Original Research Paper

"Depression As Co-Morbidity in Diagnosed Patients of Hypertension in A Rural Area of Jaipur."

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Abstract:
Background: In spite of being a prolific killer, depression is widely undiagnosed and untreated because of stigma, lack of effective therapies and inadequate mental-health resources. Chronic diseases such as Hypertension are the leading cause of death and the most frequent focus of care in primary health centers in many developed countries. This comorbidity is associated with a higher risk of death, a decrease in the efficacy of interventions, and complications in long-term prognosis. This study was undertaken to further our understanding of relation between depression and chronic disease i.e. Hypertension.
Methodology: A community based cross sectional study was done to study depression as co-morbidity in diagnosed patients of hypertension in a rural area of Jaipur. For this study one of the larger villages, Dadiya, with a population of 6493 was selected. All the participants were subjected to PHQ-9 evaluation, for assessing depression. Data analysis was performed using SPSS version 11.0 (SPSS Inc., 233 South Wacker Drive, 11th floor, Chicago, IL 60606-6412).
Results: The overall prevalence of depression among participants previously diagnosed with hypertension was 33.3% (n=90) but there was no significant association between hypertension and depression severity. Occupation and BMI (p value = 0.024 & 0.001 respectively) were found significantly associated with depression severity among the study participants. Farmers, unemployed and participants who were underweight experienced higher prevalence of depression (36.6%, 38.8% & 42.3% respectively).
Conclusion: We Conclude that the depression in hypertensive cases is a serious concern, outmost care should be taken to suspect, diagnose and address this problem promptly.

Key Words: Depression, Hypertension, Lifestyle Disorders.

INTRODUCTION:
        Depression is a common, debilitating, and potentially lethal disorder [1]. Many people suffer from it — some 350 million, according to the World Health Organization — and the fact that it lasts for many years. When ranked by disability and death combined, depression comes ninth behind prolific killers such as heart disease, stroke and HIV. Yet depression is widely undiagnosed and untreated because of stigma, lack of effective therapies and inadequate mental-health resources. Almost half of the world's population lives in a country with only two psychiatrists per 100,000 people [2].

 Depression is one of the most commonly diagnosed mental disorders in primary care settings, occurring in approximately 6 to 10 percent of the clinic populations. Despite this high prevalence rate, patients with depression often go undiagnosed or are misdiagnosed. Many patients with depression selectively focus on the somatic components of their depressive syndrome and minimize or even deny affective and cognitive symptoms. Depression and medical disorders also often occur concomitantly with depression causing amplification of somatic complaints.

Due to the unidimensional focus on the biomedical model many physicians only evaluate and treat the physical illness and do not diagnose the depression [3].

In India, National Mental Health Survey (NMHS) was undertaken in a nationally representative population to examine priority mental disorders, estimate treatment gap, assess service utilization, disability and socio-economic impact along with assessing resources and systems. According to NMHS data, overall weighted prevalence of lifetime Depressive Disorder (DD) was 5.25% (95% CI: 5.21 to 5.29) and it varied across the socio-demographic groups. The lifetime prevalence of DD was relatively high in 40–49 age group (7.47%) and marginally more in females (5.72%) when compared with males (4.75%). The lifetime prevalence of DD was also higher among those residing in cities with population >1 million (8.23%), belonging to the lowest income quintile group (6.36%) and among those who were widowed/divorced/separated (11.23%). Prevalence of DD in Rajasthan was 2.7% with a treatment gap of 93.9% [4].

Hypertension or elevated blood pressure is a serious medical condition that significantly increases the risks of heart, brain, kidney and other diseases. Estimates suggest that 31.1% of adults (1.39 billion) worldwide had hypertension in 2010. The prevalence of hypertension among adults was higher in low and middle income countries (31.5%, 1.04 billion people) than in high-income countries (28.5%, 349 million people) [5].

According to NFHS 5 phase II data, in urban area 16.9% women and 19.2% men were hypertensive where as in rural area 14.9% women and 17.4% men were hypertensive. In total 15.4% women and 17.9% men were hypertensive in Rajasthan [6].

