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Cognitive Functioning of Schizophrenic Patients Residing at Rehabilitation Setup and at Home Setup

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Abstract

The aim of the study was to study the difference between schizophrenic patients residing at rehabilitation setup and at home setup on attention and executive functioning. A sample of 35 schizophrenic patients residing at rehabilitation setup were collected from various rehabilitation centers in the Pune city and 35 patients of home setup were approached from a few clinics in the Pune city through the technique of purposive sampling. For the study, patients in remission period were selected. The samples were within the age range of 35-45 years. The tool used in the research was the Neuropsychological Assessment Battery (NAB) by White & Stern (2003) screening module. Both descriptive and inferential statistics were conducted. The results showed significant differences among schizophrenic patients only on screening word generation (S-WGN) which is a subdomain of screening executive functioning.

Keywords: Schizophrenic, Remission period, Attention, Executive functioning, Neuro-psychological Assessment Battery (NAB).

1. INTRODUCTION:

The most common problem studied among psychiatrists and psychologists is schizophrenia. It has grabbed the attention of researchers due to increasing prevalence. An estimated 0.3% of the U.S. adult population has schizophrenia (Kessler & Birnbaum, 2005;

McGrath & Saha, 2008; Saha & Chant, 2005). For schizophrenia, the prevalence is varied from 1.1 to 4.3 in particular. The research done in Chennai covered around a sample of 101,229 observed the prevalence of 2.5/1000 (Padmavathi, 1987). Prevalence rate varied according to states. From Bangalore to Patiala it is 1.8/1000 to 3.1/1000. Reddy and Chandrasekhar (1998) estimated that prevalence of schizophrenia is 2.7(2.2-3.3)/1000 population, while Ganguli quantified the prevalence to be 2.5(1.1-14.2)/1000 population (Ganguli, 2000). In the past, Kraepelin (1986) used the term *dementia precox* to refer to a group of conditions that all seemed to feature mental deterioration beginning early in life.

2. REVIEW OF LITERATURE:

The term schizophrenia was coined by the Swiss psychiatrist and eugenicist Eugen Bleuler in 1911(Carson & others, 2007). The worldwide point prevalence of schizophrenia is about 4.6/1000 (Bhugra, 2005). Cognitive deficits in various domains have been consistently replicated in patients with schizophrenia (Sharma & Antonova, 2003). Considering the cognitive aspects, Schizophrenia is characterized by distorted thinking and perception, inappropriate or blunted affect in clear consciousness and intellectual capacity though later cognitive deficits might evolve (WHO, 2007). In schizophrenia, patients are very inattentive or distracted. Schizophrenic patients have larger lateral ventricles and also have less blood flow and metabolism in the prefrontal cortex. It is generally assumed that cognitive function is often already below average in premorbid periods (Reichenberg, 2006) and decreases with manifestation of the disease (Bilder, 2000). The respective deficits continue in patients with chronic schizophrenia, including those in whom symptoms have partially remitted (Barbarotto, 2001).

Studies have found that schizophrenic patients showed much difficulty on limited duration selective attention tasks (Everett, Laplante & Thomas, 1989). On a single trial version of stroop task, patients showed greater reaction time facilitation and error rate interference, also evidence for deficits in selective attention (Parlstein & Carter, 1998). In Forward Digit Span, Symbol Search, Digit Symbol Coding, Stroop Test and Picture Completion schizophrenic patients exhibited lower attention and inhibitory control and sustained

attention were the most affected traits (Galaverna, Morra & Bueno, 2012). Schizophrenic patients on visual selective attention tasks made significantly fewer correct responses and displayed a significantly slower mean response time than the control group (Carter, Bizzell, Kim, Bellion, Carpenter, Dichter, Belger, 2010).

In schizophrenic patients, prefrontal cortex function deteriorates at the onset of psychosis and continues to worsen over time (Joyce, Hutton, Mutsatsa, Gibbins, Webb, Paul, Robbins, Barnes, 2002). Executive functions can be improved through the use of cognitive rehabilitation intervention (Sabhesan & Parthsarthy, 2005). Schizophrenic patients exhibited severe dysfunction in neurological tasks which were used include assessment of soft neurological signs, an aphasia screening test, Halsteid-Reitan Neurological test battery, Luria-Nabraska neurological test battery (Tayler & Abrems, 1984).

