



# Augmentation of Conventional Medicine for Post-concussion Syndrome with Cognitive Behavioral Therapy Accelerates Symptomatic Relief in Affected Individuals

Post-concussion syndrome (PCS) is a clinical term used to point out the complicated combination of physical, emotional, cognitive and behavioral signs and symptoms associated with Mild Traumatic Brain Injury (mTBI). This study was conducted to assess the improvement or debilitating effect of behavioral therapy in addition to the conventional treatment and to document these results for increasing the efficiency of treatment provided to such patients. This

psychological and medicinal therapies for post-concussion symptoms (PCS). These are the relative paucity of symptom specificity, the apparent extent to which subjective cognitive difficulties predominate around the globe, and the role of psychological (especially cognitive-behavioral) processes in the development and stabilizing as well as resolution of presenting symptoms [3,4]. Former researches guiding cognitive behavioral therapy (CBT) for near or absolute similar symptoms in other clinical groups were considered in connection to PCS, as well as some of the practical considerations and approval in application and analysis of CBT with this study group. Existing and unique research issues were identified and studied, including the opportunities, Risks and efficacy of conjoining CBT and cognitive rehabilitation processes precisely [5].

### Cognitive behavioral therapy

It's usually short-term purpose-oriented psychotherapy treatment that takes a practical and consistently modifiable direct approach to mental health issues. Its goal is to change or influence the way of thinking or behavior that are nearly always, causative to people's difficulties and so change the way they feel about any particular thing or in general. It focuses on the thoughts, images and attitudes that are held by people over an extended period of time. For all the process, sessions were arranged and delivered by the specialist and included psych education regarding TBI; strategies to improve sleep, fatigue, headaches, and tension; and Resolution based cognitive strategies in the areas of prospective memory, attention percentage, learning and memory, and executive higher mental functioning [6]. We also identified and analyzed the potential confounders that seemed to interfere with diagnosis and prognosis of post-concussion syndrome following traumatic brain injury. These were listed as narcotics in the emergency department, psychotropic medication, psychiatric diagnosis, alcohol consumption near time of admission, and preadmission narcotic prescription [7].

### Objective

Assess the overall tolerability, viability and efficiency while calculating the treatment effect of Cognitive Behavioral therapy (CBT) delivered after traumatic brain injury to patients for symptomatic relief of chronic Post-Concussion Syndrome (PCS) along with medicinal solutions [8].

### Method

It was a six months cross-sectional study conducted at DEPARTMENT OF NEUROSURGERY, Allama Iqbal Medical College and Lahore. Keeping the population estimate of 500 patients presenting into the department during the 6-month period, confidence level of 95% and margin of error at 5%, as a sample, 200 patients were included in this research [9,10]. The technique used for enrollment was simple random sampling with each considered patient having equal chance of being included.

These patients were included into the study on the following criteria

- Patients between the ages of 16-60 years
- Either gender

- Clinically diagnosed case of post-concussion syndrome by a consultant neurosurgeon/neurologist

In the same way, decision to exclude patients from study was made on the basis of

- Patients that were not willing to partake in study
- Children under the age of 16 years were excluded from the study
- Patients manifesting serious life-threatening illness were not considered

In this study that lasted six months, various patients with diagnosed post-concussion syndrome were included. The conventional medicine was administered as per routine that included selective serotonin reuptake inhibitors (SSRIS), Dopamine agonists, Analgesics, anti-convulsant and steroids for symptomatic treatment was added to the treatment of these patients which initially amounted to sessions conducted by therapists. It included strategies to improve sleep, fatigue, headaches, and anxiety; and compensatory cognitive strategies in the areas of prospective memory, attention percentage, learning and memory, and executive higher mental functioning. Comparative Psychotherapy Process Scale (CPPS) was used in study to analyze the effectiveness of CBT and the results were distributed in mild, significant and very significant domains primarily based on improvement of symptoms and the severity that was documented on basis of DSM-5 [11,12].

### Result

A total of 200 patients were included in the research. They were randomly distributed into 2 groups of 100 patients each. One of these groups (control) was given medicinal treatment while the other group (interventional) was exposed to CBT as well as conventional medicine. The calculated mean age was 38.4 ± 8.6 years. The intensity of mental symptoms and their severity was divided into mild, moderate, severe and very severe or profound according to the Diagnostic and Statistical Manual of Mental Disorders 5<sup>th</sup> Edition (DSM-5) published by American Psychiatric Association for categorizing disorders. The effect of CBT and overall results are presented in the tables (Tables 1-3) and (Figures 1 and 2).

