



Determinants and Characteristics of the Violent Incidents in a Tertiary-Level Mental Health Care Center

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J Neurosci Rural Pract 2022;13:483–489.

Abstract

Background The Mental Health Care Act of India, 2017 has for the first time focused on violence management interventions, especially restraint and seclusion in psychiatric settings, and recommended important guidelines in this aspect.

Objective This situation has created a strong need to review the prevalence of violence in inpatient settings, associated clinical and social correlates keeping a preventive model in context. Hence, this study was undertaken to fulfill this need. **Methods:** A retrospective matched case–control chart review design was employed. All patients who exhibited at least one violent incident during their ward stay were included. For each case, the control was selected by individual matching based on age \pm 2 years and gender from patients who were admitted during the study period but did not exhibit any violent incident. The information about the characteristics of violent incidents and management was also collected.

Results 8.80% of patients exhibited at least one incident of violence and a total of 186 violent incidents were recorded during the study period. Variables including involuntary admission, history of the previous admission, history of violence, impulsivity, lack of insight, and irritability at the time of admission significantly predicted the likelihood of violent incidents. The use of chemical restraining was the most common method of management of violent incidents.

Conclusion Violent incidents in psychiatric inpatient settings are still common. Efforts should be made to understand the risk as well as antecedent factors well in time. Verbal de-escalation should be employed and chemical and physical restraint should be used only as a last resort after exhausting the least restrictive interventions.

Keywords

- ▶ violence
- ▶ inpatient psychiatric unit
- ▶ restraint

Introduction

Violent behavior of patients in acute inpatient psychiatric setting is a common crisis for health care staff and caregivers.

It poses a major challenge for mental health professionals in the inpatient setting as they have to ensure the provision of quality care within a safe and therapeutic environment.¹ Globally, the prevalence of violent behavior among

DOI <https://doi.org/10.1055/s-0042-1750135>.
ISSN 0976-3147.

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psychiatric inpatients in general ranges from 3 to 15%, with variations based on study methodology, duration, and the country.² A recent systematic review and meta-analysis³ reported relatively high rates of violence in acute psychiatry wards of high-income countries, i.e., approximately one in five patients displayed incidents of violence during the hospital stay. Another review and meta-analysis reported that nearly 80% of nursing staff and 41% of clinical staff reported having experienced aggressive behavior in inpatient psychiatric units.⁴ A recent survey reported an alarming figure of 91.5% of psychiatric service employees experiencing aggression/injury which was reportedly high in female employees and the ones with lesser experience of working in psychiatric units.⁵ The manifestation of violence in the inpatient psychiatry setting may be the result of an interplay of several factors which includes factors related to patient, staff, and ward organization. It is imperative to understand these factors for planning preventive measures to minimize workplace violence as the cumulative impact of both violent behavior and subsequent coercive measures used to contain it can lead to a myriad of negative physical as well as psychological consequences^{6–9} in patients, carers, and staff. In addition, it also leads to compromise in the quality of patient care, other organizational burdens as well as high financial cost.¹⁰

There is literature on factors associated with violence. History of prior aggressive incidents, longer days of hospitalization, involuntary admission, being impulsive, hostile, and the aggressive person and victim being of the same gender are important patient-related risk factors associated with inpatient violence.¹¹ Factors like males of younger age, involuntary admission, being single, diagnosis of schizophrenia, more number of prior admissions, violence history, history of self-harm behavior, and substance use history are associated with aggressive behavior.⁴ The studies have reported that overloaded or a stressful ward atmosphere,^{12,13} locked ward, absence of planned or scheduled therapeutic activities,¹⁴ lack of privacy, and noisy atmosphere in the ward are associated with higher rates of violence.¹⁵ Factors like a lower level of experience, lack of training in aggression control techniques, low tolerance levels of staff, and communication restrictions are also associated with increased vulnerability to violence.⁵ Although violence in inpatient psychiatric units is a major pressing issue worldwide and the measures used to contain it have been perceived as coercive, violence among inpatient settings has never been a priority area of research, especially in India.¹⁶ A recent systematic review on the effectiveness of preventive strategies and de-escalation behavior concluded that evidence in this regard is limited, thus warrants more systematic studies in this context.³ The Mental Health Care Act (2017), for the first time, has focused on violence management and mentioned guidelines for restraint and seclusion in psychiatric settings. This has created a strong need to review violence in inpatient settings, associated clinical and social correlates keeping a preventive model in context. Therefore, the present study was undertaken to estimate the prevalence of violence among patients admitted

