

A Role of Memory Functions in Patients with Dissociative Disorder

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ABSTRACT

Dissociation is typically defined as the disruptions in the integrated functions of consciousness, memory, identity and perception. In this study, our aim was to investigate the relationship between dissociative experiences and memory performance in a outpatient Hospital setting. This study compared 30 dissociative disorder patients and normal control based on Dissociative Experience scale (DES-II) and PGI Memory scale. Results indicate that there is a significant relationship between patient and control group with respect to Mental Balance, Attention & Concentration, Delayed recall, Retention for dissimilar Pairs, Visual Retention, and Recognition. These findings suggest that there is a definite relationship between dissociative experiences and memory performance.

Keywords: *Dissociative disorder, cognitive functions, memory*

In the nineteenth century, French psychologist, Pierre Janet established a relationship between objective issues in memory and the traits that define dissociation. Janet was amongst the first clinicians to have specialized dissociation and memory affected by trauma. Memory impairment isn't a novel finding in the context of dissociative disorders, there is a perhaps a large amount of literature that places memory deficits among the defining characteristics. Some researchers have also traced these effects on memory and attentional processes to issues existing in the cognition. DePrince, A. P., & Freyd, J. J. (1999) examined the function of attention and memory performance among persons with high and low dissociation using a sample of student population and did not find any recordable effects of the two. However, in contrast to this, Devilly, G. J (2007) observed an increase in memory fallibility among high dissociators than low dissociators. A declining rate of memory, attentional measures and global capacity has been found among chronic as well as acute states of dissociation (Brewin et al., 2013). Performance of participants with higher dissociation has been observed to fall

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even badly on tests examining executive function. The same also included divided attention, verbal memory, episodic working memory in studies that compared this sample with healthy people who simply experienced symptoms of dissociation in their daily lives and were never diagnosed with the disorder. (Amrhein et al., 2008; Giesbrecht et al., 2004; Devilly et al., 2007; Olsen and Beck, 2012a). Apparently, a connection between the symptoms and the given capacities has not even left the healthy population out. (Bergouignan et al., 2014; Bruce et al., 2007; Freyd et al., 1998). Research has provided evidence that cognitive deficits are prominent among higher levels of dissociation patients but on the contrary there also exist findings that challenge this notion. And Due to these contradictory findings exist in the literature; further studies are all the more necessary to explore the relationship between dissociation and cognition. A significant precursor of disturbances in functions of long-term memory and working memory was dissociation. This particularly includes dissociative amnesia and depersonalization/derealization. The neuroanatomical and neurochemical aspects controlling these functions have been investigated by researchers owing to the relationships between dissociation and memory. Ozdemir, Guzel Ozdemir, Boysan, & Yilmaz (2015) studied the relationships between cognitive functions such as memory and attention and dissociation. To assess such relationships, neuropsychological tests have only been examined by few, though various studies have documented the concurrent association between executive functions, memory and dissociation disorder. The range of test assessing memory and executive functioning were administered on 60 healthy volunteers. Their alternative hypothesis of as significant relationship between dissociation and poor performances in memory tasks was consistent with the results. Although, on the contrary, no significant relationship between dissociative tendencies and attention-concentration tasks was noted. Significant associations of dissociative tendency with memory performance were supported by these findings but associations with attention were not found. General memory performance and long-term memory were inversely linked to pathological dissociation, particularly amnesia and depersonalization/derealization. In addition, higher scores on performance on general memory, and long-term memory were reported by low dissociators, but lower scores on recognition than high dissociators.

A functional MRI study was conducted to understand the neurocorrelates of enhanced working memory in dissociative disorder by Elzinga. B.M, Ardon. M.A, Heijnis. M.K, DeRuiter. M.B, Van Dyck. R an Veltman. J.D (2007). They assessed working memory performance in 16 dissociative disorder and healthy control. Their finding showed that anterior, dorsolateral and ventrolateral prefrontal cortex (PFC) and parietal cortex regions are activated in both the groups specially when working memory function was involved in the task. They also found that patients made less error with increasing task load compared to normal controls, regardless of the fact that they had low concentration and felt more anxious during the performance of the task.

METHODOLOGY

Sample

The sample comprised of 60 persons.. There was one group consisted of dissociative disorder and other of normal control. The two groups were between the ages of 18 and 45 years. Group I consisted of 30 dissociative disorder patients and Group II served as a control group. The education level of the participants were 5th std to post graduation and some were employed and others were not. In both groups people from different socioeconomic classes – low, medium, and high were interviewed.

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Instruments

Two measures were used in this study,

1. **The General Health Questionnaire(GHQ -12)** was developed by Goldberg.D (1978).The shortened version of GHQ-12.The scale asks whether the person had any medical complaints and physical health has been in general, over the past few weeks. It is a likert type scale.
2. **Dissociative Experiences Scale-II (DES)** (Bernstein & Putnam, 1986) A most common measure of dissociation is the DES developed by Bernstein and Putnam in 1986 .It is a 28-item scale answered by participants about their dissociation experiences. The questionnaire probes into people's recount of experiences that fall similar to the events described in the items.. The responses are in 10 percent increment on a scale from 0% to 100%, where it ranges from never to all of the time.
3. **PGI-Memory Scale-PGIMS:** PGIMS initially developed by Pershad. D & Pershad. N.N (2005). PGI-memory scale was constructed and standardized in 1977. It contains 10 subtests- These include remote and recent memories, mental balance, concentration of attention, delayed and immediate recalls, differential retention and visual retention & recognition.. The test-retest reliability of the test ranges from 0.70 to 0.84 for organic–psychotic groups and 0.48 to 0.84 for ‘neurotic –normal control groups’.

