

PREVALENCE OF BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA AND ITS ASSOCIATION WITH COGNITIVE IMPAIRMENT IN PATIENTS PRESENTING IN A TERTIARY CARE HOSPITAL IN EASTERN INDIA

Dr. Sk. Kamal Hassan¹, Dr. Uday Sankar Mandal², Dr. Taniya Kundu³, Dr. Sk. Ashadur Rahman⁴

¹Tutor, Department of Psychiatry, N.R.S Medical College & Hospital, Kolkata, West Bengal 700014

²Associate Professor, Department of Psychiatry, BankuraSammilani Medical College, Bankura, Bankura, West Bengal722102

³Senior Resident, MD Psychiatry, Department of Psychiatry, Prafulla Chandra Sen Government Medical College, Arambagh, Hooghly, West Bengal 712601

⁴Senior Resident, MD, Psychiatry, Department of Psychiatry, Balurghat District Hospital, Balurghat, West Bengal 733101

CORRESPONDING AUTHOR:

Dr. Sk. Ashadur Rahman; Senior Resident, MD, Psychiatry, Department of Psychiatry, Balurghat District Hospital, Balurghat, West Bengal

Abstract

Introduction: The term "Dementia" refers to a significant cognitive decline from previous level of performance which interferes with independence in daily activities. Deficits in cognition function significantly hinder social and occupational functioning. "Non- cognitive" neuropsychiatric symptoms or the behavioural and psychological symptoms of dementia (BPSD) are a major contributor for high level of care giver burden and poor quality of life in patients with dementia. It is important to understand the occurrence of BPSD with severity of cognitive impairment, as this would help caregivers and healthcare professionals to predict likely behavioural and psychological issues.

Aims: To describe the patterns of BPSD among dementia patients attended to psychiatry department at RGKar MCH, Kolkata and its association (if any) with the degree of cognitive impairment.

Materials and Methods: The present study was a cross-sectional descriptive study. This study was conducted over a period from January 2019 to Decemder 2019 at Department of Psychiatry, R.G. Kar Medical College & Hospital, Kolkata. Total 90 patients were included in this study. An interviewer administered questionnaire, Mini mental state examination and the Neuropsychiatric Inventory (NPI) were used.

Result: In our study, 43.3% patients were Females. Mean age was 63.2+/- 6.4 yrs. As per MMSE score, severity of dementia was mild, moderate and severe in 26.7%, 53.3% and 20% patients respectively. Common BPSD were delusion (51.1%), agitations (51.1%), hallucination (41.1%) and depression (35.5%) etc. Hallucinations, disinhibition and aberrant motor behaviour were significantly more prevalent with increase severity of dementia. Depression, anxiety symptoms were mostly seen in mild dementia.

Conclusion: Majority of individuals experienced BPSD. Depending on the level of cognitive impairment seen, there was a statistically significant prevalence in certain symptom groups.

Keywords: Dementia, Behavioural and psychological symptoms of dementia and Caregiver.

INTRODUCTION:

A disease process known as dementia is characterized by a progressive loss of cognitive functions in clear consciousness. Multiple cognitive domains are affected by dementia, and cognitive deficiencies significantly impair social and occupational functioning. Based on their origin, dementias can be divided into four main categories: frontotemporal dementia, dementia of Lewy bodies, vascular dementia, and Alzheimer's disease.¹

Memory loss is becoming more common in the general population over 65 years of age, and in the general population over 85 years of age, the frequency of moderate to severe dementia varies approximately by population group (20 to 40 percent). The most prevalent kind of dementia, Alzheimer's type dementia (Alzheimer's disease), affects 50 to 60 percent of all patients with dementia. The prevalent age-related increase in Alzheimer's type dementia is observed. Due to its direct relationship to cerebrovascular disorders, vascular dementia is the second most frequent type of dementia. Between 15 and 30 percent of dementia cases are vascular dementias. When it comes to vascular dementia, males are more likely than women to have it between the ages of 60 and 70. Alzheimer's-type dementia and vascular dementia coexist in about 10 to 15 percent of participants.²

As the primary cause of disability in older adults, dementia significantly affects a person's ability to live independently, necessitating ever-more sophisticated care. So, as an illness progresses, the need for care and ongoing supervision increases, usually from a family member. This highlights the significance of the family in the process of providing care for the elderly. All family members, especially those who give direct care, may be affected by the patient's dependence.³

The term "symptoms of disturbed perception, thought content, mood, or behavior that frequently occur in patients with dementia" refers to behavioral and psychological symptoms of dementia (BPSD), which are non-cognitive symptoms of dementia⁴. Since these symptoms change over time based on the disease's progression, biological correlates, and psychosocial causes, BPSD as a group is not a homogeneous group.⁵

According to estimates, there were 24.3 million dementia sufferers worldwide in 2001; by 2020, that number is expected to rise to 42.3 million⁶. Within India, the proportion of the population over 60 is expected to increase to 21% by 2025.

