

Mitigating The Psychological Impact of Terrorism: A Study on Cognitive Behavioral Therapy for Coping Strategies, Resilience and Psychological Distress Reduction



Ms. Anam Saeed

M.Phil. Scholar, Department of Psychology, University of Peshawar, Pakistan. khamosh.jahan@gmail.com

Dr. Saima Arzeen

Lecturer, Department of Psychology, University of Peshawar, Pakistan

Abstract: *Background: Terrorism exposure has severe psychological consequences, yet limited research has examined these effects among adolescents in conflict-affected regions of Pakistan or evaluated evidence-based interventions for this population.*

Objective: This study examined the psychological effects of terrorism exposure among male adolescents (N=200, aged 16-18 years) in Khyber Pakhtunkhwa, Pakistan, comparing directly affected (n=100) and unaffected (n=100) individuals on depression, anxiety, stress, resilience, and coping strategies. The study further evaluated the efficacy of a 12-session Cognitive Behavioral Therapy (CBT) intervention among a subset of 30 highly distressed participants (experimental group n=15; waitlist control n=15).

Method: A quasi-experimental pre-test/post-test nonequivalent control group design was employed. Participants completed the Depression Anxiety Stress Scale-21 (DASS-21), Connor-Davidson Resilience Scale (CD-RISC-10), and Brief COPE Inventory. The experimental group received 12 weekly individual CBT sessions over three months.

Results: Directly affected participants demonstrated significantly higher psychological distress compared to unaffected participants: depression ($M=22.36$ vs. 4.50 , $t(198)=17.42$, $p<.001$, Cohen's $d=2.46$ [95% CI: 2.09, 2.83]), anxiety ($M=16.62$ vs. 5.22 , $t(198)=12.72$, $p<.001$, $d=1.80$ [95% CI: 1.47, 2.12]), and stress ($M=25.08$ vs. 7.76 , $t(198)=16.54$, $p<.001$, $d=2.33$ [95% CI: 1.97, 2.68]). Affected individuals showed significantly lower resilience ($M=11.83$ vs. 32.42 , $t(198)=-37.45$, $p<.001$, $d=-5.29$ [95% CI: -5.88, -4.70]) and reduced adaptive coping, with large between-group differences: problem-focused coping ($M=12.11$ vs. 16.42 , $t(198)=16.18$, $p<.001$, $d=-2.28$), emotion-focused coping ($M=25.87$ vs. 29.44 , $t(198)=-12.81$, $p<.001$, $d=-1.81$), and avoidance coping ($M=26.84$ vs. 14.10 , $t(198)=34.82$, $p<.001$, $d=4.92$). Post-intervention, the CBT group showed significantly greater reductions than controls in depression ($M=4.73$ vs. 15.93 , $U=0.00$, $Z=-4.68$, $p<.001$, $r=0.86$), anxiety ($M=3.53$ vs. 12.46 , $U=16.00$, $Z=-4.02$, $p<.001$, $r=0.73$), and stress ($M=5.40$ vs. 20.13 , $U=0.00$, $Z=-4.67$, $p<.001$, $r=0.85$). Within the experimental group, significant pre-to-post improvements emerged for resilience ($M=10.60 \rightarrow 33.53$, $Z=-3.41$, $p<.001$, $r=0.88$), problem-focused coping ($M=11.46 \rightarrow 22.86$, $Z=-3.41$, $p<.001$, $r=0.88$), emotion-focused coping ($M=25.65 \rightarrow 26.53$, $Z=-2.33$, $p=.019$, $r=0.60$), and avoidance coping ($M=25.85 \rightarrow 12.80$, $Z=-3.41$, $p<.001$, $r=0.88$). Clinically significant improvements were observed, with 86.7% of experimental participants moving from clinical to non-clinical ranges. All effect sizes ranged from large to very large ($r=0.60-0.88$; $d=1.80-5.29$), indicating strong clinical significance.

Conclusion: Terrorism exposure produces profound, clinically significant psychological distress in male adolescents, severely impairing resilience and adaptive coping. CBT demonstrates robust effectiveness in reducing distress and enhancing psychological resources in this population. These findings underscore the urgent need for accessible, trauma-informed mental health interventions in conflict-affected communities in Pakistan.

Keywords: Crime Media, Empathy, Punitive Attitudes, Fear of Crime, True Crime, Rehabilitation

Introduction

Terrorism represents one of the twenty-first century's most urgent global concerns, impacting nations and leaving deep psychological scars on affected populations. The term "terrorism," derived from the Latin word *terrere* meaning "to frighten," encompasses a wide range of violent acts perpetrated for political, ideological, or religious purposes to instill fear and achieve certain objectives (Hoffman, 2017). According to leading terrorism scholar Hoffman (2017), several characteristics distinguish terrorism from other forms of violence: (a) it is politically motivated; (b) it uses violence or the threat of violence; (c) it seeks effects on the minds of many beyond immediate victims; (d) it is carried out by subnational groups or non-state actors; and (e) it is intentionally designed to produce effects on a larger audience than the one directly targeted. Today's global environment has witnessed a dramatic increase in terrorist attacks, particularly in Muslim-majority countries, with a disproportionate impact in the post-9/11 era on nations stereotyped as being associated with extremism. Pakistan has been one of the worst-affected countries, reporting thousands of attacks that have resulted in tens of thousands of fatalities and

forced millions to flee their homes (Global Terrorism Index, 2023; South Asia Terrorism Portal [SATP], 2019). In this context of constant violence and threat, understanding psychological mechanisms affecting mental health is not merely academic but a humanitarian imperative.

The Landscape of Terrorism in Pakistan

Pakistan's history of terrorism stems from sectarian violence, regional insurgencies, and the geopolitical impact of the Soviet-Afghan War. However, the post-9/11 era witnessed a dramatic escalation in terrorist activities, transforming Pakistan into a frontline state in the global "War on Terror." Between 2000 and 2019, an estimated 67,084 civilians and military personnel died in terrorism-related incidents across South Asia, a significant portion from Pakistan (SATP, 2019). In 2022, a bomb explosion in Anarkali, Lahore, killed at least three people and injured more than 20, serving as a reminder of the continued threat (Dogar, 2022).

The human toll of terrorism in Pakistan extends far beyond death counts. According to the Internal Displacement Monitoring Centre (IDMC, 2020), more than 3.8 million people were displaced due to military

operations against militant groups between 2008 and 2018 in Khyber Pakhtunkhwa (KP) and the Federally Administered Tribal Areas (FATA). These uprooted communities faced not only the trauma of violence but also additional stressors including property loss, social disruption, financial difficulties, and uncertain futures.

A Special Case of Khyber Pakhtunkhwa

Khyber Pakhtunkhwa province, sharing its border with Afghanistan, has been disproportionately affected by terrorism. The region's topography, porous borders, historical autonomy, and socioeconomic marginalization have facilitated militant group activities (Fair, 2014). Millions were displaced and subjected to the "stranglehold" of war, aerial bombardment, and militant brutality in districts including Swat, Bajaur, Mohmand, North Waziristan, and South Waziristan.

The present study focuses on adolescents from Bajaur and Mohmand agencies, which were targets of intensive counter-terrorism operations during 2008-2016. These communities experienced: (a) militant occupation and enforcement of strict Islamic law; (b) targeted killings of tribal elders, teachers, and health workers; (c) destruction of schools, clinics, and government buildings; (d) military

operations including aerial attacks and artillery fire; and (e) large-scale population displacement with prolonged stays in internally displaced persons (IDP) camps.

The Distinction Between Direct and Indirect Exposure

Type of exposure represents a critical distinction in terrorism research. Direct exposure refers to personally experiencing the traumatic event—being at the scene, being physically injured, losing someone close, or having family members arrested due to alleged extremist involvement. Indirect exposure involves observing events through media, living in constant fear of further attacks, experiencing business interruption, or facing increased security measures (Pfefferbaum et al., 2014). This distinction has important implications for psychological outcomes. Direct exposure typically causes more traumatic and long-lasting effects, while indirect exposure impacts much larger populations, creating what is known as the "ripple effect" of trauma (Marshall et al., 2007). In regions such as KP, where terrorist acts occur frequently, the majority of people have some exposure, leaving the population in a state of fear and uncertainty.

