

# A Case Control Study Of Aggressive Behaviour In Stable Patients Of Schizophrenia Who Have Improved On Treatment And In Normal And Its Effect On Quality Of Life At Government Medical College Surat.

Dr. Radha Jaiprakash Mehta<sup>1</sup>, Dr. Ritambhara Y. Mehta<sup>2</sup>, Dr. Nilima D. Shah<sup>3</sup>

<sup>1</sup>M.D. Psychiatry, Assistant Professor Hospital For Mental Health, Ahmedabad, Gujarat, India.

<sup>2</sup>M.D. Psychiatry, Professor and Head of the Department of Psychiatry, Government Medical College, Surat, Gujarat, India.

<sup>3</sup>M.D. Psychiatry, Assistant Professor, B. J. Medical College, Ahmedabad, Gujarat, India.

**Corresponding Author:** Dr. Radha Jaiprakash Mehta

**Address:** 202, Meet Complex, Opposite Nilkanth Temple, Tapodhan Street, Navsari-396445, Gujarat, India.

E-mail: radhe211@yahoo.co.in

## **ABSTRACT**

**Title:** " A Case Control Study Of Aggressive Behaviour in stable patients of Schizophrenia who have improved on treatment and in normal individuals at a tertiary care centre-Government Medical College Surat."

**Aims:** To know the prevalence, type and severity of aggressive behaviour, in stable patients of Schizophrenia and Normal, To compare it between them and to study the association of aggressive behaviour with patient's disability and functioning.

**Methods and Material:** Total 60 cases of Schizophrenia and 60 controls were taken by non probability purposive convenient sampling by matching age and sex. PANSS, semi structured questionnaire based on overt aggression scale, (GAF) and (IDEAS) were used.

### **Results:**

Severe verbal and physical aggression were not at all seen in both groups.

More the negative symptoms, less the expression of verbal aggression.

Patients with more verbal aggression were prone to show more physical aggression. Patients with history of hospital admission due to aggressive behavior and history of ECT showed more Verbal and Physical Aggression against others.

Prevalence of both Verbal and Physical Aggression in Control was more than in patients.

**Conclusion:** Stable patients of schizophrenia are not more aggressive than normal population. "Patients with Schizophrenia are always aggressive" is a myth.

**Key-words:** Aggression, Schizophrenia, Stable patients.

## **INTRODUCTION:**

The term aggression is not specifically defined but it refers to a behaviour intended to cause injury to others. aggression is a kind of behaviour, an impulse and a basic innate instinct. People with schizophrenia are commonly perceived as unpredictable and dangerous.<sup>[1]</sup> with public fears outweighing the actual risk of being injured by an individual with severe mental illness. <sup>[2]</sup> A myth that mental illness is associated with aggressive behaviour is common in society. Person suffering from psychiatric illness is always violent or risky for the community. Especially schizophrenia is

considered a grave illness and associated with aggression and disability. aggression is a basic innate instinct, an emotion and it is present in normal person also.

Many studies have been done to study aggression in indoor patients of schizophrenia, but there are very few studies which compare aggression between normal and stable patients of schizophrenia. this study aims to know the prevalence of aggression in normal individuals and in patients as well as to compare it in both groups and its association with disability and functioning **Some Studies of Aggression and Schizophrenia:** Many inpatient studies have been done to know the prevalence of aggression and

risk of violence in schizophrenia patients. Some of major studies have been noted in following table.