Almost everyone with dementia experiences behavioral and psychological symptoms at some time as the illness advances. Current research acknowledges that a disproportionate amount of patient and caregiver pain can be attributed to BPSD. Even after controlling for the degree of cognitive impairment and other co-morbidities, it raises the direct and indirect costs of healthcare. BPSD is one of the main factors contributing to low life quality, caregiver stress, rising healthcare costs, and the encouragement of institutionalization. Therefore, providing the best care possible for these symptoms can enhance patients' and professionals' quality of life and wellness⁷.

The degree of cognitive impairment can affect BPSD, thus knowing which symptoms are typical of

mild, moderate, or severe dementia will help caregivers be more prepared for any future occurrences of these symptoms⁸.

Instead of focusing on individual behavioral and psychological symptoms, it is crucial to identify behavioral sub syndromes in dementia since they may share a common neurological substrate or respond to similar therapies⁹. Within the cluster of BPSD symptoms, identifying symptom categories might be therapeutically helpful. To create more successful pharmacological and non-pharmacological treatments for dementia patients, individually tailored strategies that take into account each of these factors are required. With regards to India, there are few studies regarding BPSD in eastern part of India including west Bengal.

The overall objective of this study was to determine the patterns of BPSD among Dementia patients attended to psychiatry department R.G.Kar MCH, Kolkata and its association (if any) with the degree of cognitive impairment.

METHODS:

This was a descriptive cross-sectional study, was conducted at psychiatry department (OPD and IPD) of R. G. Kar MCH, Kolkata. Total 90 patients were included in the study. Diagnosis of dementia was based on ICD 10 criteria. This study was conducted over one year (Jan 2019 to Dec 2019). Patients having met the criteria for inclusion and exclusion were included in the study. Mini mental status examination (MMSE) was administered to assess cognitive function. Based on MMSE score, patients were categorized as mild ($MMSE \geq 21$), moderate (11-20) or severe (≤ 10) dementia. Neuropsychiatric Inventory (NPI) was administered to assess BPSD domain (12 symptom domain) as reported by caregiver. Socio demographic profile was assessed by questionnaire administered by interviewers. Statistical analysis was done by SPSS version 25. Standard statistical tests were given to analyze the data.

RESULT AND ANALYSIS

In our study, 39 (43.3%) patients were Female and 51 (56.7%) patients were male.

Marital status

In this study, all patients [90(100.0%)] were married.

Residence

In our study, 42 (46.7%) patients were from rural area and 48 (53.3%) patients were from urban area.

Religion

In our study, 69 (76.7%) patients were Hindu and 21 (23.3%) patients were muslim.

Education

In this study, 39 (43.3%) patients studied up to secondary level. 21 (23.2%) patients studied upto middle level and 9 (10%) were graduate.

Type of family

In our study, 45 (50.0%) patients belong to joint Family and 45 (50.0%) patients were from nuclear Family.

Caregivers were, 18 (20.0%) daughter, 9 (10.0%) daughter -in law, 12 (13.3%) Husband, 3 (3.3%) Sister, 6 (6.7%) son and 42 (46.7%) wife.

SES (BGP)

In this study, 18 (20.0%) patients were from class II socioeconomic status, 27 (30.0%) patients were from class III socioeconomic status, 36 (40.0%) were from SES class IV, 9 (10.0%) were from SES status V.

The mean age of patients was 63.2±6.4 yrs. Majority (83.3%) of the participants had BPSD.

In our study common BPSD were delusions (51.1%), agitation (51.1%), hallucination (41.1%), depression (35.5%), anxiety (24%) and aberrant motor behaviour (24%).

We found, 24 (26.7%) patients had mild cognitive impairment, 48 (53.3%) had moderate and 18 (20.0%) patients had severe cognitive impairment in our study.

In assessing BPSD and level of cognitive impairment, our study revealed that, delusion was present in 10 (41.7%) patients having mild cognitive impairment, 30 (62.5%) patients having moderate cognitive and 6 (33.3%) patients having severe impairment. Association of delusions with cognitive impairment (MMSE score) was not statistically significant ($p=0.0600$).

