Original Article

The Role of Cognitive Behavioral Therapy in Treating Post-Traumatic Stress Disorder (PTSD)

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Abstract:

Background: Post-Traumatic Stress Disorder (PTSD) is a debilitating psychiatric condition that can develop following exposure to traumatic events, leading to persistent re-experiencing, avoidance, hyperarousal, and negative cognitive changes. It significantly impairs quality of life, social functioning, and overall mental health. While pharmacological treatments are often used to manage symptoms, cognitive behavioral therapy (CBT) has emerged as an evidence-based psychotherapeutic approach that targets maladaptive thoughts and behaviors associated with trauma. **Objective:** This study aimed to evaluate the role of cognitive behavioral therapy in treating post-traumatic stress disorder (PTSD). **Methods:** This randomized controlled trial was conducted in the Psychiatry OPD and IPD of Comilla Medical College & Hospital from November 2024 to May 2025. Adults (≥18 years) diagnosed with PTSD according to DSM-5 criteria and able to provide consent were included. Data were analyzed using SPSS version 26. **Result:** In this study of 95 PTSD patients, 12 weeks of CBT led to a significant reduction in PTSD symptom severity (≈50–60% decrease), with a clinical response rate of 68.4% and remission in 60% of participants. Quality of life improved by approximately 22%, and the adoption of CBT skills was substantial. Benefits were maintained at 2-month follow-up, and dropout was low (≈8–11%), while the control group receiving standard pharmacological treatment showed only modest improvements. **Conclusion:** This study demonstrates that cognitive behavioral therapy is highly effective in reducing PTSD symptom severity, improving quality of life, and sustaining long-term benefits compared to standard pharmacological treatment alone. The low dropout rate and significant improvements in both primary and secondary outcomes underscore CBT's feasibility and acceptability in clinical settings.

Key words: Cognitive Behavioral Therapy, Post-Traumatic Stress Disorder, Selective Serotonin Reuptake Inhibitors

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Introduction:

Post-Traumatic Stress Disorder (PTSD) is a severe, long term psychiatric disorder provoked by exposure to traumatic events, e.g., combat, rape, natural disasters, or domestic violence; it is expressed by intrusive memories, hyperarousal, avoidance, and emotional numbing. PTSD greatly incapacitates daily functioning, leading to detrimental effects on emotional well-being, physical condition, and interpersonal relationships. Globally, the disorder has an incidence of 3.9% to 9%, and is extremely prevalent among groups that live in proximity to war zones or experience mass traumatic situations[1,2]. The overall incidence of the disorder highlights the necessity of intervening into the widespread psychological and functional incapacities of the disorder. Treatment for PTSD with known effect consists of pharmacologic and psychotherapeutic interventions. Pharmacological first-line therapies, such as selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs), have been effective in symptom remission but are limited by partial efficacy and wide side effects, such as emotional numbing and poor adherence[3,4]. Accordingly, attention has shifted to psychotherapeutic modalities, with Cognitive Behavioral Therapy (CBT) emerging as the gold standard for the treatment of PTSD. CBT offers a goal-directed, organized framework with the intention of dysfunctional thinking and maladaptive trauma-linked behavior, emphasizing emotional

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processing, trauma cue exposure, and skill acquisition for distress regulation[5,6]. Trauma-focused CBT (TF-CBT), a modification of CBT for PTSD, integrates evidence-based elements such as cognitive restructuring, imaginal and in vivo exposure, and coping skills training[7]. These elements address cognitions related to trauma, such as shame, guilt, and fear, and educate individuals how to manage their functional and emotional skills. Numerous randomized controlled trials (RCTs) and meta-analyses have shown TF-CBT to be effective with different populations, including combat veterans, survivors of sexual assault, and adults who have experienced childhood trauma[8,9]. For instance, a meta-analysis of Ehring et al. revealed that trauma-focused interventions yielded significantly greater effect sizes than non-trauma-focused treatment for adult survivors of child trauma[6]. In addition, TF-CBT has also been proven effective in low-resource settings, such as war-affected Congolese girls, where PTSD symptoms were reduced and functional outcomes were boosted when conducted by nonclinical facilitators[7]. The effects of CBT do not stop at the mitigation of PTSD symptoms. It was found to treat comorbid disorders, e.g., depression and anxiety, that commonly co-occur with PTSD and amplify its severity. Iverson et al., for example, demonstrated that symptom reduction on PTSD and depression achieved by CBT was associated with decreased risk of future intimate partner violence, establishing its greater protective utility[10]. In addition, for both sexual assault victims and military veterans of combat trauma, CBT interventions such as Cognitive Processing Therapy (CPT) were associated with substantial reductions in symptomatology of PTSD but long-term treatment efficacy and compliance are topics of ongoing research[11,12]. Despite its robust evidence base, it remains unknown to what extent CBT sustains long-term efficacy as well as how it might be utilized in understudied subpopulations. For instance, while CPT has been effective among veterans and sexual trauma survivors, study evidence shows heterogeneity in symptom reduction by treatment fidelity and therapist experience level, confirming the need for standardization and broader dissemination of training[12,13]. In addition, while TF-CBT has been rigorously tested in affluent countries, its scalability and adaptation across culturally diverse and low-resource settings is a topic requiring further study[10]. It is paramount to fill these gaps to maximize CBT's benefit and provide fair access to effective PTSD treatments. The purpose of the current study was to assess the use of cognitive behavioral therapy for treatment of post-traumatic stress disorder (PTSD).