**1.Indoor patient studies:**

Sr.No.	Name of study	Author and Year	Conclusion	
			Prevalence	Risk factors
1.	A longitudinal study of the population rates of violence in schizophrenia linking nationwide Swedish registry data of hospital admissions for schizophrenia <sup>[3]</sup>	S. Fazel, N. Langström,2009	8.4% in patients and 2.1% in those without any mental disorder	Co morbid substance abuse
2.	Randomized controlled trial : Structured risk assessment and violence in acute psychiatric patients <sup>[4]</sup>	Christoph Abderhalden, Ian Needham,2008	13.3% of all patients were aggressive. Of the 54% had a OAS-R score of 9 or above ,34% incidents were physical attacks. incidence rate of severe aggression was 1.09 per 100 hospitalization days.	Lack of early intervention, substance abuse
3.	Risk factors for violence among long-term psychiatric in-patients <sup>[5]</sup>	C Krüger etal,2010	among the long-term patients it was 16%.	Fighting among patients(58%)
4.	A National Study of Violent Behaviour in Persons With Schizophrenia <sup>[6]</sup>	Jeffrey W. Swanson, Marvin S. Swartz,; Richard A. Van Dorn etal,2006	6-month prevalence of any violence 19.1%, with 3.6% showing serious violent behaviour.	psychotic and depressive symptoms, childhood conduct problems, and victimization.

**2.Outdoor Patient Studies:**

Less studies assessing violence in outdoor patient have been done. Very few of them compares stable patients with normal persons.

Sr.No.	Name of study	Author and Year	Conclusion	
			Prevalence	Risk factors
1.	A meta-analytic review of Cognitive predictors of violence in schizophrenia <sup>[7]</sup>	Jonathan Reinharth etal,2014	Not assessed	Significant risk are Global cognitive impairment and lack of insight
2.	Risk Factors for Violence in Psychosis: Systematic Review And Meta-Regression Analysis of 110 Studies <sup>[8]</sup>	Katrina Witt etal,2013	Involved 45,533 individuals, of whom 8,439 (18.5%) were violent 87.8% had schizophrenia, Violence was found in 38.1% studies.	Modifiable risk factors - hostile behaviour, recent drug abuse, non-adherence with psychological therapies, higher poor impulse control. Static factors - criminal history factors.
3.	Violence among schizophrenia out-patients Compliant with medication: prevalence and Associated factors <sup>[9]</sup>	J. Bobes etal,2009	recent aggressive behaviour was 5.07%, most episodes were	History of aggression, recent violent episode and low satisfaction with treatment.

			verbal (44%), physical aggression towards objects (29%), Violence to others (19%) and self-directed violence (8%).	
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**Indian studies on aggression in schizophrenia:**

**Aggression is psychotic illness**

1. A study of aggression in psychotic illness found that BPRS score was significantly higher in schizophrenics as compared to other diagnoses Although there was no difference in the aggression scores in different diagnostic categories, manics were significantly more likely to be restrained.<sup>[10]</sup>
2. A study about Retaliatory aggression on psychiatric patients and the issue of closed wards concluded that retaliatory aggression against psychiatric patients should never happen. A patient who is liable to be violent and excited should never be provoked or threatened.<sup>[11]</sup>
3. Predictors of long-term outcome of first-episode schizophrenia: A ten-year follow-up study found mean positive symptoms' score were reduced by more than 65% between baseline and endpoint. The percentage of reduction in scores of negative symptoms is much less than reduction in positive symptoms. It was observed that only 23-25% patients showed social recovery on two or three different parameters.<sup>[12]</sup>

**Similar studies comparing Aggression in two groups:**

Name of study	Author and Year	Conclusion
A meta-analysis of 20 studies comparing risk of violence In schizophrenia and other psychosis with general population Controls <sup>[13]</sup>	S. Fazel, G. Gulati, L. Linsell, 2009	A modest but statistically significant increase of risk Of violence in schizophrenia Without co morbidity and with substance abuse co morbidity.
Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighborhoods, <sup>[14]</sup>	H. J. Steadman, E. P. Mulvey, J. Monahan et al., 1998	One-year prevalence of violence was 17.9% for Patients with a major mental disorder and without a substance abuse diagnosis and 31.1% for patients with a major mental disorder and a substance abuse diagnosis.

**MATERIALS AND METHODS:**

This study was carried out at Department of Psychiatry, Government Medical College, Surat a multispecialty teaching and tertiary-care referral hospital providing services to a major part of South Gujarat and neighbouring states.