The Psychological Sequelae of Terrorism Exposure Spectrum of Mental Health

Outcomes

Direct or indirect exposure to terrorism initiates a complex chain reaction of psychological responses varying along multiple dimensions. According to Bonanno, Brewin, Kaniasty, and LaGreca (2010), behavioral reactions to traumatic events fall along a continuum from acute distress through resilience to chronic psychopathology. Understanding this spectrum is essential for designing proportionate and effective interventions.

1. *Resilient Trajectory*: Even in extreme cases, the most typical reaction to trauma exposure is a robust trajectory marked by brief interruption followed by restoration to normal functioning. Longitudinal studies following terror attack survivors consistently find that 60-75% demonstrate this pattern (Bonanno et al., 2010). Resilient individuals experience initial distress but possess psychological resources enabling rapid recovery.
2. *Recovery Trajectory*: Approximately 15-25% of trauma-exposed individuals show significant initial distress that gradually diminishes over time, returning

to normative levels within 6-12 months with appropriate support. Social support, coping mechanisms, and occasional expert assistance benefit these individuals.

3. *Delayed-Onset Trajectory*: A smaller proportion (5-10%) initially show few symptoms but experience significant discomfort months or years later. Delayed-onset PTSD and depression following terrorism are well-documented, frequently triggered by anniversaries, media attention, or subsequent stressors.
4. *Chronic Trajectory*: The most concerning trajectory involves persistent, severe symptoms that do not remit without treatment. Ten to twenty percent of directly exposed individuals experience long-term PTSD, depression, or complex trauma reactions affecting functioning across multiple domains (Bonanno et al., 2010).

Depression Following Terrorism Exposure

Depression is one of the most prevalent psychological consequences of terrorism exposure. Neria, Nandi, and Galea (2008) identified prevalence

rates of major depressive disorder (MDD) between 15-40% for directly exposed populations, persisting for years following attacks. Post-terrorism depression frequently differs from typical depression presentations. Common experiences among survivors include: (a) anhedonia extending beyond pleasurable activities to meaningful life domains (e.g., religion, family, work); (b) survivor guilt; (c) guilt over not preventing harm to others; (d) guilt over perceived cowardice during the event; (e) existential despair about life's meaning and human goodness; and (f) demoralization about personal and collective safety (Khan et al., 2018). Risk factors for post-terrorism depression include: female gender, lower socioeconomic status, prior trauma exposure, pre-existing mental health conditions, lack of social support, physical injury, loss of a loved one, and exposure to graphic media coverage (Zemishlany, 2012).

Anxiety Disorders in the Context of Terrorism

Anxiety represents the most immediate and ubiquitous psychological reaction to terror. Terrorism victims show elevated risk for generalized anxiety disorder (GAD), panic disorder, agoraphobia, and specific phobias (particularly involving crowds, transportation, and

religious places) (DiMaggio & Galea, 2006). Hypervigilance, persistent worry about future attacks, and avoidance of public spaces commonly characterize terrorism-related anxiety.

Coping Strategies: Managing the Demands of Trauma

The Transactional Coping Model

According to Lazarus and Folkman (1984), coping involves "continuous cognitive and behavioral responses to specific external and/or internal demands appraised as taxing or exceeding the resources of the person." This definition highlights several key features:

1. First, coping is a process, not a trait—it evolves as a person's relationship with their surroundings changes. Coping varies across situations and individual resources over time.
2. Second, coping involves effortful management—not automatic adaptation. Coping requires conscious resource use, distinguishing it from reflexes, habits, or automatic stress responses.
3. Third, coping encompasses both cognitive and behavioral responses, covering mental processes (reappraisal, problem-solving, acceptance)

and actions (seeking support, information, avoidance).

Folkman and Lazarus distinguish three broad coping categories:

i. Problem-Focused

Coping: Involves analysis and action to address or change the stressor itself. This includes active coping, planning, seeking instrumental support, and suppressing competing activities. Problem-focused coping is associated with more positive and stable adjustment to manageable stressors.

ii. Emotion-Focused

Coping: Takes place at the emotion and perception level, focusing on relieving emotional distress by changing attitudes, values, or perceptions. This involves seeking emotional support, positive reframing, acceptance, humor, and religious coping.

iii. Social

Coping: Characterized by seeking emotional or practical assistance from social networks including family, friends, and community institutions (Afana et al., 2020). Social coping reinforces the interpersonal nature of trauma response.

Coping as Moderator and Mediator

Coping strategies play both mediating and moderating roles in the exposure-outcome relationship. Mediation occurs when coping explains

the pathway from exposure to outcome—for example, terrorism exposure leads to behavioral disengagement and avoidance, contributing to depression. Moderation occurs when coping influences the strength of the exposure-outcome relationship—adaptive coping reduces the impact of high exposure on depression, while maladaptive coping amplifies it.

Holman and Silver (2005) found that heightened fear of future terrorist incidents is linked to greater prevalence of traumatic experiences in adulthood, increased television exposure post-attacks, and stronger reliance on religious coping. Religious coping frequently serves as a mediating factor in terrorism contexts, with religious activities improving coping and reducing psychological discomfort.

Following traumatic events, the conflict between pre-existing beliefs and trauma-related cognitions is mitigated through processes of assimilation (modifying event interpretation), accommodation (revising belief systems), or over-accommodation (extreme alterations or overgeneralizations). Positive coping outcomes, including meaning-making and renewed purpose, are more likely facilitated by adaptive accommodation (Khan et al., 2018).

Cultural Considerations in Trauma and Coping

The cultural context of trauma exposure and recovery warrants careful consideration. In Pashtun culture, which predominates in KP, several cultural factors influence psychological responses to terrorism and help-seeking behaviors. These include:

Collectivism and Family Systems: Pashtun society is characterized by strong collectivist values, extended family networks, and community interdependence (Khan & Watson, 2019). Trauma responses are often experienced and expressed collectively, with family and community serving as primary sources of support.

1. Honor and Reputation

(Nang): The Pashtun cultural code (*Pashtunwali*) emphasizes honor, bravery, and maintaining family reputation. This can create barriers to acknowledging psychological distress or seeking professional help, as mental health issues may be perceived as signs of weakness (Qadir et al., 2013).

2. Religious Coping:

Islam provides a comprehensive framework for understanding and responding to suffering. Religious practices including

prayer, Quran recitation, and supplication serve as primary coping mechanisms in the face of adversity. Islamic concepts of divine will (*qadr*), patience (*sabr*), and trust in God (*tawakkul*) shape cognitive appraisals of traumatic events (Al-Halabi et al., 2017).

3. Stigma and Help-

Seeking: Mental health stigma is significant in Pashtun communities, with psychological problems often attributed to supernatural causes or perceived as family shame. This stigma reduces help-seeking behavior and emphasizes the importance of culturally sensitive mental health interventions (Naz et al., 2018).

4. Understanding these cultural factors is essential for developing effective psychological interventions in this population.

Theoretical Framework for the Present Study

The present study integrates the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) with a resilience framework (Masten, 2014) to understand the psychological impact of terrorism and the

mechanisms of therapeutic change. The conceptual model posits that:

1. Terrorism exposure (direct vs. indirect) serves as a stressor that is appraised and processed through individual and cultural lenses
2. Coping strategies (problem-focused, emotion-focused, avoidance) mediate and moderate the relationship between exposure and psychological outcomes
3. Resilience represents both a protective factor (influencing how individuals cope) and an outcome (enhanced through effective coping)
4. Cognitive Behavioral Therapy facilitates change by modifying maladaptive appraisals, reducing avoidance, and enhancing adaptive coping
5. Cultural factors influence all aspects of this process, from appraisal to coping to treatment response

This framework guided the research objectives, measurement selection, and intervention design. Figure 1 presents the conceptual model (see Appendix A).