Procedure

The patients were selected based on the exclusion and inclusion criteria for the study. Informed consent will be taken from the selected patients after explaining the objectives and procedure of the study. Once the socio demographic data was collected, the study participants will be administer DES II followed by PGI memory scale will be administered on the selected participants. Similarly GHQ 12 for normal control.

RESULTS

Table No. 1 shows the Comparison of memory function between normal control and patient group.

VARIABLE	NORMAL CONTROL	PATIENT GROUP	t	p
REMOTE MEMORY	6.93±0.36	7.00±0.00	1.00	.321
RECENT MEMORY	4.90±0.30	5.00±0.00	1.79	.078
MENTAL BALANCE	6.96±1.80	8.66±0.844	4.66	.001
ATTENTION AND CONCENTRATION	8.40±4.14	14.06±4.39	5.13	.001
DELAYED RECALL	8.63±1.73	9.80±0.92	3.25	.002
IMMEDIATE RECALL	10.13±2.02	10.76±1.13	1.49	.141
RFSP	5.13±1.13	5.66±1.72	1.41	.163
RFDP	11.06±3.13	13.90±1.34	4.54	.001
VISUAL RETENTION	6.40±4.18	10.86±2.08	5.23	.001
RECOGNITION	9.23±1.22	10.00±0.00	3.43	.001

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PGI memory test were found to be significant with respect to both the groups (normal control and patient group). A significant relationship between the two groups were found with respect to Mental Balance, Attention & Concentration, Delayed recall, Retention for dissimilar Pairs, Visual Retention, and Recognition.

DISCUSSION

A series of recent studies has indicated that dissociative process is believed to be associated with memory dysfunction. In the light of reported studies it is conceivable in any state; dissociative symptoms play an important role in encoding experiences or sensation of both short and long term memory. (Amdur, Liberzon, 1996). This idea is supported by neuropsychological investigation of memory in dissociative disorder patients. In the present study PGI memory test were found to be significant with respect to Mental Balance, Attention and Concentration, Delayed recall, Retention for dissimilar pairs, Visual Retention, Recognition among both dissociative patients and normal control. Several studies support the study findings, for instance Ozdemir, Guzel Ozdemir, Boysan, & Yilmaz, 2015 study examining a relationship between dissociative disorder patients and cognitive impairments in healthy individuals found significant relationship between dissociative disorder subtypes and general memory performance. Especially delayed recall scale were negatively associated with dissociative amnesia. Conversely, dissociative experiences were positively connected with the recognition scale of Auditory verbal learning test (AVLT). Even though there were strong inverse relationship between dissociation patient's scores and verbal memory, no significant association between dissociation and visual memory was found in the study. Our study findings suggest that there are multiple possible connections between dissociation and different types of memory. Several studies suggest verbal and visual working memory deficits are not only among dissociative disorder but also in other psychiatric disorders i.e. Post traumatic stress disorder. (DeRuiter, Phaf, Elzinga, 2004; Veltman, DeRuiter, 2005) The authors bring some information about the background of the problem, the situational accessible memory system is quite primitive, and sensory messages pass very rapidly through subcortical pathways, particularly through the amygdale. The difference in verbal and visual memory functions might be linked to hemispheric lateralization. It has been reported that verbal memory function is related to the left hemisphere and visual memory to the right hippocampus. (Gleissner, Hetmstaedter, Elger., 1998). The authors hypothesized that dissociative symptoms may result from deficits with inter-hemispheric interaction. Using electroencephalography, Ashworth, Ciorciari, Stough (2008) reported that there were changes in readings associated with attention and other cognitive processes, reflecting the different cortical network interactions. They also observed that high dissociation patient's exhibit left hemispheric lateralization in comparison to normal controls. Both the impaired cognitive integration of experiences and the inability to build connections between information processes are manifested as memory lapses (Nijenhuis, Spinhoven, van der Hart, Vanderlinden, 1998). Our results were in line with previous theoretical assumptions of memory function considering the relationships between dissociation disorder patients and healthy population.

The Limitations and recommendations for future directions:

Although the results of our study give interesting findings on neuropsychological deficits in dissociative groups, the study has some limitations. The present study can be replicated and extend among larger samples to choose neuropsychological test measuring executive function and memory with a significant degree of difficulty to establish more reliable measure of executive and memory function among dissociation disorder. Further studies can focus on

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subtypes of dissociative disorder as the present study focus on the dissociation disorder inclusive of its all types. Longitudinal designs are important for future researchers to consider undertaking. It is also important to recognize gender differences among the study sample which may differ in neuropsychological test measuring various cognitive functions.

In conclusion, the results highlight the executive and memory function among dissociative disorder patients and normal controls. The current study enhances our knowledge on the effects of trait and state dissociation on information processing system. Additionally paves a way for insight into the etiology of dissociation could help to refine early pharmacology and psychotherapeutic intervention efforts, in the identification of potential risk factors associated with later development of other forms of neuropsychological deficits.

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Conflict of Interest

The authors carefully declare this paper to bear not a conflict of interests

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