Research Report

RISK OF VIOLENCE IN SEVERELY MENTALLY ILL AND THE PSYCHIATRIC MORBIDITY AMONG THEIR CAREGIVERS

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ABSTRACT

Background: Violence in psychiatric patients is a major concern to both public and mental health professionals. Risk of violence (ROV) in patients can cause a high degree of psychological stress on caregivers that may predispose them to various psychological problems. **Aim:** To estimate the ROV in patients with severe mental illness and to estimate the relationship between the ROV among severely mentally ill and the psychiatric morbidity in their primary caregivers. **Methods:** A cross-sectional study was conducted at a tertiary care center involving 308 patient subjects and their caregivers. Socio-demographic data were collected using a proforma, and caregivers were diagnosed based on the International Classification of Diseases-10 using Mini International Neuropsychiatric Interview (MINI)-Plus. ROV was assessed using Historical Clinical Risk Management (HCR)-20, Version 3. Statistical analysis was done using the Chi-square test for association and odds ratio and its 95% confidence interval for the strength of association. **Results:** High ROV was found in 32.5% of the severely mentally ill. Caregivers reported a high rate of psychiatric disorders (44.8%), of which 71.7% were mood disorders. A significant association was found between ROV in patients and psychiatric morbidity in their caregivers ($p = 0.001$). **Conclusion:** ROV is high among the severely mentally ill. There is a high rate of psychiatric morbidity among caregivers of patients with a high ROV. There is a significant association between psychiatric morbidity in caregivers and ROV in patients.

Keywords: Aggression, violence, caregivers, psychiatric morbidity, HCR-20-V3.

INTRODUCTION

People with mental illness are often perceived as potential sources of violence. However, all psychiatric patients are not violent, but a small proportion account for most violent incidents. Aggression refers to behaviors leading to non-accidental harm, and violence is considered a subtype of aggression involving non-accidental physical harm by one individual towards another that often leads to or is likely to result in physical injury, psychological harm, or even death.[1] Aggression and violence are often used interchangeably. The mentally ill are often the victims as well as perpetrators of violence.[2,3] Many a time, violence by a mentally ill is directed towards family members or their caregivers, health care staff, and rarely the public.[2,3,4] High risk of violence (ROV) was

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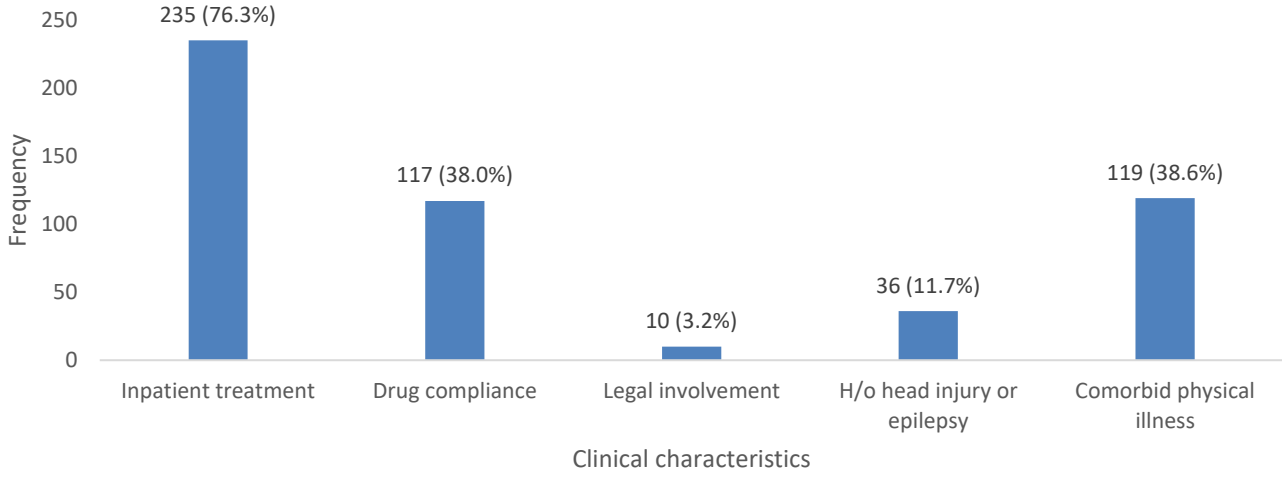
Figure 1. Clinical characteristics of patients



