

M-2

COGNITIVE REMEDIATION THERAPY (CRT) FOR RECOVERED MENTALLY ILL PATIENTS IN A REHABILITATION SETTING

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Abstract

Cognitive function refers to a combination of domains related to conscious/unconscious mental activities, including pre-attentive sensory gating, problem solving, attention, creativity, spontaneous thoughts, learning and memory, reasoning and judgment, planning, understanding, representation and, intuition and insight, introspection and self-consciousness. Cognitive remediation therapy is the only effective way to improve cognitive impairment in patients with mental disorders. Cognitive remediation therapy (CRT) attempts to improve cognitive deficits by teaching information processing strategies through guided mental exercises. The objective of this study is to evaluate the efficacy of CRT in alleviating cognitive deficits compared to treatment as usual and explore the mediating and moderating effects of cognitive improvement. The study was conducted for a period of 6 months, In LORD (Leading Organisation for Redressing Problems of Deprived) Chennai. Following the census method, a total of 18 Patients were selected and provided intervention for the study. The main outcomes were cognitive tests (memory, cognitive flexibility and planning) which were assessed at baseline, post-treatment (week 14) and follow up (week 28). Secondary outcomes (symptoms, functioning, self-esteem and activities) were also assessed at the same times. The tools used was Hindi mental status examination and Montreal cognitive assessment to assess the level of cognitive and for continued impact. Results show that when compared to standard care, Cognitive Remediation produced improvements in cognitive flexibility as measured by the MOCA. Therapy has moderated and created an impact on the domains such as orientation which is the primary function, attention, concentration, language, Memory and abstraction. To conclude Cognitive remediation therapy can contribute to the improvement of patients under medication and rehabilitation. This has a wider impact on their overall quality of life.

Keywords: Cognition, Retraining, Mentally Ill

Introduction:

Cognitive remediation (CR) is an evidenced-based therapy which improves cognitive functioning in people with Major mental disorders through behavioural-based interventions focused on various domains of cognitive processes. Cairns A, (2004) Cognitive impairment is a core symptom of Major Mental Illness. Research has shown the episode of mental disorders has an impact on in the areas of attention, verbal memory and executive functioning. . It is shown that 70–80% of people with diagnosed with schizophrenia show cognitive impairments compared to the general population, close to 100% have cognitive deficits relative to their own premorbid ability level (Gold 2008; Heinrichs and Zakzanis 1998; Wilk et al. 2004).

Cognitive impairment in Severe Mental Illness:

Cognitive impairment is manifested in several psychiatric disorders both is psychotic and neurotic disorders, such as depressive disorder schizophrenia, bipolar disorder, attention deficit/hyperactivity disorder (ADHD), post-traumatic stress disorder (PTSD), and obsessive-compulsive disorder (OCD) . Medalia A, Revheim N and Herlands T, (2009)Schizophrenia and Bipolar is a mental illness that typically characterized by mild , Moderate and severer cognitive decline. It is evidence that research has consider cognitive impairments to be core clinical features of Psychosis .This also has an impact in Psycho social function . Cognitive impairments in Major mental illness are widespread in most cognitive domains, and declines in, memory, concentration, executive function, language, and social cognitive function can be observed . While not only in psychosis but also in conditions like ADHD is specially characterized by attention impairment, specially in working memory, executive function, and processing speed ability are also manifested Regarding PTSD, it is known that there is a decline in attention, working memory, and processing speed ability Many studies have shown that patients with Obsessive compulsion had lower levels of executive function and memory ability these impairment or symptoms inversely has effect in cognition. As the , previous studies show that cognitive decline is common and multiple cognitive domains are impaired due to major mental disorder .

Purpose of CRT:

The primary purpose of cognitive remediation therapy is to reduce cognitive deficits in certain conditions. When considering the remediation tools that are currently in practice one could compare it to brain training. However in contrast to cognitive remediation. Cognitive deficits can manifest as attention, memory, and executive function (ability to organize one's actions and speech) disorders. Certain mental illnesses are sometimes characterized by specific cognitive deficits, such an example being social cognition disorders (which prevent the patients from understanding other people's intentions, desires and emotions). These type of cognitive disorders highly compromise the social and professional integration of people suffering from them. V. A. Morgan, A. Waterreus, and A. Jablensky(2011).

Best MW ,Bowie CR (2017) In the A review of cognitive remediation approaches for schizophrenia: from top-down to bottom-up, brain training to psychotherapy paper reviews the different approaches to cognitive remediation and the differential effects these approaches have on neurophysiological function, neurocognitive abilities, and real-world community functioning. Cognitive remediation approaches can be broadly classified along two dimensions: 1) treatment target, and 2) treatment modality. Some approaches target more basic perceptual skills, some target higher level executive processes, while some are non-targeted and seek to improve general cognitive ability.

