

Effectiveness of Mirror Tracing and Stroop in BPD Patients (Instrumentum Psychotherapy)

Dr. Linjo. C. J.^{1*}, Mrs. Nasheeda E.², Mr. Anwin Soye³

ABSTRACT

Instrumentum psychotherapy is a newer approach to psychological treatment where verbal therapy is assisted with psychological instruments to produce quicker and more effective changes in a replicable mode. Mirror tracing is an apparatus used for assessing bilateral transfer but its multiple exposures can produce cognitive flexibility. Stroop test measures a person's selective attention and frontal lobe ability but its multiple exposures can improve executive functions and cognitive flexibility, so these two instruments were used along with verbal psychotherapeutic methods in borderline personality disorder. Borderline personality disorder is increasing day by day and its growing number is challenging mental health practitioners. The study was conducted on a sample of 30 patients. BPI-T20 was used for screening and after 3 months of training reassessment was done. The study was conducted on a pretest post-test design. The result shows the changes produced in the patients were at a significant level of 0.01 ($p \leq 0.01$). The result shows using Mirror tracing and Stroop in BPD patients can have a significant impact on their behaviour.

Keywords: *Borderline Personality Disorder (BPD), Stroop, Mirror Tracing*

Instrumentum is a Latin word meaning 'an instrument, tool, or utensil'. Instrumentum Psychotherapy is a new psychotherapeutic approach where one or more psychological instruments are used along with other psychotherapeutic methods to bring about positive behavioral change.

The Instrumentum Psychotherapeutic approach combines established psychological concepts, such as neuroplasticity, learning, motivation, divergent thinking, attention narrowing, distraction techniques, etc. with verbal treatment methods with the help of psychological instruments designed to address behavioral disorders. Unlike traditional therapies, Instrumentum Psychotherapy leverages the potential of psychological instruments typically used for assessment purposes in psychology. By harnessing these instruments to facilitate therapeutic interventions, behavioral changes can be effectively induced, leading to greater treatment efficacy and long-lasting results

¹Clinical psychologist, Louise Mount Hospital, Chennalode, Kerala, India

²Assistant Professor, Al Jamia arts and science college, Perinthalmanna, Kerala, India

³Psychologist, Louise Mount Hospital, Kerala, India

*Corresponding Author

Received: August 22, 2024; Revision Received: October 30, 2024; Accepted: November 04, 2024

Effectiveness of Mirror Tracing and Stroop in BPD Patients (Instrumentum Psychotherapy)

The mirror tracing is a visuo-motor test that involves learning a new motor skill. The task requires you to move a pencil to trace the diagram of star while looking at your hands, only as a reflection in a mirror. The mirror tracing ability is a visual and motor test that involves learning a new motor skill. The mirror tracing persistence task has been used as a measure of distress tolerance, or the ability to endure a negative interval state. The act of drawing is a learned skill that requires visual and proprioceptive feedback to control muscle movement. Proprioception is the special sense that tells your brain the position of various parts of your body.

The two main areas in the brain are involved in the processing of the Stroop task. They are the anterior cingulate cortex and the dorsolateral prefrontal cortex. While both are activated when resolving conflicts and matching errors, the dorsolateral prefrontal cortex assists in memory and other executive functions. In contrast, the anterior cingulate cortex involves in response and allocation of attention resources. The posterior dorsolateral prefrontal cortex creates the appropriate rules for the brain to accomplish the current goal. For the Stroop effect, involves activating the brain areas involved in word encoding. The mid-dorsolateral prefrontal cortex selects the representation that will fulfill the goal. Left dorsolateral prefrontal cortex activation during a Stroop task is related to an individual's expectation regarding the conflict nature of the upcoming trial, and not so much on the conflict itself.

Mirror tracing

This experiment was developed by Buckwald in Berlin (1878). Mirror drawing experiment was outlined by Judd. An individual is instructed to trace or draw a picture while observing their work in the mirror. As it gives you an inverse view of what you are drawing, new learning needs to occur for effective tracing/drawing to occur. Mirror drawing using paper, mirror, pencil, and star image is trained for clients. 5-star patterns are asked to be drawn daily by looking into the mirror.

Stroop

In psychology, Stroop effect is a demonstration of interference in the reaction time of a task. When the name of a colour (e.g. blue, red, or green) is printed in a colour that is denoted by the name (i.e. the word "red" printed in blue ink instead of red ink), naming the colour of the word takes longer and is more prone to errors than when the colour of the ink matches the name of the colour.

This effect is named after John Ridley Stroop, who first published the effect in English in 1935. The effect has been used to create a psychological test (Stroop test) that is widely used in clinical practice investigation. Based on the condition of the patients, the frequency, duration, and number of exposures to Stroop training is planned. A Stroop card is given to the client and asked to read at maximum speed as they can. Stroop therapy is done in two phases, in the first phase the person is asked to read the exact word that is printed. after completing the first phase, the person is asked to read the colour in which the word is printed. This can be conducted at different ratios like 3:1, 5:1, 5:3, etc.