reported in mentally ill during their stay in psychiatric institutions.[5] A study by Steadman et al. (1998) among patients who were discharged from the hospital reported at least a violent act in 4.5%. The same study showed a ROV in 17.9% of major mood disorder patients with no substance abuse, compared to 31.1% of those with substance abuse and 43.0% in other mental disorder patients with substance abuse.[4] A study among 1410 schizophrenic patients reported a six-month prevalence of any violence in 19.1%.[6] Though violence by the mentally ill results in minor or no physical injury, the emotional consequences are often severe. The psychological consequences of violence are difficult to quantify. It may challenge the morale of caregivers, cause severe distress, resulting in various emotional problems, and increase the caregiver burden. The stressful environment resulting from violence or aggression also negatively affects the quality of life (QOL) of caregivers. Caregivers of the mentally ill reported poor QOL, social isolation, and adverse impact on their relationship in addition to other psychological disturbances.[7,8] Psychiatric problems, including symptoms of post-traumatic stress disorder (PTSD), were reported by therapists who were victims of their patient's violence.[2] Aggression due to mental illness also contributes to stigma and family burden.[4,7] Swanson et al. (1996) reported high ROV in patients with psychotic symptoms or psychotic disorders. Those with schizophrenia, major affective disorders, and substance abuse were found to be at a higher ROV compared to those with minor affective or anxiety disorders.[9] History of violent behavior in the past is considered as the best predictor of future violence.[3]

Understanding the ROV can help in the treatment to prevent or reduce aggression and its consequences. Also, identifying and addressing the various psychological problems

Table 1. Socio-demographic characteristics of patients and caregivers

Parameters		Patients N = 308 n (%)	Caregivers N = 308 n (%)
Age Group	18-25 years	34 (11.0)	17 (5.5)
	26-35 years	93 (30.2)	38 (12.3)
	36-45 years	91 (29.5)	76 (24.7)
	46-55 years	49 (15.9)	98 (31.8)
	56-65 years	41 (13.3)	79 (25.6)
Gender	Male	163 (52.9)	108 (35.1)
	Female	145 (47.1)	200 (64.9)
Marital status	Married	175 (56.8)	249 (80.8)
	Unmarried	103 (33.4)	26 (8.4)
	Divorced/ widow(er)/ separated	30 (9.7)	33 (10.7)

Table 2. Association of patient's socio-demographic parameters with risk of violence

Parameters		Risk of violence		Odds Ratio (95% CI)	χ^2 (*df*)	P value
		Yes n1 = 100; f (%)	No n2 = 208; f (%)			
Age (years)	≤45	77 (35.3)	141 (64.7)	1.59 (0.91-2.75)	2.77 (*1*)	0.10
	>45	23 (25.6)	67 (74.4)			
*Gender	Male	61 (37.4)	102 (62.6)	1.63 (1.00-2.64)	3.88 (*1*)	0.049
	Female	39 (26.9)	106 (73.1)			
†Education	Illiterate	1 (50.0)	1 (50.0)			0.62
	Primary	9 (29.0)	22 (71.0)			
	Secondary	79 (32.2)	166 (67.8)			
	Graduate/Post	10 (34.5)	19 (65.5)			
	Professional	1 (100.0)	0 (0.0)			
†Income (Rs)	<5000	81 (34.0)	157 (66.0)			0.31
	5000-10000	17 (30.4)	39 (69.6)			
	>10000	2 (14.3)	12 (85.7)			
†Place	Rural	96 (32.8)	197 (67.2)	1.34 (0.41-4.31)		0.78
	Urban	4 (26.7)	11 (73.3)			
Occupation	Yes	32 (34.4)	61 (65.6)	1.13 (0.68-1.9)	0.23 (*1*)	0.63
	No	68 (31.6)	147 (68.4)			
Marital status	Married	54 (30.9)	121 (69.1)		4.62 (*2*)	0.33
	Unmarried	39 (37.9)	64 (62.1)			
	Others	7 (23.3)	23 (76.7)			

* – P value < 0.05, † – Fisher's exact test; *df* – degree of freedom, f – frequency, 95% CI – 95% Confidence interval

among the caregivers of those mentally ill with high ROV can help to improve the QOL of caregivers and the treatment adherence and prognosis of patients.