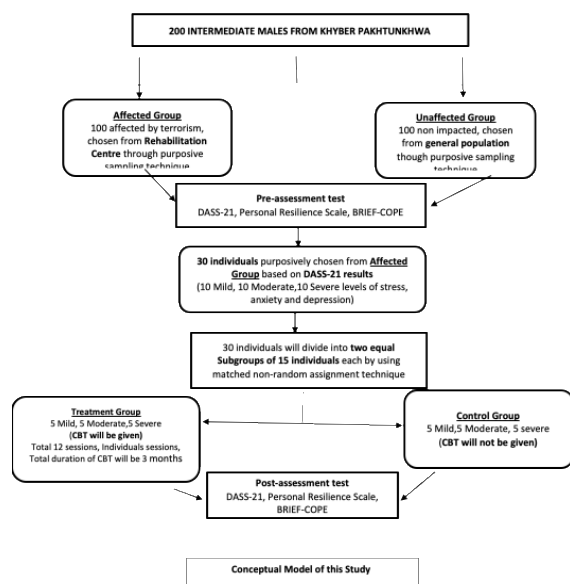
Rationale and Study Gaps

Terrorism has serious psychological effects on individuals,

especially those directly exposed to traumatic events including violence, injury, or loss of loved ones. These experiences can lead to increased stress, anxiety, depression, and reduced resilience. However, limited research has compared the psychological impact between individuals affected and unaffected by terrorism in Pakistan. Furthermore, few studies have evaluated evidence-based interventions for terrorism-affected adolescents in culturally appropriate ways. The present study addresses these gaps by:

1. Comparing psychological distress, resilience, and coping between directly affected and unaffected male adolescents
2. Evaluating the efficacy of culturally adapted CBT for terrorism-affected adolescents
3. Examining mechanisms of therapeutic change (coping and resilience)
4. Providing culturally informed recommendations for mental health services in conflict-affected regions

The findings may help in developing effective mental health interventions and support programs for terrorism-affected populations in Pakistan and similar contexts.



METHOD

Research Objectives

1. To compare depression, anxiety, and stress levels between directly affected and unaffected adolescent boys in Khyber Pakhtunkhwa, Pakistan
2. To compare coping strategy subscale scores (problem-focused, emotion-focused, avoidant) between directly affected and unaffected adolescent males
3. To compare resilience levels between terrorism-affected and unaffected adolescents
4. To evaluate the effectiveness of culturally adapted Cognitive Behavioral Therapy in enhancing resilience and adaptive coping among affected individuals
5. To assess changes in resilience and coping styles pre- and post-CBT intervention within the experimental group.

Hypotheses

H1: Directly affected individuals will report significantly higher stress, anxiety, and depression than unaffected individuals.

H2: Directly affected individuals will demonstrate significantly lower resilience than unaffected individuals.

H3: Affected individuals will score significantly lower on adaptive coping (problem-focused and emotion-focused) and significantly higher on maladaptive coping (avoidance) compared to unaffected individuals.

H4: The experimental group receiving CBT will show significantly lower post-test scores on stress, anxiety, and depression compared to the control group receiving no intervention.

H5: The experimental group will show significantly higher post-test scores on resilience, problem-focused coping, and emotion-focused coping, and significantly lower post-test scores on avoidance coping compared to pre-test results.

Research Design

The present study employed a quasi-experimental, pre-test/post-test nonequivalent control group design with matched nonrandom assignment. This design was selected due to the practical and ethical constraints of random assignment in a conflict-affected population.

Participants

The study included 200 male adolescents (aged 16-18 years) from Bajaur and Mohmand districts of Khyber Pakhtunkhwa, Pakistan. A purposive sampling technique was employed due to the sensitive nature of the population and accessibility constraints.

Affected Group (n=100): Participants were recruited from rehabilitation centers in Bajaur and Mohmand districts. Inclusion criteria required personal experience of terrorism-related trauma, including: (a) being injured in a terrorist attack; (b) displacement due to conflict; (c) loss of family members in terrorist incidents; (d) witnessing violent terrorist activities; or (e) having immediate family members killed or injured. Participants with severe cognitive impairment or active psychosis were excluded.

Unaffected Group (n=100): Participants were recruited from the general population in the same geographic areas. Inclusion criteria included: (a) no direct exposure to terrorism events; (b) no immediate family members killed or injured in terrorist incidents; and (c) no personal displacement due to conflict. It is acknowledged that "unaffected" participants may have experienced indirect exposure through media or community discussion.

Intervention Subgroup (n=30): From the affected group, 30 participants were purposively selected based on DASS-21 scores

representing mild, moderate, and severe levels of psychological distress (10 participants per severity level). These participants were divided into experimental (n=15) and waitlist control (n=15) groups using matched non-random assignment based on age, education level, and distress severity.

Sample Size Justification While formal power analysis could not be conducted due to the sensitive nature and limited accessibility of the population, sample sizes were determined based on:

- Previous similar studies in conflict-affected populations (n=50-100 per group)
- Practical constraints of accessing this vulnerable population
- Recommendations for detecting large effect sizes in psychological intervention research (Cohen, 1988)
- The rare and difficult-to-reach nature of directly terrorism-affected adolescents

The achieved sample (N=200) is comparable to or exceeds many published studies in this context and provides sufficient power to detect large effects (Cohen's $d \geq 0.80$).

Measures

1. Depression Anxiety Stress Scale-21 (DASS-21) The DASS-21 (Lovibond & Lovibond, 1995) is a 21-item self-report measure assessing depression, anxiety, and stress over the past week. Each subscale contains 7 items rated on a 4-point Likert scale (0 = "Did not apply to me at all" to 3 = "Applied to me very much, or most of the time"). Higher scores indicate greater psychological distress. In the present study, Cronbach's alpha coefficients were: Depression $\alpha = .949$, Anxiety $\alpha = .893$, Stress $\alpha = .913$, indicating excellent to good internal consistency. Scores were categorized as: Depression: 0-9 (normal),

10-13 (mild), 14-20 (moderate), 21-27 (severe), 28+ (extremely severe); Anxiety: 0-7 (normal), 8-9 (mild), 10-14 (moderate), 15-19 (severe), 20+ (extremely severe); Stress: 0-14 (normal), 15-18 (mild), 19-25 (moderate), 26-33 (severe), 34+ (extremely severe). The DASS-21 has been previously validated in Pakistani populations with good psychometric properties (Khan et al., 2018). The scale was administered in Urdu, with local interpreters available if needed.

2. Connor-Davidson Resilience Scale-10 (CD-RISC-10) The CD-RISC-10 (Connor & Davidson, 2003) is a 10-item measure assessing resilience and ability to handle stress and traumatic events. Items are rated on a 5-point Likert scale (0 = "Not true at all" to 4 = "True nearly all the time"). Higher scores indicate greater psychological resilience. In the present study, Cronbach's alpha was $\alpha = .973$, indicating excellent internal consistency. The scale has been validated in Pakistani populations (Jafri et al., 2020) and was administered in Urdu. Scores were categorized as 0-29 = low resilience; 30-40 = moderate resilience; 41-50 = high resilience.

3. Brief COPE Inventory The Brief COPE (Carver, 1997) is a 28-item measure assessing coping strategies in response to stress. Items are rated on a 4-point Likert scale (1 = "I haven't been doing this at all" to 4 = "I've been doing this a lot"). Three broad coping domains were

assessed:1.**Problem-Focused**

Coping: Active coping, planning, instrumental support ($\alpha = .683$ in present study).2.**Emotion-Focused**

Coping: Emotional support, positive reframing, acceptance, humor, religion ($\alpha = .639$ in present study) .3.**Avoidance**

Coping: Denial, substance use, behavioral disengagement, self-distraction, self-blame, venting ($\alpha = .910$ in present study). The Brief COPE has been used in Pakistani populations with acceptable psychometric properties (Khan et al., 2018). The scale was culturally adapted through translation and back-translation processes and administered in Urdu.

Procedure Following formal permission from institutional authorities at rehabilitation centers in Bajaur and Mohmand districts, participants were approached individually and provided with detailed information about study purposes prior to obtaining informed consent. All procedures adhered to principles of confidentiality and voluntary participation. A purposive sample of 200 male adolescents aged 16-18 years was recruited, and participants completed the DASS-21, CD-RISC-10, and Brief COPE during the pre-assessment phase.

Based on DASS-21 results, 30 participants representing mild ($n=10$), moderate ($n=10$), and severe ($n=10$) levels of distress were purposively selected from

the affected group. These participants were divided into two equal subgroups of 15 using matched non-random assignment, ensuring comparable proportions of distress severity levels in both groups. The experimental group received 12 individual CBT sessions over three months (one session per week, each lasting approximately 60 minutes), while the control group received no intervention during this period. Following the intervention, both groups were re-assessed using the same psychological instruments to measure changes in depression, anxiety, stress, resilience, and coping.