in acute inpatient psychiatric units and to compare the socio-demographic and clinical variables of violent versus non-violent groups.

Methodology

The study was undertaken at a tertiary care acute inpatient psychiatric unit in North India. It is a 30 bedded acute psychiatric ward being managed by a multidisciplinary team. The treating team strives to provide a therapeutic milieu; however, intake of substances in any form including tobacco is not permitted within the hospital premises. Certain decisions like giving leave of absence or brief visit outside the ward are taken collaboratively by treating team and family members considering the clinical condition of the patient and phase of treatment.

This study employed a retrospective matched case-control chart review design. The cohort for the study included all the patients admitted during the previous 2 years study period, viz. April 2015 to March 2017. All patients who exhibited at least one violent incident as per the nurses' record maintained in the ward were included in the study. For this study, a violent incident is defined as any act involving verbal threats and/or physical threats to self, others, and property and/or physical acts amounting to evident harm to self, others, and property. History of substance use is operationally defined as any time problematic use of any psychoactive substance except tobacco before admission as found in medical records. Active psychotic symptoms are operationally defined as the presence of positive symptoms like delusions, hallucinations, disorganized thought, speech, and behavior at the time of admission as found in the medical records. Impulsivity is operationally defined as being impulsive as reflected in the patient's history collected at the time of admission as found in medical records and irritability as the presence of objective signs of irritability at the time of admission as found in medical records.

For each case, the control was selected by individual matching based on age ± 2 years and gender. The controls were taken from the patients who were admitted during the study period but did not exhibit any violent incidents. For both cases and control, those with a recent head injury and drug intoxication at the time of admission were excluded. The information about the characteristics of violent incidents and management was collected from the patient's file as well as the violent incident record maintained by nursing staff posted in the inpatient psychiatric ward. As a policy of the Department of Psychiatry, the resident in charge of the patient has to record the details of any incident of violence during indoor treatment and the details include the type of violence, antecedents, victim, outcome, and management strategy. The information collected from the abovementioned sources was coded in a data extraction sheet developed by the researchers keeping in view the study objectives.

The data extraction sheet was developed based on a literature review and it included the information on the socio-demographic variables and relevant clinical variables,

viz., ICD 10 diagnosis, history of previous admissions, total duration of illness, length of stay, history of self-harm, history of violence, history of substance abuse, etc. The study was approved by the Institute's Research and Ethics Committee. The data was analyzed using SPSS 2.0. Descriptive Statistics, Chi-square and Fischer's test, multivariate analysis using logistic regression analysis were computed.

Results

During the 2-year study period, 1,056 patients were admitted to the ward. Out of these patients, 93.80% patients exhibited at least one incident of violence. The total number of violent incidents was 186.

►Tables 1 and 2 show the characteristics of cases and controls. The socio-demographic and clinical variables associated with violence included psychiatric diagnosis, previous admission, stay duration, type of admission, history of violence, lack of insight, impulsivity, and irritability.

►Table 3 shows relationship between patient-related variables associated with violent incidents. Variables including involuntary admission $OR = 42.7$; $p = 0.000$, history of previous admission $OR = 2.29$; $p = 0.009$, history of violence $OR = 7.617$; $p = 0.000$, impulsivity $OR = 2.6$; $p = 0.01$, lack of insight $OR = 4.1$, $p = 0.001$, and irritability $OR = 6$, $p = 0.001$ at the time of admission significantly predicted the likelihood of violent incidents.