Urvashi Rupin Shah(2017) in her Meta-analysis studies have identified strategy coaching by an expert therapist and use of Cognitive retraining in conjunction with psychosocial and vocational programs as important factors to ensure best results. Despite promising results in enhancing cognition across most studies, generalization and transfer of this improvement to real-life functioning still remains elusive. Her review possibly explains and influence outcomes such as motivation factors, therapist-patient relationship, personal goals of the patient and families, and the socioeconomic milieu of the patient need to be studied more extensively in the future studies to develop a comprehensive model of cognitive rehabilitation.

Methodology:

In this Intervention the researcher has used Experimental Research Design. The design will project the before and after test analysis with control group design. Experimental research design

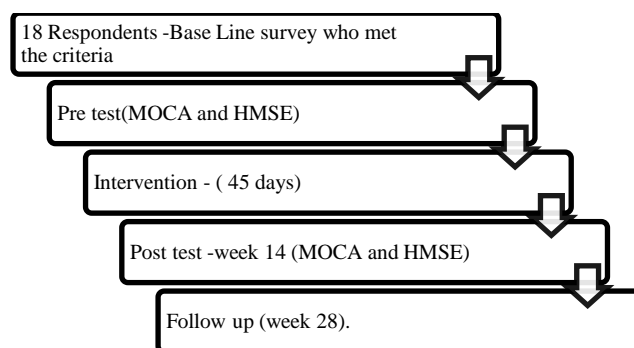
involves active manipulation of the independent variable or intervention. The objective of this study is to evaluate the efficacy of CRT in alleviating cognitive deficits compared to treatment .

A population sample must be chosen at random and respondents are randomly assigned to different groups. An intervention or treatment is implemented, and the effects on the participants, the dependent variable are recorded. Most importantly Experimental Research is completed in a controlled environment. Therefore the researcher finds this design suitable. The study was conducted for a period of 6 months , In LORD (Leading Organisation for Redressing Problems of Deprived) Chennai. The researcher used purposive sampling for this intervention. The researcher identifies the sample who had cognitive deficits and was co-operative with the help of the Psychiatrist, The researcher identifies the sample with a purpose that is to improve the identified sample’s cognition through retraining. The sample size consist of 18 respondents who were identified based on the purposive sampling method. The researcher will experiment the control group analyze the level of cognition before and after providing the cognitive retraining using Hindi mental status examination and Montreal cognitive assessment.

Procedure:

The researcher performed a base line survey and studied the different areas of cognitive impairment . Further, for a total of 45 days intervention on the following cognitive domains such as Visuo Spatial, naming , Memory, Attention, language, abstraction, Delayed recall, orientation was given. A post test was conducted after 14 weeks and a follow up is planned at the end of 28 weeks.

PROCEDURE FLOWCHART FIG.1



Module:

| Specific Domains | INTERVENTION TECHNIQUE |
|------------------|--|
| Visuo Spatial | Dot to Dots, Connections, Maze drawing , visual illusions, Stroop exercises , finger tap, hand flip, palm lifting. |
| Naming | List of Items :Animals, Fruits, Transports , Birds |
| Memory | unrelated items 1, unrelated items 2 |
| Attention | Cancellation, Grain Sorting, beading , Card sorting, number shift, |
| Language | Reading, Story formation |
| Abstraction | Simple Maths |
| Delayed recall | Recollecting and paraphrasing |
| Orientation | Repeating and orienting |

Participants:

The participants were from LORD (Leading Organisation for Redressing Problems of Deprived), An Non- Governmental organization working toward Mental health and Rehabilitation of mentally ill patients in Chennai.

Outcome:

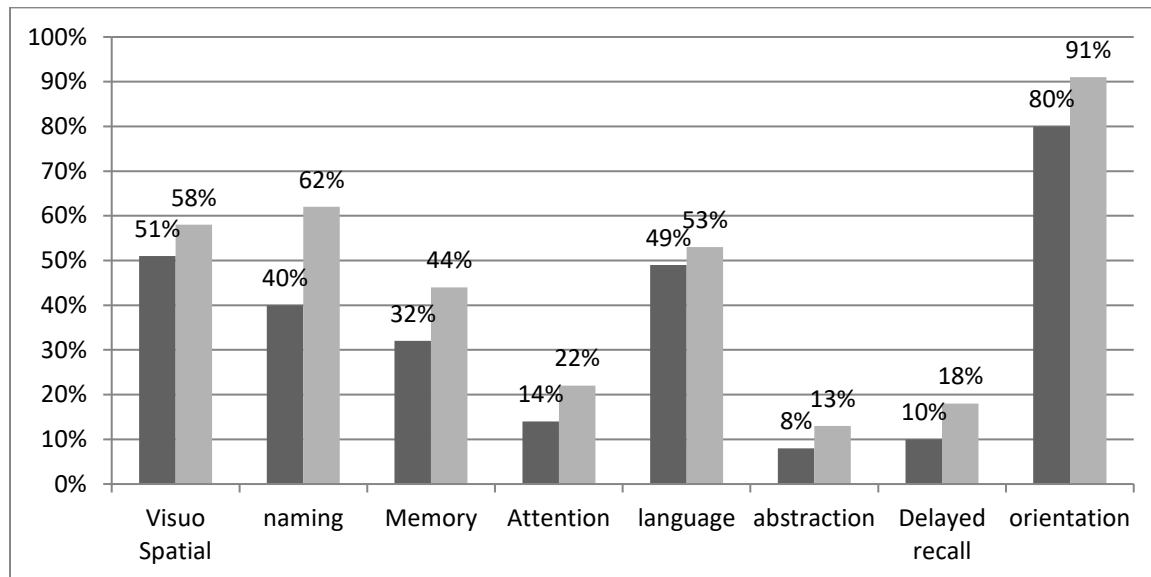
The main outcomes were cognitive tests (Visuo Spatial, naming , Memory, Attention, language, abstraction, Delayed recall, orientation) which were assessed at baseline, post-treatment (week 14) and follow up (week 28). Secondary outcomes (symptoms, functioning, social skills and activities) were also observed at the same times.

