Indian Journal of Clinical Psychology
Vol. 50, No. 1, 101-103
Case Study

Deficits in Neurocognitive Domains of Sustained Attention and Memory in Depressed Youth: A Case Report

Mrinalinee Rana[1]

ABSTRACT

Background: Neurocognitive impairment in depression is common in youth and is associated with longer recovery periods, increased risk of relapse and occupational and social communication difficulties. This case study highlights the need to consider neurocognitive deficits in this age group as primary symptoms of depression in clinical practice. *Method*: A 23 year- old graduate presented with symptoms of depression and anxiety. A comprehensive psychological and neuropsychological evaluation was conducted over two days to assess the severity of these problems along with neurocognitive abilities of attention, verbal learning and memory. Cognitive remediation and mindfulness meditation techniques were applied in her treatment to see their effects on these domains. *Results*: After 4 months of weekly sessions, her mood, motivation, attention and working memory significantly improved. *Discussion:* It is crucial for practitioners to assess cognitive deficits in this population and construct therapy interventions based on each patient's symptoms and needs. Early intervention in this regard can lead to better outcomes in treating young adults with depression and improve their quality of life.

Keywords: *Neurocognitive Impairment, Depressed Youth, Cognitive Remediation, Mindfulness*

INTRODUCTION

Depression is one of the most common mental health disorders worldwide. A recent report by WHO (2021) suggests that depression, anxiety and behavioural disorders are the leading causes of disability in 1 out of every 7 adolescents. A meta-analysis of 29 studies on 80879 youth population suggests that prevalence of anxiety and depression has doubled globally during covid times (Racine, McArthur, Cooke, et al, 2021). 1 in 4 and 1 in 5 have clinically elevated levels of depression and anxiety respectively.

Generally, people link depression with low mood, sleep disturbance, loss of interest in activities, bouts of crying and fatigue. But the magnitude of disability that it causes is much bigger. While neurocognitive (NC) impairment is well established as a common feature in adults with depression (Goodall, Fisher, Hetrick, Phillips, Parrish, Allott, 2018), research is comparatively new in these deficits in children, adolescents and young adults (Baune, Fuhr & Hering, 2014). Additionally, peak onset of depression occurs during adolescence, a developmental period that spans between 12 and 25 approximately (Arain et al, 2013). NC abilities, specifically executive functioning, emotional regulation and reasoning, are underdeveloped in this age due to certain brain regions not fully maturing until the mid 20s. A meta- analysis conducted on 23 studies by Goodall et al, 2018 has shown poorer performance in domains of attention, verbal memory, visual memory, verbal reasoning, and IQ compared to healthy controls impacting academic, occupational and social functioning capabilities. Furthermore, research also shows that there are significant differences in these abilities in children less than 15 years and those older (Huizinga & Molen, 2007). These age-related differences can greatly affect the ability to grasp concepts in therapeutic approaches like cognitive behavior therapy and cannot be ignored.

PURPOSE OF THE CASE STUDY

It intends to highlight the importance of identifying and treating NC dysfunction in depressed young adults. It also focuses on the effects of cognitive remediation and mindfulness on these symptoms, specifically attention and memory.

CASE PRESENTATION

Anjali (name changed), a 23-year-old graduate from North India pursuing a diploma in early childhood care and education from Delhi in 2021 presented with depression symptoms of low mood, decreased motivation for around 2 months. She also reported difficulty in concentration and would often forget simple things to finish in everyday life. Even though she loved her course she could not focus well in class and felt lethargic most of the time. She had a very small appetite and ate less with hardly any vegetables. Her only happy place was with her boyfriend of many years. She was not eating properly at all and would have difficulty falling asleep.

Family history of mental illness

She reported a family history of depression and severe anxiety on both sides. Her grandfather had early onset of dementia and her mother suffered from severe anxiety. Her father in his early 50s had diabetes, obesity and gait problems. Her presenting complaints required a

[1] Independent Neuropsychologist, mrinalinee.rana@gmail.com

thorough psychological and neuropsychological evaluation to ascertain her mental health status.

Mental State Examination (MSE) and Neuropsychological Assessment

Anjali appeared depressed and anxious with her attention wavering. Her speech was clear with a slight sad affect. Her thinking was negative with no thought and perceptual distortions. She also had an excellent insight.

A mini mental state examination was also conducted to screen for any cognitive impairments. Her score on this test was 29 on 30 where she could not recall one word out of the three.

Depression Anxiety Stress Scale (DASS-21) was used in the first session to screen for stress, anxiety and depression symptoms. Her scores on all three parameters were in the severe category so a further evaluation was done with the help of Beck Depression Inventory (BDI-II) and Beck Anxiety Inventory (BAI) to gauge the degree of severity of these symptoms. Since she felt a little tired and overwhelmed, the remaining assessments were carried out the next day. Trail Making test (TMT), Rey's Auditory Verbal Learning Test (RAVLT) and Digit Span Test evaluated her visual attention & processing speed, verbal memory and working memory respectively. RAVLT also helps in gauging a person's learning methods, their ability to retrieve information and the role of retroactive and proactive interference in memory processes. Though her processing speed seemed fine, there were deficits in sustained attention, verbal learning and memory. This was mostly visible in the 15 -word list task where she wanted to hurry up recalling words; therefore all five trials were conducted. There was minor confabulation (memory error) in two trials and her immediate and delayed recall of verbal stimuli was also poor.