►Table 3 shows the characteristics of violent incidents. The findings showed that refusal to a patient's request to leave the ward was a major antecedent factor among a significant number of incidents (more than 45%), while in 43% of the incidents, the healthcare staff could not detect any antecedent factor. Physical violence was the most common type of violence exhibited in nearly 50% of the incidents while both verbal and physical violence was seen in 24.7% of the incidents. The use of chemical restraining (53.2%) was the most common method of management of violent incidents followed by a combination of chemical and mechanical

Table 1 Socio-demographic variables associated with violent incidents on univariate analysis $n = 186$

Variable	Violent		Non-violent		2	p-Value
	N	%	N	%		
Age					0.428	0.807
18–30	54	58.1	51	54.8		
31–45	24	25.8	28	30.1		
>46	15	16.1	14	15.1		
Gender					0.119	0.863
Male	70	75.3	72	77.4		
Female	23	24.7	21	22.6		
Marital status					3.236	0.214
Single	49	52.7	39	41.9		
Married	39	41.9	51	54.8		
Separated/Divorced	5	5.4	3	3.2		
Education					3.114	0.694
Illiterate	4	4.3	4	4.3		
Primary	6	6.5	10	10.8		
Middle	17	18.3	11	11.8		
Matric	16	17.2	21	22.6		
+ 2	19	20.4	19	20.4		
Graduate and above	31	33.3	28	30.1		
Employment status					0.216	0.642
Employed	30	32.3	33	35.5		
Unemployed	63	67.7	60	64.5		
Habitat					1.105	0.184
Urban	53	57.0	60	64.5		
Rural	40	43.0	33	35.5		
Medicolegal case					0.870	0.536
Yes	4	4.3	7	7.5		
No	89	95.7	86	92.5		

Table 2 Clinically variables associated with violent incidents on univariate analysis $n = 186$

Variable	Violent		Non-violent		2	p-Value
	N	%	N	%		
Diagnosis ICD 10					9.999	0.018
F10-F19	14	15.1	24	25.8		
F20-F29	23	24.7	31	33.3		
F30- F39	50	53.8	29	31.2		
Others	06	6.5	9	9.7		
Previous admission					7.216	0.026
No previous admission						
1	53	57.0	70	75.3		
2	22	23.7	11	11.8		
3 and more	18	19.4	12	13.0		
Duration of stay					8.799	0.028
≤15 d	22	23.7	33	35.5		
16–30 d	34	33.6	37	39.8		
31–90 d	32	6.34	23	24.7		
More than 90 d	5	5.4	0	0		
Type of admission					68.07	0.001
Voluntary	14	15.1	70	75.3		
Involuntary	79	84.9	23	24.7		
Total duration of illness					2.673	0.449
Less than 1 y	18	19.4	13	14.0		
1–5 y	21	22.6	23	24.7		
5–10 y	19	20.4	27	29.0		
10+ y	35	37.6	30	32.2		
History of self-harm					1.514	0.305
Yes	11	11.8	17	18.3		
No	82	88.2	76	81.7		
History of violence					32.47	0.001
Yes	82	88.2	46	49.5		
No	11	11.8	47	50.5		
History of substance abuse					1.066	0.376
Yes	38	40.9	45	48.4		
No	55	59.1	48	51.6		
Personality disorder					1.336	0.444
Yes	5	5.4	2	2.2		
No	88	94.6	91	97.8		
Insight					12.126	0.001
Absent	75	80.6	40	43		
Present	18	19.4	53	57		
Active psychotic symptoms					0.775	0.463
Yes	42	45.2	48	51.6		
No	51	54.8	45	48.4		
Impulsivity					6.457	0.008

Table 2 (Continued)

Variable	Violent		Non-violent		2	p-Value
	N	%	N	%		
Yes	46	49.5	29	31.2	1.051	0.497
No	47	50.5	64	68.8		
Delirium						
Yes	3	3.2	6	6.5	17.420	0.001
No	90	96.8	87	93.5		
Irritability						
Yes	87	93.5	65	69.9	17.420	0.001
No	6	56.5	28	30.1		

