



CHAPTER IV

RESULTS

This chapter deals with the analysis and interpretation of data obtained in this study. Analysis was based on quantitative data obtained from a total of 246 subjects from a large tertiary hospital in New Delhi, Dr Ram Manohar Lohia Hospital. The quantitative data was analyzed using SPSS 13.0.

This cross sectional study was carried out in the psychiatric unit of the hospital of New Delhi. Data was gathered by using a questionnaire survey of the past records of 2 years (where information was collected by psychiatrists, nurses and junior doctors). Patients are mostly brought in by family members and admissions were mainly involuntary. For analyzing the data, these 246 patients were divided into three groups:

- Those who were aggressive
- Those who were violent
- Those who were both aggressive and violent.

The total study subjects were 246, of whom, 101(41.1%) were females and 145(58.9%) were males.

GENDER DISTRIBUTION IN STUDY POPULATION

Table 1: frequency distribution of gender in the study sample

Gender	Frequency	Percent
female	101	41.1
male	145	58.9
Total	246	100.0

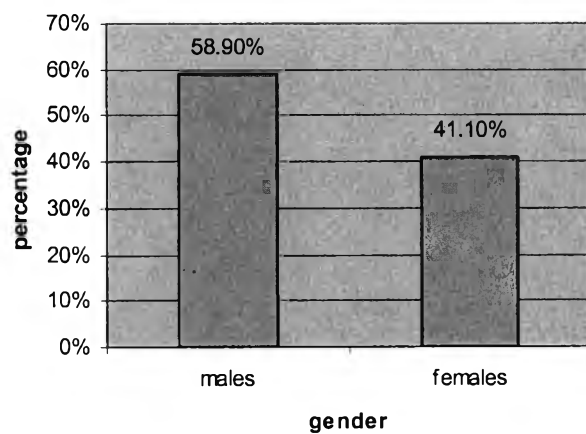


Figure2: gender distribution in the study population

Table1.1 shows that gender distribution varied among aggressive, violent and aggression & violent group. It was found that, aggression was seen more in females (42.6%), violence was seen more in males (55.9%) and both aggression and violence together was more common in females.

Table 1.1: aggression and violence by gender

Dependent variables		Gender		Chi Square χ^2	P value
		Male	Female		
Aggression	Y	20 (13.8%)	43 (42.6%)	24.396	.000
	N	125 (86.2%)	58 (57.4%)		
A & V	Y	44 (30.3%)	37 (36.6)	1.066	.302
	N	101 (69.7%)	64 (63.4%)		
Violence	Y	81 (55.9%)	21 (20.8%)	30.167	.000
	N	64 (44.1%)	80 (79.2%)		

Statistically significant difference was associated with aggression and violence alone group and gender (p-value<0.0001), while gender did not show statistical significance with the aggression and violence together group (p-value .302)

AGE DISTRIBUTION IN THE STUDY POPULATION

There were 246 subjects. The mean age of the study population was 36years, with min. age being 18 years and maximum 58 years. About three quarters of the subjects were from the age group 26-50 years. Patients under 18 years and more than 60 years were excluded from the study with the mean age being 36.36 ± 9.03

Table 2: age distribution in the study population

Age (in years)	Frequency	Percent
<25	47	19.1
26-50	182	74.0
50 above	17	6.9
Total	246	100.0

Table 2.1 below suggested that age distribution varied among aggressive, violent and aggression and violence group. It was found that, aggression was maximum in age group 26-50 years (36.8%) followed by >50 years group (23.5%) and almost similar percentage was seen in <25 years group (21.3%). Violence was seen almost similar in <25 years (44.7%) and 26-50 years group (43%) while it was seen much less in > 50 years group (17.6%). Aggression and violence together was seen maximum in >50 years group (58.8%) followed by 34% in <25 years and 20.3% in 26-50 years group and this was found to be statistically significant as well with p-value .001.