3. METHODOLOGY:

3.1 Design:

It is a cross sectional study to study the difference between two groups viz. schizophrenic patients residing at rehabilitation setup and at home setup on attention and executive functioning.

3.2 Sample:

The sample for the present study consisted of 70 patients having age range 35-45, diagnosed with schizophrenia divided in 2 groups viz. 35 patients residing at rehabilitation setup and 35 at home setup. The patients residing at home were basically O.P.D. patients who visit the clinics for follow-up. The rehabilitated patients are from various rehabilitation centers around Pune city.

A purposive sampling method was used to select the samples. The patients with remission period; having basic communication skills were selected. Minimum two years of residency is the main criterion for rehabilitating schizophrenic patients. It was assumed that the duration of illness is more than 5 years. The present study included people diagnosed with schizophrenia according to Diagnostic and statistical Manual 5 criterion. Administering the questionnaire on chronic and uncooperative patients is difficult as symptoms could interfere with the assessment so these patients are excluded. Diagnostic confirmation was done using information from the

caregivers and the patient's case file, along with a clinical mental status examination by the treating psychiatrist. The purpose of the study was explained to each patient before administering it.

3.3 Tools:

Neuropsychological Assessment Battery (NAB) by Stern and White (2003)

NAB developed by Robert A. Stern and Travis White (2003) was used to assess cognitive functioning. This test has five modules from which only screening modules were selected for administration. From the screening module only two domains (Attention and Executive functioning) were administered. The first domain is screening attention domain which has following subdomains: screening digit forward (S-DGF); screening digit backward (S-DGB); screening numbers and letters Part A efficiency; screening numbers and letters part B efficiency. The second domain is screening executive functions domain. This includes screening maze (S-MAZ) and screening word generation (S-WGN).

The total NAB normative samples consist of 1,148 healthy, community dwelling participants, which formed the basis of following normative samples: Demographically corrected norms (N=1,448) of age 18-97; Age-based, U.S Census-matched norms (N=950). Validity of the test is content validity and criterion related with reliability of 0.75.

3.4 Procedure:

35 patients suffering with schizophrenia, in remission period from different rehabilitation centers and 35 visiting outpatient departments (OPD) in clinics were selected. The patients were made comfortable and were explained the purpose of the questionnaire, proceeding only with their consent. Instructions were given properly as written on the questionnaire and doubts were cleared. All the rules were followed properly.

4. RESULTS AND INTERPRETATIONS:

The gathered data was statistically analyzed to find out the mean and standard deviation for both the groups and to carry out the t-test.

Table-1: Mean, Standard Deviation and t-values for Schizophrenic patients of rehabilitation setup and home setup for sub-domains of attention functioning

Variables	Schizophrenic patients residing at rehabilitation setup (N=35)		Schizophrenic patients residing at home setup (N=35)		t-value	*P*
	Mean	SD	Mean	SD		
S-DGF	8.57	2.417	7.89	2.598	1.143	NS
S-DGB	3.91	2.077	3.34	2.222	1.111	NS
S-N& La-eff	75.78	25.120	84.83	29.74	1.375	NS
S-N& Lb-eff	23.569	9.859	23.494	12.676	.028	NS

NS= non-significant, df= 68, eff= efficiency, DGF= Digit Forward, DGB= digit Backward

Table–1 shows that for S-GDF, mean and standard deviation for rehabilitation setup patients are 8.57 and 2.417 respectively and for home setup was 7.89 and 2.598. The t-test value is 1.143 which was found insignificant. The mean and standard deviation score for rehabilitation setup patients for S-DGB are 3.91 and 2.077 and for home setup patients M= 3.34 and SD= 2.222 respectively. The t-value is 1.111 which was found insignificant. The mean and standard deviation score for rehabilitation setup patients for S-N&La-eff is 75.78 and 25.120 and for home setup patients M=84.83 and SD=29.74 respectively. The t-value is 1.375 which was found insignificant.