Chronic diseases such as Hypertension are the leading cause of death and the most frequent focus of care in primary health centers in many developed countries. They are often presented with comorbidities such as depression. This comorbidity is associated with a higher risk of death, a decrease in the efficacy of interventions, and complications in long-term prognosis. Depression is the burden of suffering from the condition and its impact on people's quality of life [7].

Some of the factors that increase this burden are functional deterioration at a physical level and the decrease in physical activity as a result of the deterioration of health, the social isolation associated with the disease, fear of the future and feeling of loss of health due to the diagnosis, and guilt for having caused the disease with an unhealthy lifestyle [7].

Considering the facts along with the paucity of studies related to depression in chronic diseases in the rural area, this study was undertaken to find relation between depression and chronic disease i.e. Hypertension. For this study we have selected PHQ-9 [8] for assessing depression in previously diagnosed patients of HTN. The PHQ-9 is the 9-question depression scale of PHQ. The PHQ is a self-administered version of the PRIME-MD, a screening tool that assesses 12 mental and emotional health disorders.

METHODOLOGY:

Setting and study design: A community based cross sectional study was done to study depression as co-morbidity in diagnosed patients of hypertension in a rural area of Jaipur. For this study one of the larger villages, Dadiya, with a population of 6493 was selected. After getting approval from institutional ethical committee, plan of study was executed. Data collection for this study was carried for One year from 25/1/2021 to 28/12/2021.

Sample size estimation and sampling technique: Sample size was estimated in accordance with the prevalence value of hypertension in the rural community of west India i.e., 18.11% and 4% margin of error. Sampling was done using simple random sampling technique. A total of 271 participants could be enrolled.

All the residents living in the area for more than 1 year who were aged ≥30years were screened by house to house survey. A written informed consent was obtained from willing study participants. Those found with positive history of hypertension for more than 1 year were enrolled in the present study. Pregnant and lactating women were excluded. Other mental illness like bipolar disorder, post-traumatic stress disorder, psychosis, mental retardation, schizophrenia etc. were ruled out in suspected cases in order to make diagnosis of major depressive disorder.

Method of data collection:
The patients' socio demographic details regarding his name, age, gender, marital status, family type, religion,

lifestyle, occupation, diet, personal habits, past medical history, history of hospitalization and medication history were collected. The patient was examined for pulse, blood pressure, pallor, temperature, Respiratory System examination, Cardiovascular System examination, Per Abdomen examination, Central Nervous System examination, height, weight and BMI using standard procedures. Findings and readings were recorded.

All the participants were subjected to PHQ-9 evaluation, in which the participant was asked 9 questions. If the answer was several days the score was 1, for more than half the days the score was 2 and for nearly every day the score was 3. Adding together the column scores, total score was calculated.

Those with a total score of 10 or higher were considered to be suffering from depression. These participants were promptly referred to Psychiatric Outpatient Department of Govt. Rukmani Devi Beni Parsad Jaipuria Hospital – RUHS for further evaluation.

RESULTS:

The overall prevalence of depression among participants previously diagnosed with hypertension was 33.3% (n=90) but there was no significant association between hypertension and depression severity.

Table 1: Profile of study participants (n=271).

S. No.	Socio-demographic variable	N (%)
1	**Age**	
	<60	172 (63.4)
	>60	99 (36.5)
2	**Gender**	
	Male	102 (37.6)
	Female	169 (62.3)
3	**Marital status**	
	Married	225 (83.0)
	Unmarried	4 (1.4)
	Widowed	42 (15.4)
4	**Family type**	
	Nuclear family	111 (40.9)
	Joint family	160 (59.0)
5	**Occupation**	
	Businessman	5 (1.8)
	Government Employee/ Private Employee	10 (3.6)
	Self-employed	47 (17.3)
	Farmer	101 (37.2)
	Unemployed	108 (39.8)
6	**Dietary habits**	
	Vegetarian	248 (91.5)
	Non vegetarian	23 (8.4)
7	**Tobacco smoking/chewing**	
	Smoker/Tobacco chewer	78 (28.7)
	Non-smoker/chewer	193 (71.2)
8	**Alcohol consumption**	
	Alcohol consuming	12 (4.4)
	Non-alcohol consuming	259(95.5)
9	**BMI**	
	<18.5 (Underweight)	26 (9.5)
	18.5 to 24.9 (Normal)	157 (57.9)
	25 to 29.9 (Overweight)	76 (28.0)
	>30 (Obese)	12 (4.4)