**Ethical Approval:** Ethical approval was taken from ethics committee of Government Medical College, Surat.

**Duration of study:** 2 years

**Participants:** Total 60 patients of Schizophrenia and 60 controls fulfilling the inclusion criteria were taken in the study by non probability purposive convenient sampling by matching age and sex.

**Inclusion Criteria for patients :**

- Patient's age limit: Between 18 year to 55 year

- Patients having diagnosis of Schizophrenia as per the records who are stable with regular treatment since at least last 6 months.
- PANSS SCORE < 75.
- Patients or relatives giving informed consent for the study.

**Exclusion Criteria:**

- Patients requiring hospital admission or at present having acute symptoms of illness.
- Patients having history of alcohol opium or cannabis or dependence. Patients who are

previously diagnosed as Mentally Retarded or Autistic or having Personality Disorder

**Inclusion criteria for control :**

- Persons attending Hospital settings to visit patients of other than psychiatric illness and not having history of any psychiatric illness.
- Persons not having Alcohol, Opium or Cannabis dependence.

**Material: For patients:**

Tests/scales administered:

For disease severity:

- PANSS (positive and negative syndrome scale)

For measuring aggression severity

- An interview was taken using semi structured questionnaire based on overt aggression scale. It consists of following:
  - 1.Socio-demographic profile
  - 2.Illness profile
  - 3.Questions related to types of aggression done by

participant in last 6 months .

For assessment of Functioning and current disability:

- Global Assessment of Functioning Scale (GAF)
- Indian Disability Evaluation and Assessment Scale (IDEAS)

For control group:

Only interview was taken using the same semi structured questionnaire.

**Steps of study:** Stable patients of Schizophrenia attending Psychiatry OPD were taken for interview by simple random sampling. Their PANSS score was noted before starting the interview. In presence of a relative, a semi structured interview based on overt aggression scale was administered to measure the severity of aggression and the scores were noted. By matching age and sex, controls were taken in which normal persons were taken attending hospital setting to visit other patients having no history of any psychiatric illness. Same interview was administered to them and scores were noted. After completing 60 patients and control each, data analysis was done.

1st step

On stable patients of Schizophrenia PANSS, IDEAS, GAF and semi structured interview administered.

2nd step

On normal persons attending hospital setting same interview administered

3rd step

Comparison of both groups was done for severity of Aggression and association of aggression with various illness parameters and overall disability was found out.

**RESULTS AND DISCUSSION**

General Outline of Results & Interpretation:

- A. Verbal Aggression (VA)
- B. Physical Aggression against self (PA Self)
- C. Physical Aggression against object (PA Object)
- D. Physical Aggression against others. (PA Others)

Patients and Control groups were matched for Age and Sex variables.

Average age was **36.73** years with range between 18 years to 55 years in both.

**58.33%** (35) were Males and **41.67%** (25) were Females in both the groups.

**Comparison of Demographic profile of two groups:**

**Table:1:Marital Status, Occupation, Education, Socio-economic class of both groups:**

Sr. No.	Patients (n=60)		Control (n=60)		Total (n=120)
Marital Status	n	(%)	n	(%)	
Married	39	65	53	88.33	92
Unmarried	19	31.67	6	10	25
Widow	2	3.33	1	1.67	3
<b>Occupation</b>					
Not Working	12	20	1	1.67	13
Semi skilled	31	51.66	43	71.67	74
Skilled	17	28.33	16	26.67	33
<b>Education</b>					
Illiterate	5	3.33	5	8.33	10
Primary	31	51.66	32	53.33	63
Secondary	18	30	17	28.33	35
Higher secondary	5	3.33	5	8.33	10
Graduate	1	1.66	1	1.67	2
<b>Socio economic class</b>					
Class 1	18	30	11	18.33	29
Class 2	32	53.33	48	80	80
Class 3	7	11.66	1	1.67	8
Class 4	3	5	0	0	3

In patient group, different illness parameters were assessed e.g. types of schizophrenia, history of admission due to aggression, history of ECT, family history of psychiatric illness, total duration of illness, time since patient is stable, illness severity, disability and current level of functioning.

