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MEMORY IMPAIRMENT IN SCHIZOPHRENIA AND BIPOLAR DISORDER: A COMPARATIVE STUDY

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ABSTRACT

The aim of the study was to assess the differences in memory functioning between patients of Schizophrenia and Bipolar disorder with the assumption of higher impairment in patients of Schizophrenia. The sample of 120 participants, 60 patients with Schizophrenia (30 males & 30 females) and 60 patients with Bipolar Disorder (30 males & 30 females) was collected from Karwan-e-Hayat Psychiatric Care and Rehabilitation Centre. The age of the participants ranged from 18 to 35 years and duration of illness was between 3 to 10 years. To find out the memory functioning, Cognitive Symptoms Checklist (CSC: O'Hara, Harrell, Bellingrath, & Lisicia, 1993) was administered. For statistical analysis t-test was applied to compare the groups using SPSS version 17.0 was used. The significant difference was found on memory functioning between patients of schizophrenia and bipolar disorders (t=-4.46, df =118, p<.05).

Keywords: Memory Impairment, Schizophrenia, Bipolar Disorder, Differences

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INTRODUCTION

Severe mental illness has been under debate since long. Initially Kraepelin distinguished between schizophrenia and manic-depressive illness. He identified schizophrenia as having long-term course and outcome whereas bipolar disorder as having episodic course. Subsequently, this dichotomy is acknowledged by clinicians and diagnostic manuals (Maier, Zobel, & Wagner, 2006).

Schizophrenia and bipolar disorders are the prominent psychiatric disorders. Schizophrenia is a psychotic disorder characterized by impairments in the perception or reality contact in day to day life activities and by major social or occupational dysfunction (American Psychiatric Association, 1994). It is common in all cultures and it is generally agreed that one person in hundred will be diagnosed as schizophrenia during their life time (Birchwood, Hallet, & Preston, 1988). Life time prevalence for schizophrenia is found to be 0.87% (Perala et al., 2007). Bipolar disorder, also called manic depressive illness, is manifested by manic episodes, elevated mood, or excited states combine with periods of depression (American Psychiatric Association, 2000). Life time prevalence for bipolar disorder is found to be 0.24% (Perala et al., 2007).

Although both, schizophrenia and manic depressive illness (bipolar disorder) are psychiatric disorders but they differ principally in that the major symptoms of schizophrenia are bizarre thinking and disturb pattern of cognition, illogical sense and illusory perceptions. Patient hears voices, visualized and feels things when there is no stimulation. The major symptoms of manic depressive illness (bipolar disorder) are the disturbances of mood (Hunt, 2008). However, the main difference in patients with schizophrenia as compared to patients with bipolar disorder is the varying degrees of cognitive impairment.

Significant evidences support the relationship between cognitive impairment and functional outcomes in patients with schizophrenia. Cognitive impairment in such patients includes problems in attention, perception, working memory, speed to work, verbal and visual learning, reasoning, problem solving, and social cognition. Simons, Sundet, and Vaskinn (2011) described that patients with psychosis perform poor on neuropsychological assessment as compared to non-psychotic patients. Likewise, cognitive impairment may also be a main feature of bipolar disorder and is related to poor functional outcomes (Green,

2006). It is agreed that patients with bipolar disorder show intense cognitive deformities in a manner that is not distinctive to this illness (Daban et al., 2006). In a study, subgroup of institutionalized patients with bipolar disorder appears to have chronic and severe cognitive impairments (Harvey et al., 1997).

However, when compared with patients of schizophrenia, patients with bipolar disorder exhibit cognitive deficit to a lesser extent (Daban et al., 2006). In another study, the performance of patients with schizophrenia is consistently found to be inferior to patients with bipolar disorder on different higher level cognitive tasks (Goldberg, 1999). Cognitive impairment in both disorders shares some similarities. The National Institute of Mental Health (NIMH; n.d.) tried to find out the similarities between Schizophrenia and Bipolar disorder. They acknowledged numerous cognitive domains that are dysfunctional in schizophrenia and considered with the context of clinical trials. Cognitive impairments in these domains are also seen in bipolar disorder, but they tend to be less significant. These impairments seem to be a center feature of schizophrenia and exterior during mood episodes in bipolar disorder (Green, 1996).