Table 3 Patient related variables and likelihood of violent incidents

Variables	Odds ratio	95% CI	p
Involuntary admission	42.7	9.07, 200	0.000
History of previously admission	2.297	1.23, 4.29	0.009
History of violence	7.61	3.60, 16.11	0.000
Impulsivity	2.1	1.18, 3.92	0.012
Irritability	6.075	2.17, 16.99	0.001
Lack of insight	4.125	1.80, 9.43	0.001

restraints. Use of verbal de-escalation techniques had been used only in 7% of the incidents. In 47% of the incidents, the reason for using restraint was to prevent harm to others. In the majority of the violent incidents (83%), there was no injury or damage while in 12% of the incidents, there was damage to hospital property and only in 2.1% of the incidents, there was the injury to others and 1.6% inflicted injury to self as shown in ►Table 4.

Discussion

Present study was performed to estimate the prevalence, characteristics, and determinants of violence among patients admitted to acute inpatient psychiatric unit. The results showed that 8.52% of patients admitted to the acute psychiatry unit of a tertiary care hospital had at least one violent incident during their ward stay. The average length of ward stay in the inpatient unit is 21 days. The earlier studies from the west found that 3 to 44% of patients during the admission in the psychiatry ward exhibited violence with higher rates reported from inpatient settings where there were more male patients, involuntary patients, and patients with alcohol use disorders.³ In our setting also, of the total patients (1,056) admitted during the study period, 71% were males while among the patients who exhibited violent incidents, males were much higher than females (75 vs 25%) and 85% had involuntary admissions.

In our study, socio-demographic and clinical variables including psychiatric diagnosis, type of admission, history of

violence including recent violence before admission, lack of insight, impulsivity, and presence of irritability are associated with violent incidents. Multivariate logistic regression analysis was performed to know the predictors of violence and the result showed that involuntary admission, prior hospitalizations, past history of violence, presence of impulsivity, lack of insight, and irritability at the time of admission significantly predicted the likelihood of violent incidents. Most recent reviews reported that factors like a diagnosis of schizophrenia, involuntary admission, and history of violence were associated with aggression and violence in inpatients setting.^{3,4}

Our study also attempted to find out antecedents of violence and it was observed that in more than 40% of the violent incidents, no antecedents could be identified. This could be either due to unprecedented aggression or the staff on duty could not recognize the antecedents and record them. This calls for a need for staff training regarding early recognition of common antecedents, triggering factors, and warning signs of escalating violence. Among 60% of our patients where there was an antecedent factor, the most common antecedent for the violent incidents was not accepting the patient's request for going outside the ward, on parole, or for discharge. Similar findings were reported in a meta-analysis where it was concluded that limiting patients' freedoms was the most common trigger for the violent incident.¹⁷ In India, where more number of beds are still in the mental hospitals (1,490 beds for 10,000 patients) as compared with general psychiatry units (0.823 beds for

Table 4 Characteristics of violent incidents and its management practices

Variables	n (186)
Antecedent of violent incident	
No specific antecedent	81 (43.54%)
Patient's request to go outside/parole/discharge were not accepted	83 (44.62%)
Patient's request for cigarette/beedi, outside food, etc., were not accepted inside the ward as per hospital policy	10 (5.37%)
Violence associated with acute confusion/delirious states	4 (2.15%)
Others	8 (4.30%)
Type of violent behavior	
Verbal	49 (26.3%)
Physical	91 (49%)
Both	46 (24.7%)
Interventions used	
Only verbal de-escalation	13 (7.0%)
Chemical	99 (53.2%)
Mechanical	6 (3.2%)
Both chemical mechanical	68 (36.6%)
Reason for restraining	
Prevention of harm to others	87 (46.77%)
Prevention of harm to self	19 (10.21%)
Prevention of harm to property	18 (9.67%)
Prevention of harm to others as well as hospital property	33 (17.74%)
Other reasons	29 (15.59%)
Consequences of violent incidents	
No injury/damage	155 (83%)
Injury to other staff, other patients, caretaker	4 (2.1%)
Injury to self	3 (1.6%)
Damage to property	23 (12.2%)
Injury to others as well as property	2 (1.1%)