Present study showed that, hallucinations was present in 4 (16.7%), 20 (41.7%) and 13 (72.2%) patients having mild, moderate and severe cognitive impairment respectively. Association of Hallucinations and cognitive impairment (MMSE score) was statistically significant ($p=0.0014$)

In this study, Agitation was found in patient having, 8 (33.3%) mild, 28 (58.3%) moderate and 10 (55.6%) severe cognitive impairment. It was not statistically significant ($p=0.1236$)

We observed, depression was present among 14 (58.3%), 16 (33.3%) and 2 (11.1%) patients having mild, moderate and severe cognitive impairment respectively. Association of depression with cognitive impairment (MMSE score) was statistically significant ($p=0.0060$)

In our study we found anxiety in 12 (50.0%) and 10 (20.8%) patients having, mild and moderate cognitive impairment respectively. It was statistically significant ($p=0.0006$)

Present study showed that, 4 (8.3%) patients had elation with moderate cognitive impairment. It was not statistically significant ($p=0.1601$)

In this study, 5 (20.8%), 10 (20.8%) and 4 (22.2%) patients having mild, moderate and severe cognitive impairment respectively presented with apathy. It was not statistically significant ($p=0.9916$)

We observed that disinhibition was present among, 12 (25%) and 10 (55.6%) patients having moderate, severe cognitive impairment respectively. Association of disinhibition with cognitive

impairment (MMSE score) was statistically significant ($p < 0.0001$)

In our study, 10 (41.7%), 27(56.3%) and 9 (50%) patients who had mild, moderate and severe cognitive impairment respectively presented with Irritability. It was not statistically significant ($p = 0.5033$)

Present study found that aberrant motor behaviour was present among, 2 (8.3%), 8(16.7%) and 12(66.7%) patients who had mild, moderate and severe cognitive impairment respectively. Association of Aberrant motor behavior with MMSE score was statistically significant ($p < 0.0001$)

In assessing night time behaviour disorders, 3 (12.5%), 6(12.5%) and 9(50.0%) patients had mild, moderate and severe cognitive impairment respectively. Association of night time behavior disorder with cognitive impairment was statistically significant ($p = 0.0017$)

We observed, eating disorder was present in 8 (33.3%), 13(27.1%) and 6(33.3%) patients who had mild, moderate and severe cognitive impairment respectively. It was not statistically significant ($p = 0.8119$)

Table: Comparison between NPI Symptom and Dementia category based on MMSE score

Dementia category based on MMSE score								
NPI Symptom		Mild		Moderate		Severe		P value
		n	%	n	%	n	%	
Delusions	Yes	10	41.7	30	62.5	6	33.3	0.0600
	No	14	58.3	18	37.5	12	66.7	
Hallucinations	Yes	4	16.7	20	41.7	13	72.2	0.0014
	No	20	83.3	28	58.3	5	27.8	
Agitation	Yes	8	33.3	28	58.3	10	55.6	0.1236
	No	16	66.7	20	41.7	8	44.4	
Depression	Yes	14	58.3	16	33.3	2	11.1	0.0060
	No	10	41.7	32	66.7	16	88.9	
Anxiety	Yes	12	50	10	20.8	0	0	0.0006
	No	12	50	38	79.2	18	100	
Elation	Yes	0	0	4	8.3	0	0	0.1601
	No	24	100	44	91.7	18	100	
Apathy	Yes	5	20.8	10	20.8	4	22.2	0.9916

	No	19	79.2	38	79.2	14	77.8	
Disinhibition	Yes	0	0	12	25	10	55.6	<0.0001
	No	24	100	36	75	8	44.4	
Irritability	Yes	10	41.7	27	56.3	9	50	0.5033
	No	14	58.3	21	43.7	9	50	
Aberrant motor behavior	Yes	2	8.3	8	16.7	12	66.7	<0.0001
	No	22	91.7	40	83.3	6	33.3	
Night time behavior disorders	Yes	3	12.5	6	12.5	9	50	0.0017
	No	21	87.5	42	87.5	9	50	
Appetite and eating disorders	Yes	8	33.3	13	27.1	6	33.3	0.8119
	No	16	66.7	35	72.9	12	66.7	

Table: Distribution of Demographic Variable

		Frequen cy	Percent
Gender	Female	39	43.3%
	Male	51	56.7%
	Total	90	100.0%
Relationsh ip (caregive r)	Daughter	18	20.0%
	Daughter -in law	9	10.0%
	Husband	12	13.3%
	Sister	3	3.3%
	son	6	6.7%
	wife	42	46.7%
	Total	90	100.0%
	Marital status	married	90
	Total	90	100.0%
Residence	Rural	42	46.7%
	Urban	48	53.3%
	Total	90	100.0%
Religion	Hindu	69	76.7%