The results were as follows:

**Table: 2-Illness parameters of patient group**

Illness parameters		
Types of Schizophrenia	n	%
Paranoid	51	85
Catatonic	4	6.67
Residual	4	6.67
Undifferentiated	1	1.67
PANSS <65	46	76.67
PANSS >65	14	23.33
<b>History of Mental illness in family</b>		
present	11	18.33
absent	49	81.67
<b>History of admission</b>		
present	41	68.33
absent	19	
No of patient admitted due to aggression	31	51.67
Stable since less than 1 year	33	55
Stable since more than 1 year	27	45
<b>Treatment Profile</b>		
No of pt given ECT in past	31	51.67
On 1 antipsychotic	52	86.67
On 2 antipsychotic	8	13.33
<b>Disability and Functioning</b>		
Mild disability	24	40

Moderate disability	35	58.33
Severe disability	1	1.67
GAF (31-40)	3	5.0
GAF(41-50)	28	46.7
GAF (51-60)	29	48.3

After noting all the scores, interview was done to assess the types and severity of Aggression in last 6 months. Results have been displayed in following table.

**Table:3:Mean Score of illness related parameters:**

Variables	mean	range
Age	36.73	18-55
Illness duration	8.1	1-30
No of admission in past	0.96	0-4
PANSS SCORE	57.33	7-216
Positive symptom score	14.06	7-49
Negative symptom score	13.4	7-49
General symptom score	29.05	7-112

Negative symptom score was inversely proportional to verbal aggression which may indicate that as negative symptoms are more verbal aggression is less.

**Table:4: Co relation between aggression and PANSS**

	VA	PAS	PAOBJECT	PAOTHERS	
Positive Symptom score	0.07	0.193	0.821	0.120	R=>0.01
Negative Symptom score	<b>0.002</b>	0.248	0.260	0.094	R=<0.01

**Table:5: Treatment profile and aggression scores**

Treatment profile	n	%	VA	PA Self	PA Object	PA Others
Olanzapine	19		13.2	1	2.4	1.8
Risperidone	20		10.8	0.8	0.6	1.55
Clozapine	5		13.2	1	2.4	1.8
Haloperidol	6		17.1	0	1	3.1
Trifluoperazine	2		10.3	0	0.2	1.1
Clozapine + Risperidone	6		13.6	0	2	2.67
Clozapine + Olanzapine	2		2.5	0	0	0

Aggression scores between these groups was statistically not significant though patients who were on Clozapine had low aggression score.

**Comparison Between Demographic Profile Of Both Group And Aggression**

**Table:6:Age and Aggression in both groups**

Age	Patient			Control		
	Mean	SD	P value	Mean	SD	P value
18 -24	8.5	5.648	0.19	16.67	9.709	0.632
25-31	12.9	7.102		11.71	7.760	
32-38	6.38	3.701		9.50	5.372	
39-45	12.88	9.373		15.00	11.027	
>46	11.54	6.333		13.23	13.851	

PA-Self						
18 -24	0.83	2.041	0.7	.00	.000	0.740
25-31	0.59	1.326		.41	1.064	
32-38	0.38	.744		.12	.354	
39-45	0.25	1.000		.44	.727	
>46	0.23	.832		.31	.855	
PA Object						
18 -24	2.5	3.017	0.4	.83	1.329	0.931
25-31	1.7	1.795		1.12	1.166	
32-38	0.5	.926		1.00	1.414	
39-45	0.5	1.211		.81	1.223	
>46	0.7	1.739		1.15	1.144	
PA Others						
18 -24	0.83	2.041	<b>0.04</b>	1.50	1.517	0.166
25-31	2.71	2.910		2.18	1.704	
32-38	0.0	.000		1.62	1.598	
39-45	1.56	1.672		.88	1.088	
>46	1.69	1.750		1.46	1.330	

During interview, relative reported that patients had physical aggression against others inform of beating relatives when irritable or upset, inability to control urge to slap others and pushing others with hand under anger.