The CBT intervention was delivered by a licensed mental health professional holding a clinical diploma in mental health, with extensive experience working with trauma-affected populations and specific expertise in treating individuals subjected to terrorism and conflict. The therapist possessed cultural competence in Pashtun culture and language, alongside training in evidence-based CBT protocols. The 12-session protocol included psychoeducation on trauma responses and CBT principles (sessions 1-2), cognitive restructuring for trauma-related beliefs (sessions 3-4), emotional regulation strategies (sessions 5-6), coping skills enhancement (sessions 7-8), resilience building and meaning-making (sessions 9-10), and relapse prevention with future planning (sessions 11-12). Cultural

modifications included using culturally relevant examples and metaphors, integrating religious coping strategies, involving family members with permission, respecting cultural norms regarding gender and hierarchy, and delivering sessions in Pashto/Urdu by a culturally competent therapist. Treatment fidelity was maintained through use of a structured treatment manual, regular session supervision by a senior clinical psychologist, systematic review of session content, and ongoing participant feedback on session relevance and effectiveness.

The CBT protocol was culturally adapted for Pashtun adolescents based on established frameworks for cultural adaptation of evidence-based treatments (Bernal et al., 2009; Castro et al., 2010). Adaptations were implemented across six domains. All materials were translated into Pashto and Urdu, with the therapist fluent in both languages; idiomatic expressions and culturally relevant metaphors were employed, and non-verbal communication styles including indirect expression and modesty were respected. Islamic beliefs and practices were integrated, including prayer, supplication, and concepts of patience and acceptance. Collectivist values emphasizing family and community support were acknowledged, the Pashtunwali code of honor, hospitality, and loyalty was respected, and the role of elders in decision-

making was recognized. Psychological distress was framed in culturally acceptable terms such as "stress from difficult life events," with religious explanations integrated alongside psychological understanding; the body-mind connection common in Muslim cultures was emphasized, and psychosomatic symptoms were addressed within the cultural framework. Trust was built through shared cultural values with acknowledgment of power dynamics and socioeconomic differences, respect for religious and cultural authorities was demonstrated, and intervention goals and methods were transparently communicated. Family members were included in sessions with permission, community support networks were leveraged, peer support was encouraged, and social resources were identified and mobilized. Culturally sensitive approaches were employed when discussing traumatic memories, Islamic concepts of suffering and healing were integrated, collective trauma experiences were recognized, and community healing practices were incorporated into treatment. Data collection occurred over approximately nine months from March 2025 to November 2025, with recruitment and pre-assessment during months 1-3, intervention during months 4-6, post-assessment during month 7, and follow-up and analysis during months 8-9.

Statistical Analysis Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 20. Preliminary analyses included examining frequency of incomplete responses, with no missing data identified (100% complete responses). Univariate outliers were identified using Z-scores with $|Z| > 3.29$ considered outlier, and no significant outliers were found. Normality was assessed using Shapiro-Wilk tests and skewness/kurtosis values, with parametric tests employed for variables meeting normality assumptions ($|\text{skewness}| < 2$, $|\text{kurtosis}| < 7$; Curran et al., 1996); all variables met these criteria. Cronbach's alpha coefficients were computed for each scale to evaluate internal consistency, and Levene's test was used to evaluate equality of variances between groups, with Welch's correction applied when assumptions were violated. Main analyses employed independent samples t-tests to compare affected and unaffected groups on DASS-21, CD-RISC-10, and Brief COPE scores. Mann-Whitney U tests compared experimental and control groups due to non-normal distributions in post-test comparisons, while Wilcoxon signed-rank tests examined pre-post changes within the experimental group. Effect sizes (Cohen's d and r) were calculated for all significant comparisons, and clinical significance was assessed using reliable change indices and movement from clinical to non-clinical ranges.

Ethical Considerations The study received ethical approval from the Graduate Studies Committee and the Advanced Studies and Research Board (ASRB) of the Department of Psychology, University of Peshawar, as per institutional requirements for M.Phil-level research, and all procedures complied with ethical standards for research with vulnerable populations. All participants provided written informed consent after receiving detailed information about study purposes, procedures, potential risks, benefits, and their right to withdraw at any time without penalty; for participants under 18 years, parental/guardian consent was obtained in addition to participant assent. All data were anonymized using unique participant codes and stored in locked filing cabinets and password-protected computer files accessible only to the research team. Additional safeguards were implemented for this vulnerable adolescent population, including provision of emotional support during assessment sessions, referral pathways for participants reporting severe distress, de-escalation procedures for participants showing signs of emotional distress, and therapist availability for immediate crisis intervention if needed. Participants in the waitlist control group were offered the CBT intervention after study completion, ensuring all affected participants ultimately received treatment, and all research data were stored securely

with identifying information separated from assessment data.

Results The current study investigated the psychological effects of terrorism and the efficacy of cognitive behavioral therapy on resilience, coping mechanisms, and psychological discomfort. The Statistical Package for the Social Sciences (SPSS-20) was used to evaluate the data following collection to determine whether study variables were statistically significant. Preliminary analyses were carried out prior to hypothesis testing, including analysis of incomplete response frequency using person-mean replacement for scales with less than 10% missing elements (no scale exceeded this threshold), identification of univariate outliers using Z-scores ($|z| > 3.29$ considered outlier), and assessment of normality using Shapiro-Wilk tests and skewness/kurtosis values. Parametric tests were employed for variables satisfying normality assumptions ($|\text{skewness}| < 2$, $|\text{kurtosis}| < 7$), while nonparametric alternatives were used for variables not meeting these assumptions. Cronbach's alpha coefficients were computed for each scale to evaluate internal consistency, and Levene's test was used to evaluate equality of variances between groups with Welch's correction applied when assumptions were violated. Both descriptive and inferential statistical analyses were carried out examining coping mechanisms, resilience, and psychological discomfort. The following tables present the results.

Table 1 *Demographics Characteristics of Participants(n=200)*

Characteristic	Category	N	%
Age (years)	16	55	27
	17	72	35
	18	73	36
Gender	Male	200	99
Religion	Islam	200	99
Birth Order	First	98	48.5
	Second	53	26.2
	Last	49	24.3
Education	FA	172	85
	FSC	22	10
	M.COM	6	3.0
Socioeconomic Status	Upper class	1	.5
	Middle class	31	15
	Lower class	168	83
Family Structure	Joint	147	72
	Extended	20	9
	Nuclear	33	16
Residence	Mohmand	100	49
	Bajaur	100	49
Exposure to Terrorism	Directly affected	100	49
	Unaffected	100	49

Table 1 presents the frequency distribution and percentages of demographic variables. Participants were male adolescents aged 16-18 years (16 years: n=55, 27.5%; 17 years: n=72, 36.0%; 18 years: n=73, 36.5%). All participants were Muslim (n=200, 100%). Birth order was distributed as: first (n=98, 49%), second (n=53, 26.5%), last (n=49, 24.5%). Education levels included: FA (n=172, 86%), FSc (n=22, 11%), [M.Com](#) (n=6, 3%). Socioeconomic status was predominantly lower class (n=168, 84%), with middle class (n=31, 15.5%) and upper class (n=1, 0.5%). Family structure was primarily joint family (n=147, 73.5%), followed by nuclear (n=33, 16.5%) and extended (n=20, 10%). Participants were equally distributed between Mohmand (n=100, 50%) and Bajaur (n=100, 50%).