The important factor of cognitive functioning is memory. Memory requires three different capabilities; encoding, storage, and retrieval. Encoding is the ability to make a sensory pathway and the events that are perceived. Storage process is simply maintaining that path for future retrieval, which is the ability to recover and utilize that information. Researchers suggest that memory impairment is seen in both psychiatric disorders, schizophrenia and bipolar disorders. Impairment of memory function in schizophrenia has been demonstrated frequently over the last twenty years. As Andre, Ron, Edward, de Haan, and Kahn (1999) suggested that memory functioning has been observed as one of the prominent area of cognitive dearth in schizophrenia. Clinically, memory impairment is now accepted as one of the major disabilities associated with schizophrenia. Because the impairments are relatively stable characteristic of this disorder, it also serves as a reliable predictor of long-term disability and treatment outcome (Stip, 1996). Other researches have also suggest that patients with schizophrenia individuals have clear memory deficits and the size of deficits may be even larger than for other areas of cognitive functioning (e.g. Gold, Randolph, Carpenter, Goldberg, & Weinberger, 1992).

Nonetheless, studies suggest that bipolar disorder may have problems with short and long-term memory; this may persist between manic and

depressive episodes. They tend to be more severe when persons have manic episodes (Simons, 2009). In another study by Torrent et al. (2006) patients with bipolar disorder exhibited significant deficits in working memory and attention. Cognitive impairment, particularly memory difficulties, may also have negative implications in the functional outcome of patients with bipolar disorder (Martinez-Aran et al., 2004).

Studies conducted to examine differences in cognitive deficits in patients with schizophrenia and patients with bipolar disorder shown that specifically, working memory in particular differentiates between these two groups of disorders. Patients with schizophrenia scored particularly poor on working memory in contrast to patients with bipolar disorder (Goldberg, 1999). In another study, patients with schizophrenia showed deficit in verbal memory, attention, and executive function to a greater degree when compared with patients with bipolar disorder (Daban et al., 2006).

In short evidences suggest that schizophrenic and bipolar individuals exhibit extensive memory deficits. However, most of these studies are carried out in Western countries; there is scarceness of such studies in Pakistan. Studies also show that cognitive impairments often interfere with the patients' ability to cope with day to day functioning. They can cause great emotional distress in their lives. Hence, considering the dearth of such studies and adverse consequences in patients' lives, this study is an attempt in this regard. The findings obtain will be helpful to understand the nature of memory impairment between both psychiatric disorders in our own cultural context.

After reviewing the literature following hypotheses was made:

Patients with schizophrenia have greater impairment in memory functioning as compared to patients with bipolar disorder.

METHOD

Participants

The sample was collected through purposive sampling method. The sample comprised of 120 patients, 60 patients with Schizophrenia (30 males & 30 females) and 60 patients with Bipolar Disorder (30 males & 30 females). The sample is selected from Karwan-e-Hayat Psychiatric Care and Rehabilitation

Centre, Karachi. The age of the participants ranged from 18 to 35 years and duration of illness was controlled from 3 to 10 years.

Measures

Demographic Information Form (DIF)

Demographic Information Form (DIF) was administered to select the requisite sample. It consisted of items focused on registration number, name, age, gender, level of education, diagnosis, duration of illness, year of the onset of the problem, number of hospitalization, mental status, medication, socioeconomic status, residential area etc.

Cognitive Symptoms Checklist (CSC)

The Cognitive Symptoms Checklist (CSC; O'Hara, Harrell, Bellingrath, & Lisicia, 1993) assesses problems in basic cognitive areas i.e., attention/ concentration, memory, executive functions and visual processes. In the present study, only the subscale of "Memory Functioning" of Cognitive Symptoms Checklist (CSC; O'Hara, 1993) was administered to assess memory functioning of the participants. This checklist is valid for clinical sitting in four major areas; screening, assessment, treatment, and planning. For the administration; age range of CSC is 16 years and older.

Procedure

In order to conduct research, formal permission was taken from the authority of concerned Psychiatric Care and Rehabilitation Centre. Participants were selected on the basis of Demographic Information Form (DIF). The DIF was filled by the examiner with the help of registration file of the individuals. The first one hour session was conducted with participants to verify the diagnosis, talked about the research purpose and to assure the confidentiality of their identity. The participants were briefed about the test and asked if they had any question in their mind. In the second session research instrument, Cognitive Symptoms Checklist (CSC) was administered. Standard instructions from the manual were given to the subjects.

Exclusion Criteria for Participants was as follows:

- Patients with severe mental condition were excluded.
- Exclude those, who are unable to communicate or have no reality contact.
- Excluded participants with co-current mental disabilities like; brain injury, neurological condition, substance use or mental retardation.

Ethical Considerations

Participants' involvement in the research was voluntary and they were free either to participate or not. Furthermore, they were assured about the confidentiality of their personal information.

Scoring and Statistical Analysis

The scoring was done according to standard procedure. For statistical analysis *t*-test was applied to compare the two groups of patients and SPSS version 17.0 was used.