**Table:7: Sex and aggression**

Sex	Patient			Control		
	Mean	SD	P value	Mean	SD	P value
<b>Verbal Aggression</b>						
Male	10.6	1.931	0.428	12.09	9.748	0.355
Female	12.2	1.927		14.56	10.634	
<b>PA-Self</b>						
Male	0.51	.303	0.443	.09	.284	<b>0.006</b>
Female	0.28	.291		.64	1.114	
<b>PA Object</b>						
Male	1.2	.472	0.613	.91	1.147	0.515
Female	0.96	.471		1.12	1.269	
<b>PA Others</b>						
Male	1.4	.571	0.330	1.49	1.560	0.771
Female	1.96	.560		1.60	1.384	

Comparing gender and aggression of both groups it was found that mean score of verbal aggression was more in control group in both male and female though the difference was not statistically significant. In control group, difference between score of physical aggression against self in males and females was statistically significant.(p=0.006) i.e females had more aggressive behaviour towards self. The aggression was in form of hitting fist on wall or table, slapping self or pulling own hairs when angry. However nobody reported self harming or parasuicidal behaviour. Surprisingly, no significant difference in aggression was found in patient group.

**Table :8:marital status and aggression**

Marital status	Patient			Control		
	Mean	SD	P value	Mean	SD	P value
<b>Verbal Aggression</b>			0.581			0.995
Married	11.49	7.272		13.08	10.585	
Unmarried	10.42	7.876		13.33	6.439	
Widow	16.00	1.414		14.00	.00	



<b>PA-Self</b>			0.877			0.538
Married	.44	1.119		.36	.834	
Unmarried	.42	1.305		.00	.000	
Widow	.00	.000		.00	.00.	
<b>PA Object</b>			<b>0.003</b>			0.939
Married	.62	1.310		.98	1.201	
Unmarried	1.79	2.123		1.17	1.329	
Widow	4.00	2.828		1.00	.00.	
<b>PA Others</b>			0.287			0.614
Married	1.77	2.334		1.51	1.463	
Unmarried	1.16	1.772		1.50	1.761	
Widow	3.50	2.121		3.00	.00.	

Table :9:socio-economic class and aggression

Socioeconomic class	Patient			Control		
	Mean	SD	P value	Mean	SD	P value
<b>Verbal Aggression</b>			0.730			0.773
Class 1	12.78	9.085		15.09	12.919	
Class 2	10.97	5.539		12.65	9.577	
Class 3	9.29	3.638		14.00	0.	
Class 4	10.67	18.475		0	0	
<b>PA-Self</b>			<b>0.002</b>			0.769
Class 1	.39	.979		.45	.688	
Class 2	.06	.354		.29	.824	
Class 3	1.71	2.215		.00	0.	
Class 4	1.33	2.309		0	0	
<b>PA Object</b>			0.714			0.963
Class 1	1.06	1.984		1.09	1.375	
Class 2	1.16	1.547		.98	1.176	
Class 3	1.43	2.699		1.00	0.	
Class 4	.00	.000		0	0	
<b>PA Others</b>			0.580			0.292
Class 1	2.22	2.962		2.00	1.612	
Class 2	1.31	1.693		1.40	1.440	
Class 3	1.57	1.618		3.00	0.	
Class 4	1.67	2.887		0	0	

Physical Aggression against self in patient group was in form like banging head on table, scratching own skin, pulling own hairs, slapping self or biting own fingers when very fearful. Aggressive Behaviour Against Self and Others Among First-Admission Patients With Schizophrenia by Tilman Steinert, Christian Wiebe et al in 1999 found that 75% of the men and 53 percent of the women in the sample exhibited some type of aggressive behaviour during the first or subsequent admissions. <sup>[15]</sup> Self-directed aggressive behaviour was correlated with days of hospitalization but not with number of rehospitalisation