Table 2.1: aggression and violence by age group

Dependent variables		Age(in years)			Chi Square χ ²	P value
		<25	26-50	>50		
Aggression	Y	10 (21.3%)	67 (36.8%)	4 (23.5%)	4.813	.090
	N	37 (78.7%)	115 (63.2)	13 (76.5%)		
A & V	Y	16 (34.0%)	37 (20.3%)	10 (58.8%)	14.262	.001
	N	31 (66.0%)	145 (79.7)	7 (41.2%)		
Violence	Y	21 (44.7%)	78 (42.9%)	3 (17.6%)	4.319	.115
	N	26 (55.3%)	104 (57.1%)	14 (82.4%)		

Statistically significant difference was associated with aggression and violence together group and age (p-value<0.001, while age group did not show statistically significance differences with other two groups aggression and violence alone (p-value .090 and .115 respectively).

DISTRIBUTION OF AGGRESSION AND VIOLENCE IN STUDY POPULATION

Of the 246 different psychiatric inpatients, 65(26.4%) were responsible for aggression, 105(42.7%) for incidents of violence and 76(30.9%) for both violence and aggression which is shown in table 3.

Table 3: distribution of aggression and violence in study population

Variable	Frequency (n)	Percentage (%)
Aggression	65	26.4%
Aggression and Violence	76	30.9%
Violence	105	42.7%
Total	246	100.0%

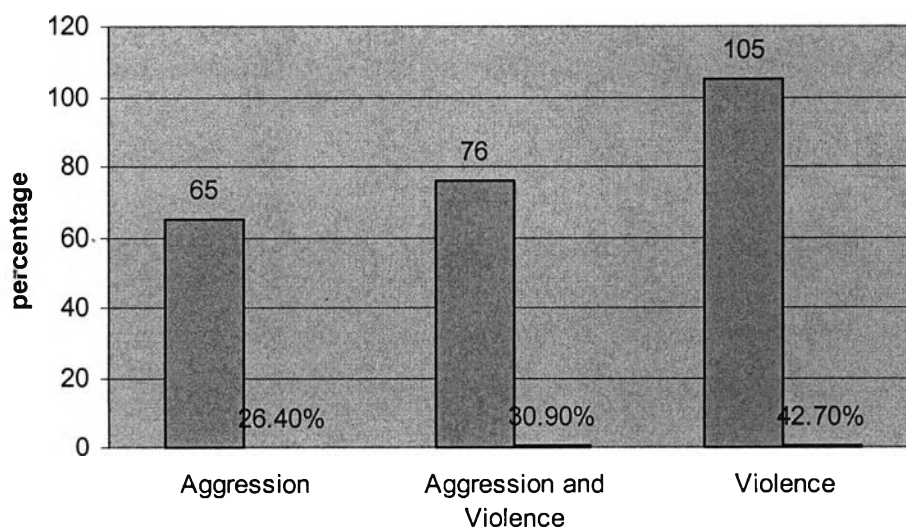


Figure 3: aggression and violence in study population

AGGRESSION AND VIOLENCE BY DIAGNOSIS

The diagnoses were given in terms of DSM-IV criteria. All the diagnoses were grouped into five categories as per the similar symptom pattern.

Group1: alcohol abuse, substance abuse, delirium

Group2: schizophrenia, schizoaffective disorder, delusional disorder, psychosis, psychosis NOS, psychosis due to medical condition

Group3: mood disorders which includes unipolar depression, BPD mania, BPD depression, post partum depression, mixed episode, dysthymia and cyclothymia

Group4: personality disorder

Group5: OCD and others

Table 4: frequency distribution of diagnosis in study population

Diagnosis	Frequency	Percent
Group1	10	4.1%
Group2	136	55.3%
Group3	89	36.2%
Group4	7	2.8%
Group5	4	1.6%

Table 4 shows the frequency distribution of diagnosis in the study population suggesting the most common diagnosis in study population was group 2 which was psychotic group 136(55.3%) and least common from group 5 which

included OCD and others. Diagnosis like mental retardation and neurological disorders were excluded from the study.