Among the study participants (n=271), the mean age was 56 ± 14 years, with male to female ratio of 1:1.6. All of them belonged to Hindu religion. Most of them were married (83 %, n=225) with few widowed (15.4 %, n=42) &

very few were unmarried (1.4 %, n=4). Majority were living in joint family (57.2 %, n=206). Most of them were vegetarians (91.5%). 28.7 % were smokers & only 4.4 % were consuming alcohol.

Table 2: Prevalence of depression according to socio-demographic profile of study subjects (n=271).

S. No.	Socio-demographic variable	N (%)	$\chi 2$	p value
1	**Age**		58.864[a]	0.135
	<60	48 (27.9)		
	>60	42 (42.2)		
2	**Gender**		1.064[a]	0.302
	Male	30 (29.4)		
	Female	60 (35.5)		
3	**Marital status**		2.161[a]	0.339
	Married	71 (31.5)		
	Unmarried	1 (25.0)		
	Widowed	18 (42.8)		
4	**Family type**		.001[a]	0.971
	Nuclear family	37 (33.3)		
	Joint family	53 (33.1)		
5	**Occupation**		12.895[a]	0.024
	Businessman	0		
	Government Employee /Private Employee	3 (30.0)		
	Self-employed	8 (17.0)		
	Farmer	37 (36.6)		
	Unemployed	42 (38.8)		
6	**Dietary habits**		0.087[a]	0.768
	Vegetarian	83 (33.4)		
	Non vegetarian	7 (30.4)		
7	**Tobacco smoking/chewing**		0.066[a]	0.797
	Smoker/Tobacco chewer	25 (32.0)		
	Non-smoker	65 (33.6)		
8	**Alcohol consumption**		0.000[a]	0.993
	Alcohol consuming	4 (33.3)		
	Non-alcohol consuming	86 (33.2)		
9	**BMI**		253.342[a]	<0.001
	<18.5 (Underweight)	11 (42.3)		
	18.5 to 24.9 (Normal)	56 (35.6)		
	25 to 29.9 (Overweight)	22 (28.9)		
	>30 (Obese)	1 (8.3)		

Prevalence of depression was seen more in elderly >60 years participants (42.2%). Females had slightly higher depression prevalence of 35.5%. Widowed had higher prevalence of depression (42.8%). Farmer and unemployed had high prevalence of 36.6% & 38.8% respectively. Participants who were underweight also experienced higher prevalence of depression (42.3%). Occupation and BMI (p value = 0.024 & 0.001 respectively) were found significantly associated with depression severity among the study participants.

DISCUSSION:

 The overall prevalence of depression in participants having hypertension as co-morbidity was 33.3% (n=90). Literature from various authors from various regions reported varied observations as follows.

In a study conducted by **Kulkarni V et al** at Government District Hospital, Mangalore in 2012 among patients with select Non Communicable Diseases, depression was seen in 28.3% (n=13) of hypertension patients. After Bivariate analysis, the study also showed significant negative association (P <0.05) between psychiatric illness and factors such as education, marital status, age <60 years, duration of illness of <10 years [9]. Whereas in our study occupation and BMI were found significantly associated with depression severity, which shows etiology of depression is multifactorial.

In secondary analysis conducted by **Valladares-Garrido M J et al**, of the 2017 Peru Demographic and Family Health Survey, using data from 10,566 adults aged 40 and older, prevalence of depression among adults with hypertension was 34.96%, similar to our study [11].

Conclusion:

Prevalence of depression (33.3%) among the study participants with hypertension was higher than the 15.4 % crude prevalence rate of lifetime mental morbidity in Rajasthan. Farmers, unemployed and participants who were underweight were found to be more depressed. Hence, there is a need for its early diagnosis and optimum treatment to maximize patient outcomes.

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