Original article

Cognitive functions in depressed young adults with or without somatic syndrome

Ranjive Mahajan, Navkiran S. Mahajan, Damanjit Kaur

Abstract

Background: *Cognition may differ in various subgroups of depression. Only a few international studies have compared the cognitive functioning in patients with or without melancholia/somatic syndrome.* ***Aim:*** *The study aimed to compare the cognitive functioning in patients having depressive disorder with or without somatic syndrome.* ***Method****: The study included patients with ICD-10 diagnosis of depressive disorder, divided into two groups on basis of presence (n=30) or absence (n=30) of somatic syndrome. Severity of depression was scored using Hamilton depression rating scale. Assessment of cognitive functioning was done using trail making Test (A & B) and PGI memory scale.* ***Results:*** *Patients with somatic syndrome had slower psychomotor speed and less mental flexibility compared to non-somatic syndrome group. They also showed relatively poorer performance on attention and concentration, delayed recall, immediate recall, verbal retention of dissimilar pairs and recognition.* ***Conclusion****: Although it is known that depressive disorders are associated with cognitive deficits, but the present study suggests a variation in depression subgroups. The findings carry important clinical and research implications and need to be replicated in future Indian studies.*

Keywords*: Depression, Cognitive function, somatic syndrome*

Introduction

Depression may be defined in terms of specific alterations in mood, a negative self concept associated with self, reproaches and self blame, regressive and self punitive wishes, vegetative changes and changes in activity level.[1,2] When present, the somatic syndrome[2] has principal features of anhedonia, morning worsening of depression, psychomotor retardation or agitation, marked loss of appetite, weight loss, marked loss of libido, lack of emotional reaction to events or activities that normally produce an emotional response.

Cognitive impairments are known to occur in depression.[3] It has been previously reported that depressed patients reveal marked impairment on tests of attention and concentration, and immediate and delayed recall, while a global impairment was revealed on tests of performance.[3-5] Depressed patients have also demonstrated deficits in psychomotor speed and in free recall of material.

Recent international literature [6] has suggested that melancholic patients are more severely affected than the non-melancholic patients and show a slowing of cognitive as well as motor processes. However, it remains less studied. The present study aimed to compare the cognitive functioning in major depressive disorder among those with or without somatic

syndrome

Materials and Method

The study included patients aged 21-35 years with an ICD-10 diagnosis[2] of depressive disorder. Those with presence of psychotic symptoms, bipolar depression or dysthymia, any major psychiatric diagnosis other than depression, mental retardation, pervasive developmental disorders, significant medical illness, head injury, epilepsy or recent (past 6 months) history of electroconvulsive therapy were excluded. A total sample of 60 patients of depressive disorders was taken, which included those with somatic syndrome (n=30) and those without somatic syndrome (n=30) as per ICD-10.[2]

All patients gave written informed consent and full confidentiality has been ensured in presentation of results. The study was approved by the Institutional Ethics Committee. After the informed consent, sociodemographic details were collected. All subjects were rated on Hamilton depression rating scale (HAM-D 21 item) and assessment of cognitive functioning was done by using trail making test (TMT A & B) and PGI memory scale. Assessments were carried out in a single session.

Statistical Analysis

Descriptive analysis of the sample population was done. The performance of the patients on the afore-mentioned scales was compared using students t test and chi-square analysis.

Results

Table 1 shows the socio-demographic profile of both groups. No significant difference was found in age, gender, marital status and educational status. Severity of depression was compared between two groups using scores of HAM-D. The mean scores of HAM-D in group 1 and 2 were 16.40 ±1.16 and 15.90 ±1.24 respectively, with no statistically significant difference ($p > 0.01$).

Tables 2 and 3 shows the performance of both groups on the trail making test (A & B) and PGI memory scale respectively.