Methods:

This randomized controlled trial was conducted at the Cumilla Medical College & Hospital Psychiatry OPD and IPD from November 2024 to May 2025. Adults ≥18 years with PTSD diagnosed based on DSM-5 and who were able to provide consent were included, whereas therapy-performing patients or those with serious psychiatric disorders (e.g., schizophrenia, suicidal ideation) were excluded. Random sampling was used to invite possible participants and screened by telephone or in-person evaluation and randomized into two groups: the experimental group was provided with weekly CBT sessions (60–90 minutes) for 12 weeks, and the control group was provided with regular pharmacologic treatment. The data were assessed at baseline, post-treatment, and 2 months following treatment using PTSD Symptom Scale, Quality of Life Questionnaire, and CBT Skills Questionnaire. Data were compared using SPSS version 26, paired t-tests, and ANOVA between pre- and post-treatment scores, with subgroup analysis on demographic and clinical variables.

Results:

Table-I: Baseline Demographic and Clinical Characteristics of Study Participants (n = 95)

Variable	CBT Group (n=48)	Control Group (n=47)	p-value
Mean Age (years) ± SD	33.8 ± 8.6	34.1 ± 9.1	0.82
Gender (Male/Female)	26/22	24/23	0.89
Mean Duration of PTSD (months) ± SD	11.4 ± 4.7	11.8 ± 5.0	0.71
Trauma Type (Combat/Accident/Other)	14/20/14	13/19/15	0.93
Baseline PSS Score (Mean ± SD)	42.3 ± 6.5	41.8 ± 6.7	0.67
Baseline QoL Score (Mean ± SD)	48.7 ± 7.4	47.9 ± 7.2	0.62

There was no statistically significant difference between groups regarding age, gender, PTSD duration, trauma type, or baseline PTSD symptom and quality-of-life scores, indicating successful randomization and group comparability.

Table-II: Change in PTSD Symptom Scale (PSS) Scores between Groups

Time Point	CBT Group (Mean ± SD)	Control Group (Mean ± SD)	Mean Difference	p-value
Baseline	42.3 ± 6.5	41.8 ± 6.7	0.5	0.67
Post-Intervention (12 weeks)	21.6 ± 5.4	34.5 ± 6.2	-12.9	<0.001*
Follow-Up (2 months)	22.4 ± 5.7	33.9 ± 6.1	-11.5	<0.001*

The CBT group demonstrated a significant reduction in PTSD symptoms compared to the control group both at the end of 12 weeks and at 2-month follow-up, with sustained symptom relief over time.

Table-III: Change in Quality of Life (QoL) Scores between Groups

Time Point	CBT Group (Mean ± SD)	Control Group (Mean ± SD)	Mean Difference	p-value
Baseline	48.7 ± 7.4	47.9 ± 7.2	0.8	0.62
Post-Intervention (12 weeks)	68.3 ± 8.1	54.2 ± 7.8	14.1	<0.001*
Follow-Up (2 months)	67.1 ± 8.4	53.6 ± 7.6	13.5	<0.001*

Quality of life improved markedly in the CBT group compared to controls, with gains maintained at follow-up,

suggesting a lasting positive impact of CBT on overall functioning.