Table 4.1 as shown suggested that different diagnosis varied among aggressive, violent and aggression and violence group. It was found that, abuse group which includes alcohol abuse, substance abuse and delirium, was showing maximum violence (80%), violence was also found to be high in psychotic group. In mood disorders aggression exceeds than other two groups, violence was also higher in personality disorder (80%).

Table 4.1: aggression and violence by diagnosis

Dependent Variables	Diagnosis					chi square χ^2	P value	
	Abuse	psychotic	mood	personality	misc.			
Agg.	Y	1	22	39	1	2	24.262	.000
		10.0%	16.2%	43.8%	14.3%	50.0%		
	N	9	114	50	6	2		
A & V		90.0%	83.8%	56.2%	85.7%	50.0%	4.284	.365
	Y	1	41	31	1	2		
	N	9	95	58	6	2		
Viol.		90.0%	69.9%	65.2%	85.7%	50.0%	34.312	.000
	Y	8	73	19	5	0		
	N	2	63	70	2	4		
		20.0%	46.3%	78.7%	28.6%	100%		

Statically significant difference was seen in aggression alone and violence alone group with diagnosis (p-value<.0001 for both).

ALCOHOL ABUSE AND SUBSTANCE ABUSE AND AGGRESSION AND VIOLENCE

Alcohol and substance abuse were also seen as dual diagnosis variable for their effect on aggression and violence. There were 90(36.6%) patients of dual diagnosis with alcohol abuse and 16(6.5%) with substance abuse as shown below.

Table 5: alc. Abuse and sub. Abuse as dual diagnosis in study population

Alcohol abuse	Frequency	Percent
No	156	63.4
Yes	90	36.6
Total	246	100.0

Substance abuse	Frequency	Percent
No	230	93.5
Yes	16	6.5
Total	246	100.0

Table 5.1: aggression and violence trend and alcohol abuse

Dependent Variables		Alcohol abuse		Chi square χ^2	P value
		No	Yes		
Aggression	N	106 (67.9%)	77 (85.6%)	9.287	.001
	Y	50 (32.1%)	13 (14.4%)		
Aggression & violence	N	98 (62.8%)	67 (74.4%)	3.492	.062
	Y	58 (37.2%)	23 (25.6%)		
Violence	N	108 (69.2%)	36 (40.0%)	20.092	.000
	Y	48 (30.8%)	54 (60.0%)		

Table 5.2: aggression and violence trend and substance abuse

Dependent Variables		Substance abuse		Chi square χ^2	P value
		No	Yes		
Aggression	N	169 (73.5%)	14 (87.5%)	1.544	.214
	Y	61 (26.5%)	2 (12.5%)		
Aggression and violence	N	150 (65.2%)	15 (93.8%)	5.514	.019
	Y	80 (34.8%)	1 (6.3%)		
Violence	N	108 (69.2%)	36 (40.0%)	20.092	.000
	Y	48 (30.8%)	54 (60.0%)		

Table 5.1 shows the association of aggression and violence and alcohol abuse, we found positive association of alcohol abuse and violence and interestingly negative association between alcohol abuse and aggression and both were found to be highly statistically significant with p value <0.0001 and $.001$ respectively, and when we see both aggression and violence together with alcohol abuse, no association as such noticed.

Table 5.2 shows the association of aggression and violence and substance abuse, strong positive association was noticed between violence and substance abuse which was statistically significant with p-value $<.0001$ and this goes in favour of previous researches while no association was seen with aggression when seen alone unlike other studies.

SOCIOECONOMIC STATUS

To assess socioeconomic status, four different characteristics were assessed which includes income, education, employment status of the patient and last is residence. Income was further divided into five sub-categories ranging from less than 2000 (in rupees) to more than 20,000 per month. Education was in years ranging from uneducated to more than 15 years of education. Employment status was again categorized into five groups ranging from unskilled to highly professional and in between was partly skilled, skilled and technical. Lastly residence was also divided into five different groups ranging from no house to >3 room owner.