For S-N&Lb-eff, mean and standard deviation for rehabilitation setup patients is 23.56 and 9.85 respectively and for home setup was 23.49 and 12.67. The t-test value is 1.143 which is not significant.

Table-2: Mean Standard Deviation and t-values for Schizophrenics of rehabilitation and home setup for sub-domains of executive functioning.

Variables	Schizophrenic patients residing at rehabilitation setup(N=35)		Schizophrenic patients residing at home setup (N=35)		t- value	*P*
	Mean	SD	Mean	SD		
S-MAZ	3.20	1.712	3.51	2.175	.672	NS
S-WGN	4.06	2.859	2.83	2.216	2.009*	*P<.05*

NS= non-significant, *=significant at .05 level, df= 68, MAZ=Mazes, WGN= Word Generation.

The above given table-2 shows that the mean of score on S-MAZ is 3.20 with standard deviation of 1.712 for rehabilitation patients and M=3.51 and SD= 2.175 for patients at home. The obtained t value is .672 which was found insignificant. The table also shows that in S-WGN, patients of rehabilitation setup has mean 4.06 and standard deviation 2.859 as compared to patients of home setup that is M=2.83 and SD=2.216. The obtained t-value is 2.009 which is significant at 0.05 level of significance. The effect size was found to be d=0.48 which is considered as medium effect size (Cohen, 1988).

The results showed that there was no difference in any of the attention domain and screening mazes of executive functioning of rehabilitation and home setup groups. The present study was not consistent with earlier findings. The assumptions were made on the basis of international research and studies. The patients residing at home were having care and support of their family members throughout their illness. Family is a very important factor for a person with any mental illness. Many researches are done on the basis of family intervention and psycho-education (informing family about the illness, medicines and other relevant aspects) for schizophrenic patients. Zastwony et al. (1992) had done research on family psycho-educational studies. The sample of 30 patients allowed staying inpatient units with family available on intermediate length. The results showed improvement in both groups on symptoms, community tenure and functioning. McFarlane et al. (1995) conducted a research on 172 schizophrenic patients with ten hours per week family contacts and formal education program with treatment session. Results showed significantly fewer relapse and improvement in both groups with trends favoring multifamily conditions. Pai and Kapur (1983) conducted a comparative study on 27 schizophrenic patients which had not received any medical treatment and have been treated in their own homes and another group was of 27 patients who underwent initial medical hospitals and follow-up. The results showed that home treatment through visiting nurses gives better clinical outcomes and better social functioning.

Patients who are living at home have good social networks like family, friends, neighbors, priests, colleagues at work, local politicians, and elders in the community. This informal network is the richest source of support in all their daily lives. This may help in improving the overall quality of life of these patients. While living

with the family some activities like folding blanket, straightening the bed sheets and pillows, picking up fallen items and replacing them, helping in kitchen tasks like cutting vegetables, helping set the table with plates, glasses, and the food containers and dispose the garbage in the dust bin may help patients to improve their cognitive skills (Sangath, 2012). Also, some executive tasks like managing money, purchasing things required for family or regular transactions may help them to recover.

The mean score of the first group was higher than the second group in many domains. It can be assumed that schizophrenic patients residing at rehabilitation settings were more prone to better cognitive functioning. However, in quantitative analysis it was not found.

5. CONCLUSION, LIMITATIONS AND SUGGESTIONS:

5.1 Conclusion: Schizophrenic patients residing at rehabilitation setup and home setup do not differ significantly on screening Digit Forward, Screening Digit Backward, Screening numbers & letters Part A Efficiency, Screening numbers and letters Part B Efficiency, screening mazes and showed significant difference on screening word generation.

5.2 Limitations: Purposive sampling having some limitations in selection of the sample. Due to limited data broad generalization is not possible.

5.3 Suggestions: This study suggests the possibilities to explore the same study with more variables like region, socio economic status, and with specific age category. Further studies exploring the cross-cultural differences can also be taken into consideration.

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