### Discussion

PCS can be a source of distress and disability following traumatic brain injury. These symptoms can be viewed as difficult to treat but vulnerable to psychological approaches. [13] Among the symptoms, cognitive defects were the most prominent with 40% of all patients exhibiting symptoms. This was followed closely by behavioral changes seen in 35% of patients. By executing a modifiable and tailored careful intervention technique, patients report feeling elated and in control and when asked, describe having higher sense of stability and mental efficiency. [14] CBT was first developed as an individual treatment for depression, and it has been shown to improve mood disorders, anxiety disorders, bulimia, and alcohol use disorders and in this case, it was applied to traumatic brain injury patients. [15] Improvements associated with CBT were detected on the mainstay outcome measures relating to quality of life spent by the patient. Improvements were more

	<i>Loss of consciousness; n (%)</i>	<i>Cognitive disabilities; n (%)</i>	<i>Behavioral changes; n (%)</i>
<i>Male</i>	42 (21)	62 (31)	56 (28)
<i>Female</i>			

Effect of CBT on patients during initial stay in hospital.

	<b>Control Group n</b>		<b>Total n (%)</b>	<b>Intervention Group n</b>		<b>Total n (%)</b>
	<b>Male</b>	<b>Female</b>		<b>Male</b>	<b>Female</b>	
<b>None</b>	26	6	32%	8	6	14%
<b>Mild</b>	42	3	45%	48	13	61%
	16	1	17%	10	9	19%
	6	0	6%	4	2	6%


obvious and clinically detectable for those completing CBT sessions over a brief period of time than taking a longer course, but were not related in any sense to medico legal status, injury severity or length of time that had passed since injury. [16] All the patients in both groups were ensured to have received usual therapeutic and symptomatic

medicines as routine with no breaks or planned or unplanned drops. During the initial stay in the hospital that amounted to hours and a few sessions, majority of the patients (61%) experienced mild improvement in the symptoms of PCS with some of them (25%) even progressing into the significant scale. After the completion of sessions that

culminated in the assessment of effects at the end of follow-up of two weeks, significant improvement was noted as compared to the patients not given psychological solutions as well as the conventional medicine. A total of 85% of the patients in interventional group had significant reduction in the symptoms of PCS and substantial improvement in the quality of life. The results are supported by similar outcomes in the study that was conducted on military veterans who experienced distress and anxiety [17]. Early diagnosis and treatment of PCS and anxiety may significantly increase the levels of functioning of patients with TBI. Bornstein et al. Supported the positive relationship between neuropsychological distress and emotional disorders with CBT in patients with closed head injury. Further, Williams, Rapport reported that prognosis was positively related to social integration and negatively correlated with emotional disorders. Additional studies are required to elucidate and integrate these associations.

Before reaching the conclusion, we have to take into light, the limitations of this study to effectively assess the degree of impact it is going to have in the domains of mental health and treatment. Although there are documented disparities in provisioning access, continuation and quality of treatment as bias, it is somewhat tempting to infer solely from the presence of or absence of these disparities. To avoid overlooking the problem and any futile attempts at finding solutions, we must consider explanations along with bias in investigation. Socioeconomic status affects the amount of stress a patient has and his passage to healthcare facilities and effectiveness of the treatment being received. It appears that even after economic and financial barriers have been removed, there is still a considerable amount of limitation in the form of lack of adequate familiarity with mental illness concepts, likelihood for interpreting mental health problems in superstitious or other culturally defined terms, social stigma, and tolerant habits that emphasize self-reliance and family reliance instead of seeking professional psychiatric solutions.

## Conclusion

The current study concludes that CBT can improve quality of life as overall for adults with persistent PCS and potentially accelerate symptomatic relief for affected individuals when added with conventional medicine resulting in desirable treatment objective.

**Disclaimer:** None to declare.

**Conflict of Interest:** None to declare.

**Funding Disclosure:** None to declare.

1. Hauptmann LK & Ashkanian M (2017 Nov) Post-concussion syndrome is a neuro-cognitive condition *Ugeskr Laeger* 179.

2. Al Sayegh A, Sandford D & Carson AJ (2010) Psychological approaches to treatment of post concussion syndrome: a systematic review. *J Neurol Neurosurg Ps* 81:1128-1134.
3. Potter S, Brown RG (2012) Cognitive behavioral therapy and persistent post-concussional symptoms: integrating conceptual issues and practical aspects in treatment *Neuropsychol Rehabil* 22:1-25.
4. Twamley EW, Jak AJ, Delis DC, Bondi MW & Lohr JB (2014) Cognitive Symptom Management and Rehabilitation Therapy (CogSMART) for veterans