AGGRESSION AND VIOLENCE BY INCOME

Table 6: income distribution in study population

Income (in Rs./month)	Frequency	Percent
<2K	25	10.2%
2K-5K	66	26.8%
5K-10K	45	18.3%
10K-20K	66	26.8%
>20K	16	6.5%
Total	246	100.0

Table 6 shows the income distribution in the study population suggesting that approximately one fourth of the population was earning between 2k-5k rupees per month and another one fourth of the population was earning between 10k-20k while were less population about 6.5% was earning >20k.

Table6.1 as shown suggested that income distribution in rupees varied among aggressive, violent and aggression and violence group. It was found that, violence was inversely related to income levels and was maximum in <2K income group (64.0%) followed by 2K-5K income groups (47.0%)

Table 6.1: aggression and violence and income

Dependent Variables		Income(in rupees)					Chi square χ^2	P value
		<2K	2K-5K	5K-10K	10K-20K	>20K		
Agg.	Y	5	14	26	13	5	1.811	.770
		20.0%	21.2%	27.7%	28.9%	31.3%		
	N	20	52	68	32	11		
A & V	Y	4	21	34	13	9	8.001	.092
		16.0%	31.8%	36.2%	28.9%	56.3%		
	N	21	45	60	32	7		
Viol.	Y	16	31	34	19	2	12.708	.013
		64.0%	47.0%	36.2%	42.2%	12.5%		
	N	9	35	60	26	14		
		36.0%	53.0%	63.8%	57.8%	87.5%		

Statically significant difference was seen in income and violent group (p-value .013).

AGGRESSION AND VIOLENCE BY NO. OF YEARS OF EDUCATION

Education status of the study group varied from 0 years to more than 15 years. 7.3% were illiterate completely followed by just literate (37%), 32% had received secondary education, 17.4% were those who had completed their graduation and 6.1% were highly educated as shown in table 7.

Table7: no of years of education in study population

Education (in years)	Frequency	Percent
0years	18	7.3%
1-4years	91	36.9%
5-12years	79	32.1%
13-15years	43	17.4%
>15years	15	6.1%
Total	246	100.0

Table7.1 has shown the association of education and aggression, violence and aggression and violence together. Chi square test showed no association between these groups (aggression, violence and aggression & violence together) and education and the results were statically insignificant which was unlike the previous studies.

Table 7.1: aggression and violence and no. of years of education

Dependent Variables		Education (years)					Chi square χ^2	P value
		0	1-4	5-12	13-15	>15		
Aggression	Y	4	20	19	16	4	.684	.999
		23.5%	26.3%	25.3%	25.4%	26.7%		
	N	13	56	56	47	11		
Aggression and violence	Y	3	28	24	18	8	5.721	.221
		17.6%	36.8%	32.0%	28.6%	53.3%		
	N	14	48	51	45	7		
Violence	Y	10	28	32	29	3	6.018	.184
		58.8%	36.8%	42.7%	46.0%	20.0%		
	N	7	48	43	34	12		
		41.2%	63.2%	57.3%	54.0%	80.0%		

EMPLOYMENT STATUS AND AGGRESSION AND VIOLENCE IN STUDY POPULATION

Table 8: employment status of the study group

Employment status	Frequency	Percent
unskilled	128	52%
Partly skilled	50	20.3%
skilled	58	23.6%
Technical/managerial	8	3.3
Professional	2	0.8%
Total	246	100.0

Table 8 shows frequency distribution of the employment status in the study group and showed that about half of the population of study group were unskilled (52%) and rest 23.6% were skilled and almost equal to that were those who were partly skilled (20.3%). Only about 4% comes from highly technical, managerial or professional category.