The aims of this study are to estimate the ROV in patients with severe mental illness, to determine the psychiatric morbidity among the primary caregivers of the severely mentally ill, and to estimate the relationship between the ROV among the severely mentally ill and the psychiatric morbidity in their primary caregivers. Our secondary objective was to assess the relationship between caregiver`s sociodemographic profile and clinical parameters with their psychiatric morbidity.

METHODOLOGY

A cross-sectional study was conducted in the Department of Psychiatry at a 3500-bedded tertiary care center in Kerala, India, during a nine-month period from August 2019. Both inpatients and outpatients were included. Patients diagnosed with a psychotic disorder or bipolar affective disorder as per the International Classification of Diseases (ICD)-10 were considered as severely mentally ill. All consecutive patients in the age group of 18-65 years, having an illness duration of at least one year, and those who gave informed written consent were included in the study. Patients with a clinical diagnosis of mental retardation were excluded. Consenting caregivers in the age group of 18-65 years who had stayed with the patient for at least three months in the past one year were included. Caregivers having a medical problem with cognitive deficits (e.g., old stroke and epilepsy) that interfered with assessment and those having an already diagnosed psychiatric illness prior to the index patient`s illness were excluded. This study was approved by the Institutional Ethics Committee for research (IEC certificate number – GMCKKD/RP 201/IEC/180).

The sample size was calculated based on a previous study by Inogbo et al. (2017), in which they reported a prevalence of psychiatric

Table 3. Association of psychiatric diagnosis of patients with risk of violence

Psychiatric diagnosis	Risk of violence	
	Yes (n_1 = 100) f (%)	No (n_2 = 208) f (%)
Schizophrenia	45 (39.8)	68 (60.2)
BPAD	34 (23.4)	111 (76.6)
Delusional disorder	6 (50.0)	6 (50.0)
Others	15 (39.5)	23 (60.5)

χ^2 = 10.70 (*df = 3),* P = 0.01; BPAD – bipolar affective disorder, f - frequency

morbidity of 24.3% in caregiver relatives.[10]

After getting written informed consent from both the patients and the caregivers, their sociodemographic and clinical details were recorded using a proforma designed for this purpose. The psychiatric morbidity of caregivers was assessed using Mini International Neuropsychiatric Interview (MINI) - Plus, and the diagnosis was made according to ICD-10 diagnostic criteria.[11,12] Historical Clinical Risk Management-20 (HCR-20) Version 3 was administered to assess the ROV.[13] HCR-20 is a structured professional judgment instrument to assess an individual's risk of violence among mentally ill adults. It has three domains – H (Historical scale) containing ten items; C (Clinical scale) five items; and R (Risk item scale) five items. Each item is scored between 0 and 2, and a total score of 20 or more is considered high ROV. This tool and its sub-scales have excellent inter-rater reliability.[13]

The statistical analysis was done using SPSS version 18 (PASW Statistics for Windows, Version 18.0. Chicago: SPSS Inc). Mean and standard deviation (SD) were used to summarize quantitative variables, while frequencies and percentages were used for qualitative variables. Chi-square test or Fisher's exact test was used to test the association between qualitative variables, and the t-test was used to compare the means between the two groups. The Mann-Whitney U test was used to find the significance of comparing differences between two groups when the quantitative variable was not normally distributed. P value <0.05 was considered significant. The strength of association was estimated using odds ratio (OR) and its 95% confidence interval (95% CI).

RESULTS

Socio-demographic Characteristics of the Patient Group

This study included 308 patients and their caregivers. The mean age of the patients was 39.9 years (SD = 12.4), the range being 18-65 years. More than 70% of the patients were aged below 45 years; 215 (69.8%) were unemployed. Of the employed patients, 61 (65.6%) were manual laborers, 30 (32.3%) were skilled workers and two (2.2%) were professionals. More than 90% were educated at or below higher secondary level. The mean years of education was 9.7 (SD = 3.3). The majority (n = 238, 77.3%) were from low-income strata, i.e., income below Rs 5000/month, and only 4.5% (n = 14) had an income above Rs 10000/month. Other sociodemographic details are given in Table 1.