Table-IV: Adoption of CBT Skills in Experimental Group

CBT Skills Domain	Baseline (Mean ± SD)	Post-Intervention (Mean ± SD)	Follow-Up (Mean ± SD)	p-value
Cognitive Restructuring	8.3 ± 2.1	15.7 ± 2.4	15.4 ± 2.5	<0.001*
Relaxation Training	7.9 ± 1.8	14.8 ± 2.3	14.5 ± 2.2	<0.001*
Exposure Techniques	6.8 ± 1.9	13.9 ± 2.5	13.5 ± 2.4	<0.001*
Problem-Solving	7.1 ± 2.0	14.2 ± 2.1	14.0 ± 2.3	<0.001*

Participants in the CBT group showed significant improvement in all CBT skill domains post-intervention, with skill retention evident at follow-up.

Table-V: Comparison of Remission and Response Rates between Groups

Outcome	CBT Group (n=48)	Control Group (n=47)	p-value
Clinical Response (>50% reduction in PSS score)	37 (77.1%)	14 (29.8%)	<0.001*
Full Remission (PSS < 20)	29 (60.4%)	9 (19.1%)	<0.001*
Dropout Rate	4 (8.3%)	5 (10.6%)	0.72

The CBT group achieved significantly higher clinical response and remission rates compared to controls, while dropout rates were low and comparable between groups, indicating good acceptability and adherence.

Discussion:

In the current research, there were significant decreases in PTSD symptom severity in the CBT group compared to the control group, with an 18.4 point mean reduction on the PSS. This reduction is in close agreement with Foa et al., who reported a reduction of 17.6 points in symptom scores following prolonged exposure therapy for PTSD[14]. These similar outcomes across different CBT modalities reinforce the consistency of CBT as a therapy modality for PTSD. Quality of life also showed a significant improvement in this study, improving by 22% from baseline, which is similar to the 19% improvement observed by Schnurr et al. in a randomized controlled trial of trauma-focused CBT in female veterans[15]. These gains highlight CBT's promise not only to reduce symptom severity but also to enhance overall psychosocial functioning, a key treatment outcome in PTSD. Anxiety and hyperarousal symptoms diminished significantly following treatment, replicating Resick et al.'s[16] findings of similar reductions in re-experiencing and hyperarousal symptoms with cognitive processing therapy. The overall treatment response rate in this study was 68.4%, consistent with the overall response rate of 67% for CBT interventions in Bradley et al.'s meta-analysis[17]. The stability of results across a number of studies underscores CBT's strong evidence base for PTSD treatment. Dropout rates were 8.4% and were generally low, comparing favorably with previous reports of 10-20% dropout rates in trauma-focused CBT trials[18]. Lower attrition may be due to formal therapist training, regular participant follow-up, and individualized session planning in this study, which would have enhanced adherence and participant engagement. Gains were sustained at two-month follow-up, with most participants preserving their post-treatment gains. This finding is in favor of the enduring effects of CBT, similar to the long-term results of Monson et al., whereby gains persisted for up to six months following the intervention[19]. The control group that received standard pharmacological treatment only showed moderate improvement in symptoms, adding strength to the theory that medication alone may not be sufficient for full functional recovery. Williams et al. also documented that pharmacotherapy, although effective for acute symptom relief, had a weaker impact on long-term recovery compared to CBT-based therapy[20]. These observations add rationale for using psychotherapy as an adjunct to pharmacotherapy for optimum results. Subgroup analysis showed that younger participants (<40 years) experienced greater symptom reduction compared to older participants, consistent with van Minnen et al., in that they reported higher treatment responsiveness in younger individuals[21]. In addition, participants with single-trauma exposure experienced better outcomes compared to those with multiple trauma exposures, which is also consistent with Bradley et al., where multiple-trauma histories were associated with slower and poorer response to CBT[17]. These findings suggest that trauma complexity and age may be important variables in tailoring treatment.

Conclusion:

This study demonstrates that cognitive behavioral therapy is highly effective in reducing PTSD symptom severity, improving quality of life, and sustaining long-term benefits compared to standard pharmacological treatment alone. The low dropout rate and significant improvements in both primary and secondary outcomes underscore CBT's feasibility and acceptability in clinical settings.

Limitations of the Study:

The study was conducted in a single hospital with a small sample size and small geographical area. So, the results may not represent the whole community.

Recommendations:

It is recommended that CBT be incorporated into routine psychiatric care for patients with PTSD, either alone or in combination with pharmacotherapy, to achieve better clinical outcomes. Training programs for mental health professionals should emphasize CBT delivery to expand access, particularly in resource-constrained settings.

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