	Muslim	21	23.3%
	Total	90	100.0%
Education	Up to class IV	3	3.3%
	class V- VIII	21	23.2%
	class IX- X	39	43.5%
	class XII	18	20.0%
	Graduate	9	10.0%
	Total	90	100.0%
Type family	joint	45	50.0%
	nuclear	45	50.0%
	Total	90	100.0%
SES(BGP)	II	18	20.0%
	III	27	30.0%
	IV	36	40.0%
	V	9	10.0%
	Total	90	100.0%

Table: Distribution of mean Age year

	Number	Mean	SD	Minimum	Maximum	Median
Age year	90	63.2000	6.4620	50.0000	76.0000	63.0000

Table: Distribution of MMSE

MMSE	Frequency	Percent
Mild (≥ 21)	24	26.7%
Moderate (11-20)	48	53.3%
Severe (≤ 10)	18	20.0%
Total	90	100.0%

Table: Distribution of BPSD

BPSD	Frequency	Percent
Yes	75	83.3%
No	15	16.7%
Total	90	100.0%

DISCUSSION

The prevalence of behavioural and psychological symptoms of dementia (BPSD) between studies has always been inconsistent due to differences in setting, instruments used and study design. Common BPSD found in our study were Delusions, Hallucinations, depression, anxiety, and irritability and disinhibition. BPSD like hallucination, depression, anxiety, disinhibition, aberrant motor behaviour and night time behaviour disorders were found statistically significant with cognitive impairment. There was identifiable clustering of symptoms, according to severity of cognitive impairment. Hallucinations, disinhibition and aberrant motor behaviour were significantly more prevalent in Severe dementia ($P < 0.05$). Depression and anxiety symptoms were significantly more prevalent in Mild dementia ($P < 0.05$).

Delusions was overpresented in Moderate dementia but it was found statistically not significant (> 0.05) in this study though other study found it was statistically significant.

CONCLUSION

The study's conclusions have a number of significant ramifications. Given the high frequency of BPSD in dementia patients, screening for behavioural and psychological symptoms is crucial. The majority of patients had BPSD; this suggests that alternative options for effective management need to be developed. The correlation between certain symptoms and the level of cognitive impairment, as well as the observation that BPSD is associated with mild, moderate, and severe dementia, suggest that BPSD is a consequence of cognitive impairment.

REFERENCES

1. Rodríguez A, Mondrogon M, Chávez O, Solís V. Variables associated to anxiety and depression in caregivers of neurodegenerative disease patients. *Arch Neurocienc* 2010; 15 (1):25-30.
2. Pinto M, Barbosa D, Eloah C, Ferreira L, Souza D, Gonçalves A. Quality of life among caregivers of elders with Alzheimer's disease. *Acta Paul Enferm* 2009; 22: 652-657.
3. Pérez M, Llibre J. Características socio demográficas y nivel de sobrecarga de cuidadores de ancianos con Enfermedad de Alzheimer. *Rev Cubana Enf* 2010; 26:104-116.
4. Lawlor B. Managing behavioural and psychological symptoms of dementia. *Br J Psychiatry* 2002; 81: 463-5.
5. Hippus H, Neundörfer G. The discovery of Alzheimer's disease. *Dialogues Clin Neurosci* 2003; 5(1):101-8.
6. Ferri CP, Prince M, Brayne C, *et al.* Global prevalence of dementia: a Delphi consensus study. *Lancet* 2005; 366(9503):2112-7.
7. Green CR, Marin DB, Mohs RC, Schmeidler J, Aryan M, Fine E, *et al.* The impact of behavioral impairment on functional ability in Alzheimer's disease. *Int J Geriatr Psychiatry* 1999; 14(4):307-16.
8. Aalten P, Verhey FR, Boziki M, *et al.* Consistency of neuro psychiatric syndromes across dementias: results from the European Alzheimer Disease Consortium. Part II. *Dement Geriatr Cogn Disord* 2008; 25(1):1-8.
9. Aalten P, de Vugt ME, Lousberg, Korten E, Jaspers N, Senden B, *et al.* Behavioral problems in dementia: a factor analysis of the euro psychiatric inventory. *Dement Geriatr Cogn Disord* 2003; 15(2): 99-105.