Clinical Characteristics

Among the patients, **s**chizophrenia was the diagnosis in 113 (36.7%), bipolar affective disorders in 145 (47.1%), other psychotic disorders in 38 (12.4%), and delusional disorder in 12 (3.9%). The mean illness duration was 13.3 (SD = 9.3) years. Eighty-six (27.9%) patients reported a history of substance abuse, of which 55 (64%) reported nicotine abuse, 22 (25.6%) both alcohol and nicotine, six (7%) alcohol and three (3.5%) other substance abuse. Other clinical characteristics are given in Figure 1.

ROV score of 20 or more was seen in 100 (32.5%) patients. The mean score of ROV on HCR-20 was 16.88 (SD = 6.07), and that on different dimensions of HCR were 8.66 (SD = 2.95), 4.57 (SD = 2.56), 3.66 (SD = 1.98) for H, C, and R respectively. No significant relationship was observed between various sociodemographic variables and ROV in

Table 4: Association of clinical characteristics of patients with risk of violence

Variables		Risk of violence		Odds Ratio (95% CI)	χ^2 (*df*)	P value
		Yes n1 = 100; f (%)	No n2 = 208; f (%)			
*Drug compliance	Yes	20 (17.1)	97 (82.9)	0.29 (0.16 - 0.50)	20.34 (*1*)	<0.001
	No	80 (41.9)	111 (58.1)			
Psychiatric hospitalization	Yes	78 (33.2)	157 (66.8)	1.15 (0.65-2.03)	0.24 (*1*)	0.63
	No	22 (30.1)	51 (69.9)			
*Substance abuse	Yes	45 (52.3)	41 (47.7)	3.33 (1.98- 5.61)	21.46 (*1*)	<0.001
	No	55 (24.8)	167 (75.2)			
*†Legal involvement	Yes	10 (100)	0 (0.0)			<0.001
	No	90 (30.2)	208 (69.8)			
Head injury/ epilepsy	Yes	14 (38.9)	22 (61.1)	1.38 (0.67 - 2.82)	0.767 (*1*)	0.38
	No	86 (31.6)	186 (68.4)			
Comorbid physical illness	Yes	41 (34.5)	78 (65.5)	1.16 (0.71- 1.89)	0.35 (*1*)	0.60
	No	59 (31.2)	130 (68.8)			

*– P value <0.05, † – Fisher's exact test; f = frequency, 95% CI – 95% Confidence interval

patients, except for gender (Table 2). ROV was found to be higher in schizophrenia patients than in patients with bipolar disorders or mood disorders. There was a significant relationship between various psychiatric diagnoses in patients and their ROV (χ^2 = 10.70 [*df = 3*], p = 0.01, see Table 3). Drug compliance, substance abuse, and legal involvement were observed to have a significant association with the ROV (Table 4).

Caregivers' Data:

Socio-demographic Details

The mean age of caregivers was 47.1 (SD = 11.9) years, the range being 18-65 years. Of the employed caregivers, 108 (69.2%) were manual laborers, 41 (26.3%) were skilled workers and seven (4.5%) were professionals. The majority (n = 279, 90.6%) were educated to a level at or below higher secondary, and the mean years of education was 8.5 (SD=4). The mean duration of staying together with the patient was 19.1 (SD=12.7) years. Family history of mental illness, including schizophrenia, was reported by 19 (17.4%) of the caregivers not related by blood. The socio-demographic characteristics of caregivers are shown in Table 1.

One hundred and thirty-eight (44.8%) caregivers had a psychiatric diagnosis, of which 111 (80.4%) had a current psychiatric disorder. The clinical characteristics of caregivers are given in Table 5. Twenty-three caregivers reported nicotine abuse. Age, gender, and occupation of caregivers showed a significant association with their psychiatric morbidity (see Table 6). The majority of caregivers were parents (n = 125, 40.6%), followed by spouses (n = 105, 34.1%), and children, siblings or others (n = 78, 25.2%). Of the caregivers, 76 parents (60.8%), 41 spouses (39.0%), and 21 others (26.9%) had a psychiatric diagnosis. Caregiving parents of severely mentally ill had higher psychiatric morbidity than siblings, children, or other relatives. A significant association (χ^2=24.42, p <0.001) was seen between the caregiver's psychiatric morbidity and their relationship with the patient.