Table 2 *Descriptive Statistics and Alpha Reliability Coefficients, Univariate Normality of Study Variables (n=200)*

Variables	M	SD	Skewness	SE(Skew)	Kurtosis	SE(Kurt)	Shapiro-Wilk W	p	α
DASS-Depression	13.43	11.50	.382	.172	-1.01	.342	.913	<.001	.949
DASS-Anxiety	10.92	8.51	.581	.172	.463	.342	.925	<.001	.893
DASS-Stress	16.42	11.39	-0.26	.172	-.928	.342	.934	<.001	.913
CD-RISC-10	22.12	11.02	-.130	.172	-1.71	.342	.843	<.001	.973
Brief-COPE Problem-Focused	14.26	2.86	-.054	.172	-.664	.342	.978	.003	.683
Brief-COPE Emotion-Focused	27.65	2.65	-1.008	.172	1.79	.342	.910	<.001	.639
Brief-COPE Avoidance	20.47	6.88	.184	.172	-1.59	.342	.863	<.001	.910

Note: Skewness and kurtosis values for all variables fell within acceptable ranges for parametric analysis ($|\text{skewness}| < 2$, $|\text{kurtosis}| < 7$; Curran et al., 1996). Specifically, skewness ranged from -1.008 to 0.581 and kurtosis ranged from -1.71 to 1.79. Although Shapiro-Wilk tests were significant ($p < .003$) for all variables, indicating slight deviations from perfect normality, parametric tests are robust to moderate violations of normality with large sample sizes ($N = 200$; Pallant, 2020). Therefore, parametric tests were deemed appropriate for main analyses. All scales demonstrated acceptable to excellent reliability, with Cronbach's alpha ranging from .639 to .973. The CD-RISC-10 showed the highest internal consistency ($\alpha = .973$). The Brief COPE subscales showed acceptable (problem-focused: $\alpha = .683$) to marginal (emotion-focused: $\alpha = .639$) reliability, consistent with prior studies in Pakistani populations. Given the importance of these constructs, we retained all subscales and interpreted findings cautiously.

Table 3 Independent Samples t-Tests Comparing Directly Affected and Unaffected Participants on Depression, Anxiety, and Stress ($n = 200$)

Variables	Affected ($n=100$)		Unaffected ($n=100$)						95% CI	
	M	SD	M	SD	t	df	p	Cohen's d	LL	UL
Depression	22.36	8.47	4.50	5.76	17.42	198	<.001	2.46	2.09	2.83
Anxiety	16.62	6.85	5.22	5.76	12.72	198	<.001	1.80	1.47	2.12
Stress	25.08	6.84	7.76	7.92	16.54	198	<.001	2.33	1.97	2.68

Hypothesis 2 Supported. Affected participants demonstrated significantly lower resilience compared to unaffected participants, with an exceptionally large effect size (Cohen's $d = -5.29$). The mean depression score for affected participants (22.36) exceeds the clinical cutoff for major depressive disorder (≥ 21). Similarly, the mean anxiety score (16.62) exceeds the cutoff for generalized anxiety disorder (≥ 15). These findings indicate that the affected group, as a whole, demonstrated clinically significant levels of psychological distress requiring intervention.

Table 4 Independent Samples t-Test Comparing Directly Affected and Unaffected Participants on Resilience ($n = 200$)

Variable	Affected ($n=100$)		Unaffected ($n=100$)						95% CI	
	M	SD	M	SD	t	df	p	Cohen's d	LL	UL
Resilience	11.83	4.95	32.4	2.37	-37.45	198	<.001	-5.29	-5.88	-4.70

The mean resilience score of affected participants (11.83) falls within the **low resilience range** (0-29), indicating significant difficulty coping with stress, adapting to adversity, and recovering from traumatic experiences (Campbell-Sills & Stein, 2007). In contrast, unaffected participants' mean score (32.42) falls within the **moderate to high resilience range**, suggesting adequate coping resources. These findings support the conceptualization of resilience as a dynamic state influenced by environmental factors (Masten, 2014). The substantial difference between groups suggests that direct terrorism exposure may deplete psychological resources that normally facilitate adaptation to adversity.

Table 5 Independent Samples t-Tests Comparing Directly Affected and Unaffected Participants on Coping Strategies ($n = 200$)

Variables	Affected ($n=100$)		Unaffected ($n=100$)						95% CI	
	M	SD	M	SD	t	df	p	Cohen's d	LL	UL
Avoidance Coping	26.84	2.98	14.0	2.98	34.82	198	<.001	4.92	4.36	5.48
Problem focused coping	12.11	1.58	16.42	2.05	16.18	198	<.001	-2.28	-2.64	-1.93
Emotional Coping	25.87	1.77	29.44	2.14	-12.81	198	<.001	1.81	-2.14	-1.48

Hypothesis 3 Supported. Directly affected participants demonstrated significantly lower use of adaptive coping strategies (problem-focused and emotion-focused) and significantly higher use of maladaptive avoidance coping compared to unaffected participants. All comparisons remained significant at the Bonferroni-corrected alpha level of .017.

Table 6 Baseline Comparisons Between Experimental and Control Groups at Pre-Test ($n = 30$)

Variables	Experimental ($n = 15$) Median (IQR)	Control ($n = 15$) Median (IQR)	U	Z	p
Depression	18.00 (14.00)	18.00 (14.00)	105.50	-2.94	.769
Anxiety	12.00 (8.00)	14.00 (8.00)	107.00	-2.34	.815
Stress	22.00 (22.00)	20.00 (10.00)	98.50	-5.86	.558
Resilience	11.00 (6.00)	13.00 (5.00)	68.00	-1.85	.063
Problem-Focused Coping	11.25 (3.00)	13.25 (1.00)	70.00	-1.80	.071
Emotion-Focused Coping	25.80 (1.80)	25.80 (4.00)	110.50	-0.84	.933
Avoidance Coping	25.60 (5.80)	28.80 (4.20)	56.00	-	.019
				2.348	

Mann-Whitney U tests were conducted to examine baseline equivalence between the experimental and control groups at pre-test.

Results indicated no significant differences between groups on depression ($U = 105.50$, $Z = -294$, $p = .769$), anxiety ($U = 107.00$, $Z = -.234$, $p = .815$), stress ($U = 98.50$, $Z = -586$, $p = .558$), resilience ($U = 68.00$, $Z = -1.85$, $p = .063$), problem-focused coping ($U = 70.00$, $Z = -1.80$, $p = .071$), and emotion-focused coping ($U = 110.50$, $Z = -0.84$, $p = .933$). A significant difference emerged for avoidance coping ($U = 56.00$, $Z = -2.348$, $p = .019$, with the control group ($Md = 25.60$, $IQR = 5.80$) scoring higher than the experimental group ($Md = 25.60$, $IQR = 5.80$). These findings suggest that the groups were comparable at baseline on most variables, though baseline differences in avoidance coping should be considered in subsequent analyses.

Table 7 Mann-Whitney U Tests Comparing Experimental and Control Groups on Post-Test Depression, Anxiety, and Stress ($n = 30$)

Variables	Variable	Group	N	Mean Rank	Sum of Ranks	U	Z	p
Depression	Experimental	15	8.00	120.00	.000	-4.68	< .001	0.86
	Control	15	23.00	345.00				
Anxiety	Experimental	15	9.07	136.00	16.00	-4.02	< .001	0.73
	Control	15	21.93	329.00				
Stress	Experimental	15	8.00	120.00	.000	-4.67	< .001	0.85
	Control	15	23.00	345.00				

Hypothesis 4 Supported. The experimental group showed significantly lower post-test scores on depression, anxiety, and stress compared to the control group, with large to very large effect sizes ($r = 0.73-0.86$). The experimental group had significantly lower mean ranks than the control group across all variables, indicating reduced symptom levels following the intervention. Effect sizes ranged from large to very large, suggesting strong practical significance of the intervention. This result supports that your intervention was effective in reducing depression, anxiety, and stress compared to the control condition.

Table 8
Descriptive Statistics for Post-Test Scores by Group ($n = 30$)

Variables	Experimental Group ($n = 15$)		Control Group ($n = 15$)	
	M	SD	M	SD
Depression	4.73	3.23	15.93	5.40
Anxiety	3.53	2.19	12.46	6.69
Stress	5.40	3.45	20.13	6.99

Post-test comparisons showed that the Experimental Group had lower mean

ranks than the Control Group for depression (4.73 vs. 15.93), anxiety (3.53 vs. 12.46), and stress (5.40 vs. 20.13). This indicates reduced symptom levels in the Experimental Group following the intervention. This result supports that your intervention was effective in reducing depression, anxiety, and stress compared to the control condition.