Table 1: Socio-demographic profile: Depressed patients with and without somatic syndrome

Variables	Group I (N = 30)	Group II (N = 30)	p
Age (in yrs)	27.80 ± 3.92	28.03 ±4.98	0.825
Females	18	21	
Males	12	9	0.203
Married	20	22	
Unmarried	9	8	0.292
Widower	1	0	
Undergraduate	15	16	
Graduate	10	11	0.750
Postgraduate	5	3	

Table 2: Trail making test (TMT) : Depressed patients with and without somatic syndrome

TMT (in sec)	Group I (N=30)	Group II (N=30)	p
A	59.00 ± 11.71	30.73 ± 10.83	0.001**
	M: 60.75 ± 13.52	M=31.56 ± 9.36	
	F: 57.83 ± 10.58	F=30.38 ± 11.60	
B	120.27 ± 28.89	57.03 ± 16.10	0.001**
	M=130.00 ± 25.64	M=59.00±15.24	
	F=113.78 ± 29.77	F=56.19±16.75	

Table 3: PGI memory scale: Depressed patients with and without somatic syndrome

Memory subtests	Group I (N=30)		Group II(N=30)		p
	Mean	SD	Mean	SD	
Remote Memory	5.80	0.41	5.57	0.50	0.050
Recent Memory	4.80	0.48	4.73	0.58	0.323
Mental Balance	7.40	1.33	7.57	0.82	0.275
Attention and concentration	8.07	0.94	10.33	0.82	0.001**
Delayed Recall	5.23	1.48	8.43	0.90	0.001**
Immediate Recall	9.63	1.77	10.37	1.03	0.049*
Retention of Similar Pairs	4.50	0.73	4.77	0.43	0.094
Retention of Dissimilar Pairs	6.80	1.61	12.67	1.21	0.001**
Visual Retention	11.73	2.00	11.80	1.52	0.911
Visual Recognition	7.77	1.41	9.73	0.45	0.001**
Total Score	71.73	5.95	85.97	3.13	0.001**

Discussion

The study focused on cognitive functions in depression comparing those with and without somatic syndrome. It remains a less studied aspect with several important implications.

Depressed patients with somatic syndrome took more time on TMT-A compared to those without somatic syndrome. Performance on this test is primarily dependent on the efficiency of visual scanning, attention and psychomotor speed. It shows more impairment in attention and psychomotor speed in patients with somatic syndrome. It has also been reported from a previous study that there is more cognitive and motor slowing in depressed melancholic patients than depressed non-melancholic patients.[6]

Trail making test B is thought to require more executive control, specifically flexibility of thinking and set shifting. When the mean time taken on Trail Making Test-B was compared among the groups, it was found that depressed patients with somatic syndrome were significantly slower than those without somatic syndrome. It reflects greater impairment in executive functioning in these patients. It is in accordance with previous study[7] where melancholic patients were impaired on mnemonic tasks and tasks of selective attention, and set-shifting, while non-melancholic subjects were largely unimpaired in their cognitive performance. These differences could possibly be due to impairment of specific neuroanatomical regions in narrowly defined melancholic patients, in particular the anterior cingulate.[7]

Similarly, the depressed group with somatic syndrome also showed greater relative impairment on total scores of PGI memory scale, subtests of attention and concentration, immediate and delayed recall, verbal retention of dissimilar pairs and visual recognition. A previous study had shown that digit span backward task, which draws upon executive skills of mental flexibility, was impaired in patients with melancholic depression.[8] In another study on recovered melancholic patients, impairments were found in immediate visual memory, delayed logical and visual memory, paired learning and block design, which suggested that cognitive dysfunction found in some melancholic depressives could not be state-dependent.[9]

These findings have significant clinical and research implications. It adds to other known clinical differences between the two types of depression and may have potential utility in diagnosis and classification. The cognitive tests

are projected as possible trait markers and could potentially assist in differentiation between the two subgroups at the earliest. Recently, it has been implied that depression could be a risk factor for developing Alzheimer's disease[10], and melancholic group with higher cognitive impairments may be more suited for research purposes. The findings also underline the heterogeneity of depression as a group and cognitive tests may assist in this direction.

However, the study has several limitations. There was no control group of healthy subjects. The study assesses the relative performance of two depression subgroups and cannot comment on impairments relative to healthy population. A comprehensive battery of cognitive tests was not employed. The effect of medication and some of illness variables e.g. duration and episodes was not studied and could have confounded the results. Detailed testing in larger samples are required in order to generalize the findings.

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Ranjive Mahajan, Professor & Head
Navkiran Mahajan, Associate Professor
Damanjit Kaur, Junior Resident, *Department of Psychiatry, Dayanand Medical College and Hospital, Ludhiana*
Correspondence to: Navkiran S Mahajan, Associate Professor, Department of Psychiatry, 3rd Floor, Dayanand Medical College and Hospital, Civil Lines, Tagore Nagar, Ludhiana, Punjab- 141001.
Email: drnavkiran@yahoo.co.in