Findings and Results:

The Scale MOCA ranges from 0-30, Scores between 30-25 are considered to be Non caseness and below 25 as caseness. It indicates higher the score , higher the cognition. This explains, if a respondents scores below 25 in MOCA , The respondent has cognitive impairment and needs intervention for the same.

The below Chart presents the domain wise data of before and after intervention, this shows respondents had scored before 51% before intervention in Visuo spatial and has increased to 58% after intervention, 40% in Naming and had increased to 62% after intervention , 32% in Memory and 44% after intervention, 14% in Attention to 22% after intervention, 49% in

language to 53 % after intervention, 8% in abstraction to 13 % after intervention, 10% in Delayed recall to 18% after intervention and 80% in orientation to 91% after intervention.



Impact on specific cognitive domain- Before and After intervention(MOCA)

■ Before intervention ■ After intervention

The results are depicted that there is an effective improvement in the domains of cognition . The MOCA and HMSE scores showed that cognitive deficits was found with a percent of 80 in MOCA and 87 in HMSE before the intervention stage . In the post intervention the scores has varied from 20% the number of respondents with cognitive improvement has raised to 29% in MOCA and 13% the number of respondents with cognitive improvement has raised to 21% in HMSE.

| Scales | Before Intervention Percentage | After intervention Percentage |
|--------|--------------------------------|--------------------------------|
| MOCA | 80% caseness (scored >25) | 71% caseness (scored >25) |
| | 20% Non Caseness(scored <25) | 29% Non Caseness (scored <25) |
| HMSE | 87% caseness (scored >29) | 79% caseness (scored >29) |
| | 13% Non Caseness(scored <29) | 21% Non caseness (scored <29) |

Based on the data analysis, following finding have been derived. The mean age of the respondents was ± 45 and 100% were female. A vast 66% of the respondents had above

secondary education. A significant number of patients had a positive impact in the specific cognitive domain after the intervention. Montreal cognitive assessment shows 80% of the respondents with cognitive decline has decreased to 71% and in HMSE, 87% of the respondents with cognitive decline has decreased to 79% .

Discussion and Conclusion:

Cognitive remediation is a practice based on evidences which is typically used to treat individuals with psychosis. It consists of a series of cognitive drills, compensatory interventions tailored to improvise neuropsychological processes. It is a behavioral intervention that focuses on cognition. Cognitive remediation varies from other cognitive behavioral techniques in both intervention process and follow ups. V. A. Morgan, A. Waterreus, and A. Jablensky(2011), CR works on the neuropsychological functions that focuses on thought, however other cognitive behavior therapies focuses on the contour and content of cognition. CR targets on neuropsychological functioning with an idea of enhancing role functioning in daily life. It is understood that a person will be able to function better in their role when attention, memory and executive functioning improve. Therefore CR is a psychiatric rehabilitation intervention process. It is understood that a person will be able to function better in their role when attention, memory and executive functioning improve. Therefore CR is a psychiatric rehabilitation intervention process. Psychiatric rehabilitation intervenes in functional goals; a method has been used in CR. Cognitive rehabilitation also targets the significance of engaging, therapeutic involvement, environmental aids plus self-determination. These factors may be necessary for cognitive remediation outcomes. Nowadays approaches to CR varies in the extent to which they show narrow or broader spectrum on the goal of therapies. Considerable amounts of heterogeneity of responses to the therapy This is evidence that Compared to other widely implemented treatments for Mental illness cognitive remediation produces better effects on outcome measures. It is time for cognitive remediation to be adopted as a best practice in the treatment of Mental illness .Best MW, Bowie CR (2017)

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