Operational Definitions of Various Terms

Patients with Schizophrenia

Patients diagnosed with Schizophrenia according to the diagnostic criteria of Schizophrenia described in Diagnostic and Statistical Manual of Mental Disorders- TR (American Psychiatric Association, 2000).

Patients with Bipolar Disorder

Patients diagnosed with Bipolar Disorder according to the diagnostic criteria of Schizophrenia described in Diagnostic and Statistical Manual of Mental Disorders- TR (American Psychiatric Association, 2000).

Memory Functioning

For the present study, memory functioning refers to as assessed through Cognitive Symptom Checklist.

RESULTS

Table1
Showing Memory functioning between Schizophrenia and Bipolar Disorder

Groups	*N*	*M*	*SD*	*t*	*Sig.*	*95% CI*	
						LL	*UL*
Patients with Bipolar Disorder	60	9.93	10.52	4.46	.000	17.22	6.60
Patients with Schizophrenia	60	21.85	17.89				

df= 118, *p*<.05

DISCUSSION

Bipolar and Schizophrenic disorders are two major categories of psychiatric disorder. Diagnostic Statistical Manual of Mental Disorders-TR (DSM-TR; American Psychiatric Association, 2000) describes the criteria to diagnose both kinds of disorders that indicate some psychological feature are over lapping in both categories as; mood disturbance, impaired social and occupational functioning etc. Intensity of the symptoms ranged from mild to moderate or severe. Memory is also an important feature that should be considered during assessment process of cognitive functioning. It is evident from many researches that impairment in cognitive functioning is commonly seen in both disorders.

It was hypothesized that "Memory functioning will be more impaired in patients with Schizophrenia as compared to patients with Bipolar Disorder". Results illustrated that there is a significant difference on the variable of memory functioning (Table 1) between patients with schizophrenia (*M*=21.85) and patients with bipolar disorder (*M*=9.93).

Nauert (2008) reported memory problem as the frequent complaint in bipolar disorder, whereas it was considered as a major problem among schizophrenia. Recent work in the field of psychopathology indicates that in patients with bipolar disorder, impairment is relating to all kinds of memory like

sensory, short-term, comprehensive and long-term memory stores. They have problem with short term as well long term memory, which may be a cause of mood elevation in mania and low mood in depression (Thompson, 2010). However, in a comparative study, it was observed that schizophrenic people show reduced memory especially; when compared span of attention, memory, executive functioning, and reaction time with normal people. They were easily distracted and had difficulty in recalling things they even learned five minutes before (Namade, 2009). Another study demonstrated that in tasks of working memory, patients with schizophrenia performed worse than patients with bipolar disorder (Hamilton et al., 2009).

Psychotic symptoms are considered responsible for cognitive deficit. Research proposed that working memory impairment is more associated with history of psychosis rather than other diagnostic categories (Frydeka et al., 2014). Duration of illness, and number of episodes, are also found to be responsible for impaired memory in both disorder (schizophrenia and bipolar disorder). The function of memory is to register or retain information and recall when a person needs. The impairment in memory functioning causes inability to recall things appropriately or delayed responses required to perform daily task. For example, patients are unable to remember their daily activities in useful manner; they forget to schedule their appointment with the doctor, taking medication on time, bathe regularly, to turn off water tap when they finished to use it, to carry personal identification (Identity card, driving license) etc. As a result their academic, occupational social and intellectual functioning also seems to be impaired.

Conclusion

Memory is an important area of functioning in our daily life. Current research considered the cognitive functioning between two types of psychiatric disorders, schizophrenia and bipolar disorder. Results signify that the memory performance of patients with schizophrenia is lower as compared to bipolar disorder. The findings obtained are an important addition to existing literature with reference to our culture. The findings may be helpful to the clinicians in understanding the diagnosis and planning the treatment for patients with these disorders.

REFERENCES

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders (*4th ed., text revision). Washington, DC: Author

Andre, A., Ron, A., Edward. H. F., de Haan., & Kahn, R. S. (1999). Memory *I*mpairment in *S*chizophrenia: A Meta-Analysis. *American Journal of Psychiatry, 156,* 1358-1366.

Birchwood, M. I., Hallet, S. E., & Preston, M. C. (1988). *Schizophrenia: An integrated approach to research and treatment*. London: Longman.

Daban, C,. Martinez, A., Torrent, C., Tabarés, S., Balanzá, M., Salazar, F. J., Selva, V., & Vieta, E. (2006). *Specificity of cognitive deficits in bipolar disorder versus schizophrenia*. A systematic review. *Psychotherapy and Psychosomatic,75*(2),72-84.