Diagnosis and treatment

Based on the clinical presentation, testing and interview, Anjali was diagnosed with moderate levels of depression along with comorbid anxiety and neurocognitive deficits. She was advised medication and therapy with a focus on cognitive remediation. The latter is an essential aspect in intervention since traditional psychotherapy approaches require patients to understand basic negative patterns, challenge and modify them. She was apprehensive about psychiatric medication and had spoken to me about her fears on that. But she was comfortable in consulting her homeopath for the same. She also enjoyed daily prayer and occasional visits to the gurudwara that made her happy. In each session she was taught skills to manage studies and other necessary activities of daily living. An activity chart was prepared for behavioural activation and she was psycho-educated on effects of food, exercise and sleep on mental health.

Cognitive remediation was designed keeping in mind her specific needs and goals. Since depression hampers the ability to focus and pay attention to stimuli, it becomes difficult to recall information negatively affecting memory. An essential system to store environmental stimuli is through encoding. This helps in easily recalling items in question. Providing visual, semantic and auditory stimulation can help this process. Some of these exercises taught were as follows:

1. Paying attention to everyday objects for 30 seconds and recalling its features
2. Visualisations to enhance attention and focus
3. Reading a newspaper article, verbally summarising and writing its main points
4. Listening to random letters and clapping on a particular one. This helped in improving sustained attention as there were gaps of 5 seconds between the chosen letters
5. Problem solving exercises like jigsaw puzzles, beginning with 100 pieces.
6. Brainstorming solutions to make/believe or real problems

Mindfulness meditation techniques were brought in therapy once her span of attention increased. Simple yogic principles were explained and the session began with 'watching the breath' or in other words simply paying attention to our breathing. In the next session she was taught a 20 minute guided meditation on mindfulness body scan for self-compassion.

RESULT AND DISCUSSION

Overall, she responded well and was enthusiastic about the activities, as she had never done them earlier. First two weeks of therapy and cognitive training improved her motivation slightly and she felt less fatigued. After 4 months of regular intervention, she was reassessed on domains of attention and memory using the same scales with slight individual items changing to avoid bias such as recall from memory. Her working memory improved and that was evident from better management of study schedule and focus on important house activities. Her power of imagination and ability to visualise in mindfulness meditations improved and became enjoyable. However, to keep the pace going it was important to give breaks to her as she would skip some days completely and go back to a sedentary lifestyle. She was encouraged to increase the difficulty level on activities carried out in sessions, for example, once she was adept at the 100 piece jigsaw, she would move to 200 and so on. Currently, she is married and has started

working in a reputed company and feels motivated and fruitful. She continues to consult me once in a month or whenever she requires a session.

CONCLUSION

Understanding the nature and severity of neurocognitive deficits in depressed youth could aid in developing targeted interventions to improve cognitive functioning in this population. It could also inform practitioners of the need to assess these domains in clinical practice thoroughly to formulate treatment plans depending on each patient's areas of dysfunction.

ACKNOWLEDGEMENT

I thank Anjali (original identity of the patient not given due to ethical reasons) for giving her consent to write a paper on her case and our therapy sessions. I also thank her family for being cooperative and providing me with all family history of mental health.

REFERENCES

Arain, M., Haque, M., Johal, L., Mathur, P., Nel, W., Rais, A., Sandhu, R & Sharma, S. (2013). Maturation of the adolescent brain. *Neuropsychiatric Disease and Treatment*, 9: 449-461.

Baune, B. T., Fuhr, M., Air, T., & Hering, C. (2014). Neuropsychological functioning in adolescents and young adults with major depressive disorder–a review. *Psychiatry Research*, 218(3), 261–271.

Goodall, J., Fisher, C., Hetrick, S, et al. (2018). Neurocognitive Functioning in Depressed Young People: A Systematic Review and Meta-Analysis. *Neuropsychol Rev*, 28, 216-231.

Huizinga, M & Molen, M.W. (2007) Age-Group Differences in Set-Switching and Set-Maintenance on the Wisconsin Card Sorting Task, *Developmental Neuropsychology*, 31:2, 193-215

Racine, N., McArthur, B. A., Cooke, J. E., Eirich, R., Zhu, J., & Madigan, S. (2021). Global prevalence of depressive and anxiety symptoms in children and adolescents during COVID-19: a meta-analysis. *JAMA pediatrics*, *175*(11), 1142-1150.

World Health Organisation Website (2021). Adolescent Mental Health.

https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health