The mean GAD-7 score dropped from 10.64 in the pre-intervention phase to 6.18 post-intervention, indicating a clinically meaningful reduction. Additionally, a strong positive correlation between pre- and post-scores ($r = 0.841$, $p < 0.001$) underscored the consistent pattern of symptom improvement among participants (18). The observed results align with existing literature supporting the efficacy of ACT for anxiety-related disorders, including GAD, panic disorder, and social anxiety. Previous clinical trials have reported reductions in anxiety symptoms at both post-intervention and follow-up stages, with effect sizes comparable to or surpassing traditional approaches such as Cognitive Behavioral Therapy (CBT) (19). ACT's focus on psychological flexibility, acceptance of internal experiences, and engagement in value-driven behavior has shown promise across diverse clinical presentations. It emphasizes functional improvement over symptomatic control, offering a nuanced approach to anxiety management. These therapeutic principles are particularly suitable for university students, who often face multifaceted stressors in academic, social, and financial domains (20,21).

While ACT has been widely studied in adult and adolescent populations, its implementation in the context of young university populations in South Asia remains relatively underexplored. This study contributes to closing this research gap by providing context-specific evidence supporting ACT's applicability in Pakistani university students. Despite cultural differences, the intervention was well-received, indicating that ACT's core principles can transcend sociocultural boundaries when delivered with contextual sensitivity. An important strength of this study lies in its practical intervention design, which delivered individualized therapy in structured weekly sessions, allowing for personalized therapeutic engagement. The integration of mindfulness, acceptance, and cognitive defusion practices offered participants a comprehensive skillset to manage anxiety-provoking situations effectively. The consistent decline in anxiety scores across participants further supports the therapeutic integrity of the intervention (22,23).

However, the study faced notable limitations. The small sample size ($N=11$) limits the generalizability of findings and restricts the statistical power to detect subtler effects. The single-group pre-post design, without a control group, introduces potential threats to internal validity such as placebo effects or natural remission. The absence of long-term follow-up data further limits conclusions about the durability of treatment gains. The low Cronbach's alpha value for the GAD-7 scale in this sample ($\alpha = 0.163$) also suggests reduced internal consistency, potentially due to the small sample or restricted response variability. Moreover, the lack of significant findings in post-intervention ANOVA and post hoc analyses highlights the homogeneity in treatment response but does not rule out individual variability, which could be better assessed in larger samples with subgroup comparisons. The study also lacked a comparison with other therapeutic modalities, which would have helped contextualize ACT's relative efficacy. Future research should adopt randomized controlled trials with larger sample sizes and include follow-up assessments to evaluate long-term outcomes. Comparing ACT with other interventions like CBT, mindfulness-based stress reduction (MBSR), or integrative therapies could offer valuable insights into treatment

optimization. Furthermore, the utility of ACT in group therapy settings, digital formats, or in combination with pharmacological treatments should be explored, particularly in resource-constrained environments. In conclusion, while the study provides promising evidence for the application of ACT in treating GAD symptoms among university students, its methodological limitations necessitate cautious interpretation. The results affirm the potential of ACT to improve psychological flexibility and reduce anxiety symptoms, contributing meaningfully to therapeutic options for young adults. Future research is warranted to replicate these findings in more robust designs, thereby strengthening the evidence base for ACT's implementation in diverse educational and clinical settings.

CONCLUSION

This study concludes that Acceptance and Commitment Therapy (ACT) is an effective intervention for managing anxiety symptoms among university students. The consistent reduction in anxiety observed following the therapy highlights ACT's potential as a meaningful alternative to traditional treatments. By promoting psychological flexibility, mindfulness, and values-based actions, ACT empowers individuals to cope more constructively with distressing thoughts and emotions. These findings underscore the practical value of integrating ACT into therapeutic practices, especially for young adults navigating academic and personal challenges.

AUTHOR CONTRIBUTION

Author	Contribution
Faheela Riaz*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published

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