Frydecka, D., Eissa, M. A., Hewedi, H. D., Ali, M., Drapala, J., Misiak, B., et al. (2014). Impairments of working memory in schizophrenia and bipolar disorder: The effect of history of psychotic symptoms and different aspects of cognitive task demands. *Frontiers in Behavioural Neuroscience, 8,* 1-11. doi:10.3389/fnbeh.2014.00416

Gold, J. M., Randolph, C., Carpenter, C. J., Goldberg, T. E., & Weinberger, D. R. (1992). The performance of patients with schizophrenia on the Wechsler Memory Scale-Revised. *Clinical Neuropsychology, 6,* 367-373.

Goldberg, T. E. (1999). Some fairly obvious distinctions between schizophrenia and bipolar disorder. *Schizophrenia Research, 39,* 127-132.

Green, M. F. (1996). What are the functional consequences of neurocognitive deficits in schizophrenia? *Journal of American psychology, 153*, 321-30

Green M. F. (2006). Cognitive impairment and functional outcome in schizophrenia and bipolar disorder, *Journal of Clinical Psychiatry, 67*(Suppl. 9), 3-8.

Hamilton, L. S., Altshuler, L. L., Townsend, J., Bookheimer, S. Y., Phillips, O. R., Fischer, J., et al. (2009). Alterations in functional activation in euthymic bipolar disorder and schizophrenia during a working memory task. *Human Brain Mapping, 30*(12), 3958-69. doi: 10.1002/hbm.20820.

Harvey, P. D., Powchik, P., Parrella, M., White, L., & Davidson, M. (1997). Symptoms severity and cognitive impairment in chronically hospitalized geriatric patients with affective disorders. *Journal of British Psychology, 170,* 369-374.

Hunt, J. (2008). Manic-depressive illness: Bipolar disorders and recurrent depression, Second Edition. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*(10), 1208–1209. doi:10.1097/01.CHI.0000313989.41405.94

Maier, W., Zobel, A., & Wagner, M. (2006). Schizophrenia and bipolar disorder: Differences and overlaps. *Current Opinion in Psychiatry, 19*(2), 165-170.

Martinez-Aran, A., Vieta, E., Colom, F., Torrent, C., Sanchez-Moreno, J., Reinares, M., et al. **(**2004**).** Cognitive impairment in euthymic bipolar patients: Implications for clinical and functional outcome. *Bipolar Disorders, 6,* 224 -232.

National Institute of Mental Health. (n.d.). Bipolar disorder. Retrieved on April 6, 2015, from, www. Nimh. Nih gov/ health/ publications/ complete index. shtml.

Nauert, R. (2008). Rationale for memory problems in schizophrenia. Psych Central News. *Psych Central.com.* Retrieved on April 6, 2015, from, http://psychcentral.com/news/2008/03/12/rationale-for-memory-problems-in-schizophrenia/2030.html

Nemade, R., & Dombeck, M. (2009). Schizophrenia symptoms, patterns and statistics and patterns, Retrieved on April 6, 2015, from, http://www.mentalhelp.net/poc/viewdoc .php?type =doc&id= 8805 &cn=7).

Perala, J., Suvisaari, J., Saarni, S. I., Kuoppasaimi, K., Isometsa, E., Pirkola, S., et al., (2007). Lifetime prevalence of psychotic and bipolar I disorders in a general population. *Archives of General Psychiatry, 64*(1), 19-28.

Simon, H., (2009). *Bipolar disorder-Complications.* Retrieved on April 6, 2015, from,http://health.kernan.org/patiented/articles/how_serious_bipolar_disorder_000066_4.htm

Simons, C., Sundet, K., & Vaskinn, A. (2011). Neurocognitive dysfunction in bipolar and schizophrenia spectrum disorders depends on history of psychosis rather than diagnostic group. *Schizophrenia Bulletin, 37*(1), 73-83.

Stip, E. (1996). Memory Impairment in Schizophrenia: Perspectives from Psychopathology and Pharmacotherapy. *Can Journal of Psychiatry, 41*(2 Suppl), 27S–34S.

Thompson, D. (2010). Bipolar disorder and memory loss. Retrieved on April 6, 2015, from, http://www.everydayhealth.com/bipolar-disorder/bipolar-disorder-and-memory-loss.aspx

Torrent, C., Martínez-Arán, A., Daban, C., Sánchez-Moreno, J., Comes, M., Goikolea, J. M. M., Salamero, M., & Vieta, E. (2006). Cognitive impairment in bipolar II disorder. *The British Journal of Psychiatry, 189*(3) 254-259. doi: 10.1192/bjp.bp.105.017269