10,000 patients),¹⁸ the freedom of the patient is restricted as they spend most of their time inside the closed wards; the chances of violent episodes are expected to be much more, although it might go unrecognized and unreported. Physical violence was the most predominant form of violence in our study. The earlier studies also reported that the most common form of aggression was physical and staffs were victims in most of the violent episodes.¹⁸ In our study, chemical restraint was the commonest method used to handle violence. However, combined use of the chemical and mechanical form of restraint was used in 36.6% of the violent episodes. Similar results were reported in a prospective

study where chemical restraint was the most common method.¹⁹ Verbal de-escalation is recommended as a first-line intervention in the management of aggression/violence (NICE),²⁰ the Best Practices in the evaluation and treatment of agitation also endorses the de-escalation practices in minimizing aggression in emergency settings.²¹

In the current study, de-escalation was used in only 7% of incidents reported. This particular finding warrants attention as it could be either due to lack of adequate training in making an objective assessment of early signs of agitation or partly it could be an outcome of attitudinal factors of staff. The reasons might also be linked to episodes of unprovoked violence giving very little time to the staff for verbal de-escalation and hence proceeding directly to use restraint. De-escalation is an umbrella term that encompasses many different techniques (both verbal and nonverbal strategies) used to diffuse aggression and violence. De-escalation is accepted as the best clinical practice worldwide yet there is a lack of evidence to support its effectiveness. There are inherent difficulties in studying the effectiveness of de-escalation coupled with ethical concerns thus, it has been an under-searched field.^{22,23} However, the use of restraints and seclusions should still be considered only as last resort.

It will be apt to discuss the violence and aggression in psychiatric inpatient settings in the context of the COVID-19 pandemic which has already created massive psychological distress and crisis in society. The psychological distress arising out of a pandemic may act as a precipitant for aggression, especially in persons with pre-existing mental illness.²⁴ And hence the risk assessment for aggression and systematic management of aggression becomes a necessity for effective ward management. Lucchese et al have reported a new protocol "Behavioral Emergency Response Protocol" for the promotion of safety in inpatient psychiatric units. The authors have focused upon safe and timely response for patients exhibiting escalating behaviors utilizing the least restraint-based philosophy for the management of an escalating situation coupled with the involvement of an inter-professional team of health care providers.²⁵

Strengths and Limitations

Considering the scarcity of Indian literature regarding violence in inpatient psychiatric wards, this study adds to sparse Indian literature in estimating the prevalence of violence in acute psychiatry wards and in understanding the variables associated with violent incidents. However, assessing only the patient characteristics and not studying other staff-related and environment-related factor which also contributes to violence in inpatient psychiatric ward is a major limitation of the study. Limited sample size with a case-control ratio of 1:1 instead of studying the whole non-violent patients, cross-sectional study design, and study based on the medical records may all add to the limitations and restrict the generalization of the study findings. Although a formal training session was provided to both the resident doctors and nursing staff on identification and documentation of determinants and characteristics of any violent

incidents in the ward, the calculation of inter-rater agreement among medical records being maintained by resident doctors and nurses could have added to the vigor of the study. It is equally pertinent to mention the limitations posed by the volatile nature of the phenomenon of violence itself. Violence and aggression are not unitary concepts rather these are verbal and behavioral manifestations that are present on a continuum where the transition from verbal to the physical form of violence is unprecedented and sudden. This makes it very difficult to study violent events with objectivity and precision.

Conclusion

The present study focused on the prevalence of violent incidents and predictors in acute psychiatric inpatient settings. Since violent episodes in the psychiatric inpatient setting are common, the study recommends that efforts should be made to understand the antecedent factors well in time and verbal de-escalation should be employed and use of chemical and physical restraint should be made only as a last resort after exhausting least restrictive interventions.

Conflict of Interest

None declared.

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