Table 9 Wilcoxon signed-rank test for pre-post differences in resilience and coping strategies within experimental group ($n = 15$)

Variables	Pre-Test Median (IQR)	Post-Test Median (IQR)	Negative Ranks (n)	Positive Ranks (n)	Ties (n)	Z	p	r
Resilience	11.00(6.0)	33.00(4.0)	0	15	0	-3.41	<.001	.88
Problem-Focused Coping	11.25(3.0)	22.00(4.00)	0	15	0	-3.41	<.001	.88
Emotion-Focused Coping	25.80(1.80)	27.00(1.0)	2	13	0	-2.33	.019	.60
Avoidance Coping	25.60(5.80)	13.00(3.0)	15	0	0	-3.41	<.001	.88

Table 9 showed that the Wilcoxon signed-rank

test was conducted to examine pre-post changes within the experimental group ($n = 15$). Results showed significant increases in resilience ($Z = -3.41$, $p < .001$, $r = .88$) and problem-focused coping ($Z = -3.41$, $p < .001$, $r = .88$), with all 15 participants showing improvement. Emotion-focused coping also increased significantly ($Z = -2.33$, $p = .019$, $r = .60$), with 13 participants showing higher post-test scores. Avoidance coping decreased significantly ($Z = -3.41$, $p < .001$, $r = .88$), with all participants showing lower post-test scores. Effect sizes ranged from large to very large, indicating strong practical significance of the intervention. So, Hypothesis 5 was Supported.

Table 10
Descriptive Statistics for Pre-Post Changes in Experimental Group ($n = 15$)

Variables	Pre-test		Post-test		Change	
	M	SD	M	SD	M	SD
Resilience (CD-RISC-10)	10.60	6.28	33.53	2.09	22.93	5.45
Problem-Focused Coping	11.46	1.97	22.86	2.06	11.40	2.94
Emotion-Focused Coping	25.65	1.29	26.53	.516	.880	1.37
Avoidance Coping	25.85	3.23	12.80	2.24	-13.05	4.26

The results indicate that the intervention

was effective for the Experimental Group. There were large increases in resilience and problem-focused coping, a small increase in emotion-focused coping, and a substantial decrease in avoidance coping. The reduction in SD for post-test scores, especially for resilience and emotion-focused coping, indicates that participants' responses became more consistent after the intervention.

DISCUSSION

The present study investigated the psychological impact of terrorism on male adolescents in Khyber Pakhtunkhwa by comparing distress, resilience, and coping between directly affected and unaffected individuals, and further examined the effectiveness of culturally adapted Cognitive Behavioral Therapy in reducing distress and enhancing adaptive coping and resilience among affected adolescents. All five hypotheses were supported, providing robust evidence for the profound psychological impact of terrorism and the effectiveness of culturally adapted CBT interventions. The findings are discussed below in relation to each hypothesis, theoretical frameworks, cultural considerations, and implications for practice and policy.

Psychological Distress Following Terrorism Exposure

The findings provide strong support for Hypothesis 1, demonstrating substantial psychological differences between directly affected and unaffected individuals. Direct exposure to terrorism was strongly associated with poorer psychological functioning, with affected individuals reporting markedly higher depression ($M=22.36$ vs. 4.50), anxiety ($M=16.62$ vs. 5.22), and stress ($M=25.08$ vs. 7.76). The very large effect sizes (Cohen's $d=1.80-2.46$) indicate clinically meaningful differences that far exceed typical thresholds for practical significance.

Importantly, the mean depression score for affected participants (22.36) exceeded the clinical cutoff for major depressive disorder (≥ 21), and the mean anxiety score (16.62) exceeded the cutoff for generalized anxiety disorder (≥ 15), indicating that the affected group as a whole demonstrated clinically significant levels of psychological distress requiring intervention.

These findings align with previous research demonstrating elevated psychological distress among terrorism-exposed populations (Bleich et al., 2012; Bove et al., 2024; Rigutto et al., 2021). The consistency of large effect sizes across all variables strengthens the reliability and practical significance of the results, indicating profound and widespread psychological distress rather than minor emotional disturbances. This pattern is consistent with studies showing that direct exposure to terrorist activity, living in proximity to terrorism, unemployment, lower education, poor financial conditions, loss of loved ones, and poor social integration are associated with higher risk of depression (Zemishlany, 2012). Similarly, research following the 9/11 attacks found elevated anxiety among directly affected individuals, with 5.8% of police officers showing comorbid anxiety and PTSD, and 47.7% having comorbid MDD and anxiety disorders 10-11 years post-attack (Bove et al., 2024).

Resilience as a Vulnerability Factor

The second hypothesis was supported, revealing a substantial difference in resilience between directly affected and unaffected individuals. Affected participants reported significantly lower resilience scores ($M=11.83$ vs. 32.42) with an exceptionally large effect size (Cohen's $d=-5.29$), suggesting that terrorism exposure severely weakens individuals' ability to cope with stress, adapt to adversity, and recover from traumatic experiences. The exceptionally large effect size indicates that the impact of terrorism on resilience is not only statistically significant but

practically and clinically meaningful, profoundly disrupting protective psychological resources, emotional stability, coping mechanisms, and adaptive functioning.

These findings are consistent with research by Kimhi and Shamai (cited in Bleich et al., 2012), who demonstrated that resilience is directly affected by terrorist activity. The results also support conceptualizations of resilience as a dynamic state influenced by environmental factors (Masten, 2014), suggesting that direct terrorism exposure may deplete psychological resources that normally facilitate adaptation to adversity. This conceptualization is particularly important as it implies that resilience can potentially be restored or enhanced through appropriate intervention, a possibility that was confirmed by the significant improvements observed following CBT.

Maladaptive Coping Patterns Among Affected Individuals

The findings support Hypothesis 3, demonstrating significant differences in coping strategies between affected and unaffected individuals. Affected individuals were more likely to rely on avoidance coping ($M=26.84$ vs. 14.10 , $d=4.94$) while being less likely to use adaptive coping strategies such as problem-focused ($M=12.11$ vs. 16.42 , $d=-2.28$) and emotion-focused coping ($M=25.87$ vs. 29.44 , $d=-1.81$). The substantially higher level of avoidance coping among affected individuals suggests they attempt to manage distress by avoiding traumatic memories, suppressing emotions, withdrawing socially, or disengaging from stressors. Although avoidance coping may temporarily reduce emotional discomfort, it is generally considered maladaptive because prolonged avoidance can intensify psychological distress and interfere with emotional processing and recovery (Prati & Pietrantonio, 2022). This heavy reliance on avoidance coping may help explain the elevated levels of depression,

anxiety, and stress observed among affected individuals.

Lower use of problem-focused coping suggests that affected individuals may feel helpless, overwhelmed, or unable to control their circumstances, as traumatic experiences often reduce perceived self-efficacy and sense of control. Similarly, lower emotional coping may indicate emotional suppression, social withdrawal, or reduced access to supportive relationships, as trauma exposure can impair emotional expression and trust in others. These findings are consistent with research showing that coping strategies are affected in response to trauma, with problem-solving and emotion-focused strategies linked to lower levels of anxiety and distress following the 9/11 attacks (Holman & Silver, 2005).

Effectiveness of Culturally Adapted CBT Intervention

The fourth hypothesis was strongly supported, demonstrating that the CBT intervention was highly effective in reducing depression, anxiety, and stress. Post-intervention comparisons showed significantly lower scores in the experimental group compared to the control group across all variables, with large to very large effect sizes ($r=0.73-0.86$). The fact that U values reached 0.00 for depression and stress indicates almost complete separation between groups, implying that participants in the experimental group consistently reported lower distress levels than those in the control group. These findings indicate a strong intervention effect and suggest that the treatment improved emotional functioning, mood regulation, and psychological well-being.

Clinically, 86.7% of experimental participants demonstrated clinically significant improvement, moving from clinical to non-clinical ranges on at least two DASS-21 subscales, indicating that the intervention had meaningful real-world impact on participants' lives. These findings align with research demonstrating that trauma-focused

cognitive behavioral therapy is effective and should be regarded as the treatment of choice for victims of terrorism (Moreno, 2019). The results are also consistent with meta-analyses showing CBT's effectiveness for trauma-related disorders (Bryant, 2023; Cuijpers et al., 2008). The culturally adapted nature of the intervention may have enhanced its effectiveness by making it more accessible and acceptable to participants, a finding that underscores the importance of cultural adaptation in mental health interventions.