Table :10:Illness Profile And Aggression:

Variables	VA(p)	PAS(p)	PAOBJ(p)	PAOTH(p)
Duration Of Illness	0.232	0.065	0.564	0.930
Stability Of Illness	.832	0.781	.122	.402
Family History	.095	.398	.200	.330
History Of Admission	0.879	0.134	0.234	<b>0.03</b>
Admission Due To Aggression	.403	<b>.040</b>	.294	<b>.017</b>
ECT Given In Past	.184	.751	.829	<b>.042</b>
Disability	0.708	0.764	0.090	0.827



- No significant difference in mean aggression score with duration of illness, stability of illness, with family history of psychosis or with disability.
- Those patients who had history of admission showed significant difference in physical aggression against others. (p=0.03)
- Out of these, those who were admitted due to aggressive behavior, showed significant difference in mean aggression against self and others.
- Those who were given ECT in past had significant difference in mean score of physical aggression against others.

**Comparison Of Aggression Score Between Two Groups**

Though mean score of verbal aggression was more in control and rest all aggression score was more in patients group, the difference was statistically not significant, breaking the popular myth that patients with schizophrenia are more violent and aggressive.

**Table:11: Comparison Of Severity Of Aggression Between Two Groups:**

VA	mild	moderate	Absent	Chi square	p
Patients	52	3	5	2.89	0.235
Normal	55	4	1		

Physical Against Self	mild	Absent	Chi square	p
Patients	8	52	0.563	0.618
Normal	11	49		

Physical Against Object	mild	moderate	Absent	Chi square	p
Patients	19	3	38	5.79	0.055
Normal	29	0	31		

Physical Against Others	mild	moderate	Absent	Chi square	p
Patients	29	1	30	3.44	0.179
Normal	38	0	22		

No statistically significant difference was seen in mean score of all types of aggression between patient and control group. Again contradictory to the popular myth that aggression is more in schizophrenia patients.

**Discussion**

The salient findings of this study were as follows:

- Severe verbal and physical aggression were not at all seen in patients or controls.

**In stable patients of schizophrenia:**

- More the negative symptoms present in patients, less the expression of verbal aggression.
- Patients having more verbal aggression are prone to show more physical aggression against others.
- Patients having history of hospital admission, admission due to aggressive behavior and history of ECT show more Verbal Aggression and Physical Aggression against others. Concluding that these are the predictors of aggression even in stable patients of schizophrenia.

- Widowed patients show more Physical aggression against Object compared to married and unmarried patients.
- Patients from low Socio-economic class show more physical aggression against self.
- Aggression is not affected by patients' Gender, Occupational status, Severity of illness, Disability and Level of Functioning.

**Comparison of two groups:**

- Prevalence of Mild Verbal Aggression in Control (91.66%) was more than that of patients with Schizophrenia (85%).
- Prevalence of Physical Aggression against Self (18.33%), Object (48.33%) and Others (63.33%) in Controls was more compared to stable patients of

Schizophrenia (13.33%, 31.67% and 48.33% respectively). That shows not only patients, but normal persons also show aggression by harming themselves and Patients of Schizophrenia are not always harmful to others, falsifying the common belief.

- Patients of schizophrenia in younger age group (25-31 years) showed more Physical aggression against others compared to normal persons of same age. Control group showed more physical aggression against others in the middle age group (32-38 years).
- Normal females show more physical aggression against self compared to the females suffering from schizophrenia.
- Patients up to primary education only showed more Physical aggression against self and object. Whereas control group with same education level showed more physical aggression against others, emphasizing that patients were not more aggressive to others.
- Patients and Normal group showed no difference in overall severity of verbal and physical aggression. Again emphasizing that patients of schizophrenia were not more aggressive.

#### CONCLUSION

- By this case control study overall it was concluded that stable patients of schizophrenia were not verbally or physically more aggressive compared to normal population breaking the popular myth that Schizophrenic patients are harmful due to their aggressive behaviour.

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