No significant association was observed between the caregiver's blood-relatedness with the patient and their psychiatric morbidity (χ^2 = 2.26, p = 0.13). Physical illnesses such as hypertension, diabetes mellitus, osteoarthritis, etc., were reported by 65 of the 138 caregivers with a psychiatric disorder. This was found to have a significant relationship with caregiver psychiatric morbidity (OR = 2.71, χ^2 = 16.85, p <0.001). No such relationship was noticed for a

history of substance abuse (OR = 0.68, p = 0.302, χ^2 = 1.07). There was a significant association between ROV in patients and psychiatric morbidity in their caregivers (OR = 2.35, p = 0.001, χ^2 = 12.07). This association remained significant for the presence of a current psychiatric diagnosis also (OR = 2.74, p <0.001, χ^2 = 16.37). ROV was found to have a significant relationship with psychiatric disorders in the caregivers of the age group < 45 years (χ^2 = 11.75, p = 0.001) compared to those above 45 years (χ^2 = 2.95, p = 0.86).

DISCUSSION

This study comprised 308 patients and 308 caregivers. The mean age of the patient population was comparable to the observation by Fazel et al. (2021) and Witt et al. (2013).[14,15] Similar to the observations by Jakhar et al. (2015), males and unmarried dominated among our patient participants.[16] Though a high ROV was noticed among patients below 45 years, no significant statistical association was noticed between ROV and age group. This is in contrast to the finding by Amore et al. (2008), where a significant relationship was reported between ROV and age.[17] Compared to a study by Jakhar et al. (2015), this study observed a low ROV in both males and females.[16] However, we observed a significant relationship between gender and ROV (p = 0.049). Similar to other studies, lower income and comorbid substance abuse were noticed to have high ROV.[3,15] In contrast to a study by Dean et al. (2007), this study noticed no significant relationship between ROV and income.[18]

In contrast to a previous study that reported high ROV in bipolar patients, this study noticed high ROV among schizophrenia patients (39.8%) compared to bipolar patients (23.4%). This could be attributed to more symptomatic periods and poor adherence to medication in schizophrenia patients. Similar to a few previous studies, poor compliance with medications was noticed to have a significant association with ROV (p <0.001).[15,16,19]

Similar to earlier studies, patients with substance abuse and legal issues showed a high ROV.[15,20,21,22] In contrast to previous studies, this study did not establish a significant relationship between a history of head injury or epilepsy and ROV.[17] This could be due to the lower number of patients with a history of head injury or epilepsy in this study.

Over 75% of our patients required inpatient care at least once during their illness. The ROV score among our subjects is comparable to a previous study.[23] Though many patients reported physical comorbidity, no significant association could be established.

All caregiver subjects were family members; most were women and those above 45 years of age. Similar observations were made in an Indian study where 52.7% of caregivers were females, and 40.8% were above 50 years of age.[24] Similar to a few other studies, most of our caregivers were spouses or parents.[24,25,26,27] Some other studies reported even higher representation of spouses and parents among caregivers.[28,29] This may indicate the strong family ties and the caring attitude of family in our culture. Almost half of the caregivers were found to have a psychiatric diagnosis. Caregiver psychiatric morbidity has shown a significant association with their age, gender, and employment status, similar to observations by another study.[30]

Table 5. Clinical characteristics of caregivers

Clinical characteristics		(N=308) Number (%)
H/o substance abuse	Yes	33 (10.7)
	No	275 (89.3)
H/o physical illness	Yes	107 (34.7)
	No	201(65.3)
Psychiatric diagnosis	Yes	138 (44.8)
	No	170 (55.2)
Psychiatric diagnosis	Mood d/o	99 (71.7)
	SUD	2 (1.4)
	Delusional d/o	1 (0.7)
	Other psychotic disorders	36 (26.0)

d/o – disorder, H/o – history of, SUD- substance use disorder

Table 6: Association of socio-demographic parameters and psychiatric diagnosis of caregivers