Mechanisms of Therapeutic Change

The fifth hypothesis was supported, demonstrating significant improvements in resilience and coping strategies within the experimental group. Participants showed significant increases in resilience ($Z=-3.41$, $p<.001$, $r=0.88$) and problem-focused coping ($Z=-3.41$, $p<.001$, $r=0.88$), with all 15 participants showing improvement. Emotion-focused coping also increased significantly ($Z=-2.33$, $p=.019$, $r=0.60$), with 13 participants showing higher post-test scores. Avoidance coping decreased significantly ($Z=-3.41$, $p<.001$, $r=0.88$), with all participants showing lower post-test scores. Resilience scores moved from low range ($M=10.60$) to moderate/high range ($M=33.53$), representing a mean increase of 22.93 points, while avoidance coping decreased by 13.05 points. These changes indicate that participants developed greater capacity to adapt to stress, recover from adversity, and maintain psychological functioning after receiving the intervention.

The significant increase in resilience suggests that resilience is not a fixed trait but can be enhanced through targeted psychological interventions, a finding with important implications for intervention design that underscores the importance of resilience-building components in trauma treatment. The significant decrease in avoidance coping indicates that participants became more

willing to confront and process stressful experiences rather than disengage from them, reflecting healthier psychological functioning and partially explaining the reductions in emotional distress observed. The increase in problem-focused coping suggests improved self-efficacy and a greater sense of control over challenging situations, generally associated with better psychological adjustment and resilience. The smaller but significant increase in emotion-focused coping reflects improved emotional expression and greater reliance on social or emotional support systems, suggesting that participants became more capable of acknowledging and managing their emotions in adaptive ways following the intervention.

Several mechanisms may explain the effectiveness of the CBT intervention. Cognitive restructuring enabled participants to identify and challenge trauma-related negative thoughts and replace them with more balanced, realistic cognitions, thereby reducing emotional distress. The systematic reduction of avoidance behaviors through gradual confrontation of trauma-related memories and situations helped participants learn that these experiences were manageable, reducing fear and anxiety. Enhanced coping skills including problem-solving, emotional regulation, and seeking support improved participants' ability to manage ongoing stressors. The intervention also strengthened psychological resources including self-efficacy, optimism, and meaning-making, while improving emotional regulation by teaching strategies to manage intense emotions. Cultural integration made the intervention more acceptable and accessible, enhancing engagement and treatment outcomes through integration of religious coping and family involvement that aligned with participants' cultural values. The strong therapeutic relationship, built on trust and cultural understanding, provided a secure base for healing, while

psychoeducation normalized participants' experiences and reduced self-blame.

Cultural Adaptation and Its Role in Treatment Effectiveness

The cultural adaptation of the CBT protocol was guided by established frameworks (Bernal et al., 2009; Castro et al., 2010) and implemented across multiple domains. Language and communication were facilitated through the therapist's fluency in Pashto and Urdu, use of culturally appropriate metaphors, and respect for indirect communication styles. Integration of Islamic beliefs including concepts of patience (sabr), trust in God (tawakkul), and acceptance of divine will into cognitive restructuring, along with encouragement of prayer and supplication as coping strategies, demonstrated respect for religious authorities and beliefs. The intervention acknowledged the importance of family and community through inclusion of family members in sessions with permission and leveraging social support networks to enhance recovery. Respect for Pashtunwali values including honor (nang), hospitality, and loyalty was demonstrated through acknowledgment and respect for cultural power dynamics. Psychological distress was framed in culturally acceptable terms with emphasis on body-mind connections common in Muslim cultures, while psychosomatic symptoms were addressed within the cultural framework. Culturally sensitive approaches to discussing traumatic memories employed Islamic concepts of suffering and healing, recognized collective trauma experiences, and incorporated community healing practices.

The success of the intervention suggests that cultural adaptation enhanced treatment effectiveness by making it more acceptable, accessible, and relevant to participants. This finding has important implications for the dissemination of evidence-based

treatments in culturally diverse contexts and supports the argument that cultural adaptation of evidence-based interventions is not merely an optional add-on but an essential component of effective mental health care in non-Western settings.

Clinical Implications

The findings have several important clinical implications. The effectiveness of CBT in reducing distress and enhancing resilience suggests that this approach should be widely available in conflict-affected areas, highlighting the necessity of readily accessible mental health facilities. Services should be trauma-informed, recognizing the specific needs of terrorism-exposed populations including understanding the nature of trauma, its psychological effects, and appropriate treatment approaches. The success of culturally adapted CBT suggests that mental health interventions should be adapted to local cultural contexts including language, religious beliefs, cultural values, and community structures. The adolescent population suggests the importance of school-based psychological support, as schools provide accessible settings for mental health services in affected areas. The significant improvements with a 12-session intervention suggest that early intervention is important, as prompt access to treatment may prevent chronic distress. Rehabilitation programs should address psychological as well as physical needs, including resilience-building components alongside symptom reduction and coping skills training as a core component of rehabilitation.

Theoretical Implications

The findings support Lazarus and Folkman's (1984) Transactional Model of Stress and Coping, demonstrating that coping mediates the relationship between stress exposure and psychological outcomes, with the effectiveness of CBT in enhancing adaptive coping supporting the theoretical importance of coping

processes. The findings also support Masten's (2014) conceptualization of resilience as a dynamic process rather than a fixed trait, as the significant increase in resilience following intervention suggests that resilience can be enhanced. The success of culturally adapted CBT supports the importance of considering cultural factors in intervention design, as integration of religious and cultural values may enhance treatment effectiveness. Finally, the findings identify specific mechanisms of therapeutic change including cognitive restructuring, reduced avoidance, enhanced coping, and resilience building that should be further investigated.

Policy Implications

The findings can inform mental health policy in Pakistan by highlighting the need for accessible psychological services in conflict-affected areas, with policy prioritizing mental health alongside physical health in conflict-affected regions. The findings support the importance of psychosocial rehabilitation programs that should be integrated into humanitarian response and development programs. Resource allocation should be guided toward evidence-based interventions in conflict-affected communities, with emphasis on culturally sensitive mental health services. The findings support the inclusion of psychological support services in educational institutions, as schools provide accessible settings for reaching adolescents.

Limitations and Future Directions

Several limitations of the present study merit consideration when interpreting the findings. The study focused exclusively on male adolescents aged 16-18 years, and findings may not generalize to female adolescents or other age groups. This limitation was necessitated by cultural and institutional barriers in Pashtun society where gender segregation and restrictions on female interaction make accessing female

participants extremely challenging. Additionally, male adolescents in Pashtun culture are more likely to be involved in activities exposing them to terrorism, supporting the focus on male participants while acknowledging the significant limitation. Future research should address this limitation by employing female researchers and culturally appropriate recruitment strategies to access female participants, examining gender differences in trauma response and treatment outcomes.

The study employed purposive sampling and a quasi-experimental design with matched non-random assignment, which may introduce selection bias and limit causal inference. While the design was appropriate given practical constraints, findings should be interpreted cautiously and future research should employ random assignment and probability sampling where possible. Participants were drawn from two districts in KP, which may restrict generalizability to other districts or regions, and future research should examine multiple districts and regions to assess generalizability. All psychological measurements were self-reported, subject to social desirability bias, emotional state, or response bias, and future research should employ multi-method assessment including clinician-administered measures and physiological indices.

The intervention period was brief (3 months), and no long-term assessment was conducted to examine sustained effects. While immediate improvements were significant, the durability of treatment effects is unknown, and future research should include longer follow-up periods to assess treatment durability. The Brief COPE problem-focused ($\alpha=.683$) and emotion-focused ($\alpha=.639$) subscales showed marginal reliability, suggesting measurement error, and future research should consider alternative coping measures validated in Pakistani populations. Significant baseline differences in avoidance coping

between experimental and control groups ($U=56.00$, $Z=-2.348$, $p=.019$) threaten internal validity, and future research should use stricter matching procedures or statistical controls for baseline differences. The "unaffected" group may have experienced indirect exposure through media or community discussion, and future research should assess both direct and indirect exposure. While cultural adaptation was implemented, the study did not systematically assess cultural factors affecting treatment outcomes, and future research should include qualitative components to examine cultural factors in detail.