Relationship Between Borderline Personality (BPD) and Cognitive Flexibility

Borderline personality shows a pervasive pattern of instability of self-image, relationship, affect, etc. Cognitive flexibility is a concept that has been described as a salient feature of human cognition. In simple words cognitive flexibility is the ability to adapt to changing environmental stimuli. Studies show that borderline personality patients have reduced cognitive flexibility. Studies have also shown that cognitive flexibility was a significant

Effectiveness of Mirror Tracing and Stroop in BPD Patients (Instrumentum Psychotherapy)

mediator in the relationship between personality traits and life satisfaction. Studies have also suggested people with BPD experience impaired cognitive flexibility and heightened impulsivity. BPD patients show little tolerance and high vulnerability toward different situations. The cause of vulnerability can be related to impaired cognitive flexibility.

METHODOLOGY

Sample

The sample consists of 30 patients with borderline personality disorder. The sample selected was diagnosed by a clinical psychologist based on ICD criteria and screening tools. The patients were administered for utilizing the T20 borderline personality inventory. After 3 months the patients were again called after for the reassessment.

Instrument used

Instrument used for the assessment

- **T20 Borderline Personality Inventory:** the borderline personality inventory (BPI) is a self-reported questionnaire for screening patients with borderline personality disorder. It is also known as the 20-item Taiwan version of the borderline personality inventory. The reliability and validity measure can detect BPD with a sensitivity of 89.8% and a specificity of 82.8% using 11/12 as the cutoff point (Lee et al., 2009).

Instrument used for therapy

- **Mirror Tracing:** The mirror drawing test was introduced by William Wundt. The candidate is instructed to trace or draw a picture while observing their work in the mirror. The mirror trace requires the subject to reverse visual cues and trace a mirrored star pattern onto paper or using a mirror tracing apparatus
- **Stroop:** the concept of the Stroop effect was put forward by John Ridley Stroop, who first published the effect in English in 1935. This effect can be used to create a psychological test (Stroop test). A Stroop card with names of colours written in different ink is given to the subject and asked to read the colours at maximum speed.

Procedure

During clinical practice, a few patients who had undergone psychotherapy for BPD were given mirror tracing. Later based on feedback, Stroop training was also done with mirror tracing for 3 months. This method can be used along with a verbal psychotherapeutic approach or with pharmacotherapy. The steps of intervention are,

1. Ventilation and information taking
2. Diagnostic assessment and diagnostic formulation
3. Explanation of borderline personality, need of medicine based on suicidal risk and suicidal thoughts
4. Explanation of therapeutic need and instrumental approach of mirror tracing and Stroop. Supportive psychotherapeutic technique was used.
5. Along with verbal psychotherapy daily training in mirror drawing and Stroop was done. Weekly usage of mirror training apparatus is also done for 3 months.
6. Based on the reassessment, the therapist decides whether to increase or decrease the mirror drawing.

The study design used was a pretest and post-test design. the assessment was done using the T20 borderline personality inventory after three months.

RESULTS

Table No: 1 Correlation between pre-test and post-test of the sample

Variable	Group	M (Mean)	N (number of samples)	SD (standard deviation)	T value
BPI-T20	Pre-test	14.1	30	2.01	10.295**
	Post-test	7.93	30	2.73	

$P \leq 01^{**}$

The result shows that training BPD patients with Mirror tracing and Stroop for almost three months can significantly improve their personality traits. This indicates that combined usage of mirror tracing and Stroop can produce significant change in borderline patients.

DISCUSSION

Based on the results obtained it is evident that if training of Mirror training and Stroop are given to borderline personality disorder (BPD) patients, then it can produce significant improvement in their behavior. Supportive psychotherapeutic techniques along with Instrumentum Psychotherapy can produce significant improvement in a faster process. Mirror tracing and Stroop help in developing cognitive flexibility and enhance executive functions, which are deficits, in borderline personality disorder (BPD).

REFERENCES

- C. J. Linjo Ph.D. (2024) "MY STUDIES ON PSYCHOLOGICAL INSTRUMENTS", Waynadu, Kerala, ISBN 9-789359-804286
- Kaplan, B., Yazici Gulec, M., Gica, S., & Gulec, H. (2020). The association between neurocognitive functioning and clinical features of borderline personality disorder. *Revista brasileira de psiquiatria* (Sao Paulo, Brazil: 1999), 42(5), 503–509. <https://doi.org/10.1590/1516-4446-2019-0752>
- Lajoie Y, et al., (1992) Mirror Drawing in a deafferented patient and normal subjects: *visuo-proprioceptive conflict*. *Neurology* 42: 1104-1106
- Layden, M.A., Newman, C.F., Freeman, A., & Morse, S.B. (1993). *Cognitive therapy of borderline personality disorder*. Needham Heights, MA: Allyn Bacon.
- LeDoux J. (1998). *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*. New York.
- Leech, R., & Shap, D. J. (2014). *The role of the posterior cingulate cortex in cognition and disease*. *Brain*, 137 (1), 12-32.
- Legris, J., & Van Reekum, R. (2005). *The neuropsychological correlates of borderline personality disorder and suicidal behavior*. *Canadian Journal of Psychiatry*, 51(3), 131-142

Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Linjo, C.J., Nasheeda, E. & Soye, A. (2024). Effectiveness of Mirror Tracing and Stroop in BPD Patients (Instrumentum Psychotherapy). *International Journal of Indian Psychology*, 12(4), 875-878. DIP:18.01.081.20241204, DOI:10.25215/1204.081