Parameters		Psychiatric diagnosis		Odds Ratio (95% CI)	χ^2 (*df*)	P value
		Yes n_1 = 138; f (%)	No n_2 = 170; f (%)			
*Age (years)	≤45	49 (37.4)	82 (62.6)	0.59 (0.37-0.94)	5.05 (*1*)	0.03
	>45	89 (50.3)	88 (49.7)			
*Gender	Male	29 (26.9)	79 (73.1)	0.31 (0.18 - 0.51)	21.68 (*1*)	<0.001
	Female	109 (54.5)	91 (45.5)			
†Education	Illiterate	4 (33.3)	8 (66.7)			0.08
	Primary	31 (57.4)	23 (42.6)			
	Secondary	94 (44.1)	119 (55.9)			
	Graduate/Post	7 (26.9)	19 (73.1)			
	Professional	2 (66.7)	1 (33.3)			
Income (Rs)	<5000	102 (43.2)	134 (56.8)		1.38 (*2*)	0.5
	5000-10000	28 (48.3)	30 (51.7)			
	>10000	8 (57.1)	6 (42.9)			
*Occupation	Yes	58 (37.4)	97 (62.6)	0.55 (0.35 - 0.86)	6.88 (*1*)	0.01
	No	80 (52.3)	73 (47.7)			
Marital status	Married	110 (44.2)	139 (55.8)		1.73 (*2*)	0.42
	Unmarried	10 (38.5)	16 (61.5)			
	Others	18 (54.55)	15 (45.45)			

*- P value <0.05, † – Fisher's exact test; f – frequency, 95% CI – 95% Confidence interval

Though the majority of caregivers belonged to low-income families, the rate of psychiatric illness was found to be higher in those with an income of more than 10000/month. This is in contrast to a previous study.[25] This may be explained by several reasons, such as a high perceived stigma against mental illness and taking multiple responsibilities at the same time among the middle-income class in our society. In contrast to a study by Alzarani et al. (2017), caregivers with psychiatric morbidity were found to have a higher level of education.[31]

Caregiving parents and spouses showed a high rate of psychiatric morbidity, and a significant association was observed between the relationship with patients and the psychiatric morbidity of the caregivers. This is comparable to a previous study that reported the highest caregiver burden in close relatives like parents and spouses.[31] However, having a blood relationship was not found to be significantly associated with caregiver psychiatric morbidity. This may indicate that the risk of psychiatric morbidity in caregivers can be independent of genetic vulnerability. The mean duration of psychiatric illness in patients was found to have a significant association with psychiatric morbidity in caregivers, which is similar to another study among caregivers of schizophrenic patients.[32]

No relationship was observed for a history of substance abuse, but comorbid physical illness was found to be significantly associated with caregiver psychiatric morbidity. Comparable to observations found in another study done on primary caregivers of schizophrenic patients, around 45% of caregivers in our study were found to have a psychiatric disorder, of which 70.3% were depressive disorders.[33] However, another study reported a lower rate of psychiatric disorders (19.4%) among caregivers of patients with a high risk of aggression. This could be attributed to socio-cultural differences or methodological differences between studies.[34] Psychiatric morbidity and ROV were significantly associated, and the relationship remained significant for ROV and current psychiatric diagnosis. A study done in 2015 reported that even without actual violence, ROV is enough to

put the family at a greater risk for burden and distress.[35] Whereas Kjellin et al. (2005) found no relationship between patient violence and caregiver burden.[36] However, the psychiatric morbidity of caregivers was not compared with ROV in these studies. Hence, this needs further exploration.

Limitations: This is a cross-sectional study conducted at a tertiary care center, and the sample size is small. Hence, more explorations are needed to generalize the results.

Conclusion:

High ROV was found in 32.5% of severely mentally ill patients. ROV has a significant association with gender, comorbid substance abuse, drug compliance, legal involvement, and a diagnosis of schizophrenia. There is a high rate of psychiatric morbidity among caregivers of patients with an increased risk of violence. Psychiatric morbidity in caregivers and ROV in patients are significantly associated. Though family members constituted caregivers, a relationship between caregiver psychiatric morbidity and their blood relationship with the patient could not be established. Moreover, identifying and addressing ROV in severely mentally ill can help their caregiver relatives to have better mental health and thereby improve their quality of life. This study emphasizes the need for support and care for the caregiver of the severely mentally ill.

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