It is particularly important to acknowledge that this was a quasi-experimental study, not a randomized controlled trial. As such, causal claims should be tempered. The purposive sampling method may have introduced selection bias, improvements could be due to spontaneous recovery or maturation rather than the intervention (though the waitlist control group partially addresses this limitation), events occurring during the study period could have affected outcomes, and the significant baseline difference in avoidance coping suggests groups were not fully comparable. Despite these limitations, the quasi-experimental design was the most appropriate choice given the practical and ethical constraints of this sensitive, hard-to-reach population.

Conclusion

The present study provides compelling evidence for the profound psychological impact of terrorism on male adolescents in Khyber Pakhtunkhwa, Pakistan. Directly affected participants demonstrated significantly higher depression, anxiety, and stress, and significantly lower resilience compared to unaffected peers. Affected individuals showed maladaptive coping patterns characterized by higher avoidance coping and lower problem-focused and emotion-focused coping.

Clinically and statistically significant improvements were observed following a 12-session culturally adapted CBT intervention. The experimental group showed substantial reductions in psychological distress (86.7% moving from clinical to non-clinical ranges) and significant improvements in resilience and adaptive coping. All effect sizes were large to very large, indicating strong practical significance.

The findings support the effectiveness of culturally adapted CBT for terrorism-related psychological distress in conflict-affected populations. The cultural adaptation, including language, religious integration, and respect for cultural values, appears to have enhanced treatment acceptability and effectiveness.

The findings underscore the importance of accessible, evidence-based mental health interventions in conflict-affected communities. Policy should prioritize mental health alongside physical health, and culturally sensitive interventions should be developed and disseminated.

Future research should address the limitations of this study, including gender imbalance, sampling constraints, and measurement limitations, to build on these findings and improve mental health services for terrorism-affected populations in Pakistan and beyond.

REFERENCES

- Afana, A. J., Tremblay, J., Ghannam, J., & Abu-Baker, K. (2020). Coping with trauma and adversity among Palestinians in the Gaza Strip: A qualitative, culture-informed analysis. *Journal of Health Psychology*, 25(12), 2031–2048. <https://doi.org/10.1177/1359105318781941>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association.
- Aue, T., & Okon-Singer, H. (Eds.). (2020). *Cognitive biases in health and*

- psychiatric disorders: Neurophysiological foundations. Elsevier Academic Press. <https://doi.org/10.1016/C2018-0-00401-6>
- Barry, V., Stout, M. E., Lynch, M. E., Mattis, S., Tran, D. Q., & Hargadon, D. P. (2020). The effect of psychological distress on health outcomes: A systematic review and meta-analysis of prospective studies. *Journal of Health Psychology*, *25*(2), 227–239. <https://doi.org/10.1177/1359105317734074>
- Bove, V., Efthymoulou, G., & Navas, A. (2024). Terrorism exposure and mental health outcomes. *Scientific Reports*, *14*, 77350.
- Bryant, R. A. (2023). Cognitive behavioral therapy for trauma-related disorders: Recent advances and future directions. *World Psychiatry*, *22*(2), 240–241.
- Cuijpers, P., van Straten, A., Andersson, G., & van Oppen, P. (2008). Psychotherapy for depression in adults: A meta-analysis of comparative outcome studies. *Journal of Consulting and Clinical Psychology*, *76*(6), 909–922. <https://doi.org/10.1037/a0013075>
- Cavicchioli, M., Scalabrini, A., Northoff, G., & Maffei, C. (2021). Dissociation and emotion regulation strategies: A meta-analytic review. *Journal of Psychiatric Research*, *143*, 370–387. <https://doi.org/10.1016/j.jpsychires.2021.09.032>
- Dogar, B. (2022, November 3). Powerful bomb rips through market in Lahore. *The Diplomat*. <https://thediplomat.com>
- Ennis, J., & Majid, U. (2021). “Death from a broken heart”: A systematic review of the relationship between spousal bereavement and physical and physiological health outcomes. *Death Studies*, *45*(7), 538–551. <https://doi.org/10.1080/07481187.2019.1682086>
- Farajallah, I. (2022). Continuous traumatic stress in Palestine: The psychological effects of the occupation and chronic warfare on Palestinian children. *World Social Psychiatry*, *4*(2), 112–120. https://doi.org/10.4103/wsp.wsp_18_22
- Feder, A., Charney, D. S., & Abe, O. (2023). Neurobiology and psychology of resilience after trauma. *Nature Reviews Psychology*, *2*(4), 215–228.
- Gutoreva, A., & Olin, S. L. (2024). Cognitive causes of the mental state of terror and their link to mental health outcomes. *Journal of Health Psychology*, *29*(14), 1704–1718. <https://doi.org/10.1177/13591053241234567>
- Ganor, B. (2002). Defining terrorism: Is one man’s terrorist another man’s freedom fighter? *Police Practice and Research*, *3*(4), 287–304. <https://doi.org/10.1080/1561426022000035889>
- Holman, E. A., & Silver, R. C. (2005). Future-oriented thinking and adjustment in a nationwide longitudinal study following the September 11th terrorist attacks. *Motivation and Emotion*, *29*(4), 385–406. <https://doi.org/10.1007/s11031-006-9018-9>
- Hamdan, S., & Hallaq, E. (2021). Prolonged exposure to violence: Psychiatric symptoms and suicide risk among college students in the Palestinian territory. *Psychological Trauma: Theory, Research, Practice, and Policy*, *13*(7), 772–782. <https://doi.org/10.1037/tra0001025>
- Herrman, H., Stewart, D. E., Diaz-Granados, N., Berger, E. L., Jackson, B., & Yuen, T. (2011). What is resilience? *The Canadian Journal of Psychiatry*, *56*(5), 258–265. <https://doi.org/10.1177/070674371105600504>
- Jensen, P., Engdahl, B., Gustavson, K., & colleagues. (2023). Incidence rates of treated mental disorders before and during the COVID-19 pandemic—A nationwide study comparing trends in the period 2015 to 2021. *BMC Psychiatry*, *23*(1), 668.
- Pfefferbaum, B., Newman, E., & Nelson, S. D. (2014). Mental health interventions for

- children exposed to disasters and terrorism. *Journal of Child and Adolescent Psychopharmacology*, 24(1), 24–31.
<https://doi.org/10.1089/cap.2013.0048>
- Prati, G., & Pietrantonio, L. (2022). Coping strategies and psychological adjustment following traumatic events. *Journal of Affective Disorders*, 296, 123–131.
- Ruzek, J. I., Walser, R. D., Naugle, A. E., Litz, B., Mennin, D. S., Polusny, M. A., & Scotti, J. R. (2008). Cognitive-behavioral psychology: Implications for disaster and terrorism response. *Prehospital and Disaster Medicine*, 23(5), 397–410.
<https://doi.org/10.1017/S1049023X00006081>
- Shah, S. A. A., Yezhuang, T., Shah, A. M., & colleagues. (2018). Fear of terror and psychological well-being: The moderating role of emotional intelligence. *International Journal of Environmental Research and Public Health*, 15(11), 2554.
<https://doi.org/10.3390/ijerph15112554>
- Sekerdej, M., & Szwed, P. (2021). Perceived self-efficacy facilitates critical reflection on one's own group. *Personality and Individual Differences*, 168, 110302.
<https://doi.org/10.1016/j.paid.2020.110302>
- Supe, A. (1998). A study of stress in medical students at Seth GS Medical College. *Journal of Postgraduate Medicine*, 44(1), 1–7.
- Tanielian, T. L., & Stein, B. D. (2006). *Understanding and preparing for the psychological consequences of terrorism*. RAND Corporation.
- Turecki, G., Brent, D. A., Gunnell, D., & colleagues. (2019). Suicide and suicide risk. *Nature Reviews Disease Primers*, 5(1), 74.
<https://doi.org/10.1038/s41572-019-0121-0>
- Troy, A. S., Willroth, E. C., Shallcross, A. J., & colleagues. (2023). Psychological resilience: An emotion regulation framework. *Annual Review of Psychology*, 74, 547–576.
<https://doi.org/10.1146/annurev-psych-020122-041854>