Table 8.1: aggression and violence and employment status of the patient

Dependent Variables	Employment Status					Chi square	P value	
	Unskilled	Partly	skilled	tech.	prof.			
Agg.	Y	33	14	13	1	2	6.994	.136
		25.8%	28.0%	22.4%	12.5%	100%		
	N	95	36	45	7	0		
A&V		74.2%	72.0%	77.6%	87.5%	0%	1.264	.361
	Y	42	15	19	5	0		
		32.8%	30.0%	32.8%	62.5%	0%		
Viol.	N	86	35	39	3	2	2.609	.629
		67.2%	70.0%	67.2%	37.5%	100%		
	Y	53	21	26	2	0		
	41.1%	42.0%	44.8%	25.0%	0%			
	N	75	29	32	6	2		
		58.6%	58.0%	55.2%	75.0%	100%		

The above table 8.1 showed the statistically insignificant association between employment status of patients and aggression and violence.

In the residence group, for the purpose of data analysis, I have included temporary house or local jhuggi in no house category. Table 10 shows distribution of different residential status in the study group. Table shows that about 65% of the patients didn't have their own house and only 35% own house.

AGGRESSION AND VIOLENCE AND RESIDENCE

Table10: residence status of study group

Residence	Frequency	Percent
No house	59	24.0%
1 room owner	41	16.7%
2-3 room owner	44	17.9%
>3 room owner	4	1.6%
tenant	98	39.8%
Total	246	100.0

Table 10.1 shows association of aggression and violence and residence status, chi square test showed statistically insignificant association between residential status and aggression, violence and aggression and violence group i.e. it didn't show any association between aggression, violence and type of residence of the patient.

Table 10.1: aggression and violence and residence status

Dependent Variables		Residence					Chi square	P value
		No house	Tenant	1room	2-3room	>3room		
Agg.	Y	12	29	10	13	1	1.592	.747
		20.3%	29.6%	24.4%	29.5%	25.0%		
	N	47	69	31	31	3	5.192	.268
		79.4%	70.4%	75.6%	70.5%	75.0%		
A&V	Y	12	32	16	14	2	9.078	.059
		20.3%	32.7%	39.0%	31.8%	50.0%		
	N	47	66	25	30	2		
		79.7%	67.3%	61.0%	68.2%	50.0%		
Viol.	Y	35	37	15	17	1		
		59.3%	37.8%	36.6%	38.6%	25.0%		
	N	24	61	26	27	3		
		40.7%	62.2%	63.4%	61.4%	75.0%		

AGGRESSION AND VIOLENCE AND SUICIDE RISK IN STUDY POPULATION

Suicide risk was also assessed in the study group. Out of 246 total patients, about three fourth showed suicide risk and only one third didn't show suicide risk as shown in table 11 below.

Table 11: frequency distribution of suicide risk in study population

Suicide risk	Frequency	Percent
Yes	181	73.6%
No	65	26.4%
Total	246	100.0

Table 11.1: aggression and violence and suicide risk

Dependent Variables	Suicide risk		Chi square χ^2	P value	
	Yes	No			
Aggression	Y	140	41	5.039	.025
		77.3%	63.1%		
Aggression	N	41	24	10.002	.980
		22.7%	36.9%		
and violence	Y	125	45	3.872	.049
		69.1%	69.2%		
Violence	N	56	20		
		30.9%	30.8%		
	Y	97	44		
		53.6%	67.7%		
	N	84	21		
		46.4%	32.3%		

Table 11.1 shows the association of aggression and violence and suicide risk. Chi square test shows positive association of violence and suicide risk and aggression and suicide risk and both are statistically significant with p-value .049 and .025 respectively while when we see aggression and violence together, association was statistically insignificant.

LENGTH OF ADMISSION AND AGGRESSION AND VIOLENCE

Length of admission in the hospital was in days and it ranged from 1-90 days. The mean number of days of length of stay in the hospital was 26 ± 15 days. For the purpose of data analysis, length of admission was categorized into three groups, those who stayed from 1-29 days, second group was those who stayed in the hospital from 30-59 days and last group included those from 60-90 days, as shown in table12.

Table12: length of admission in study population

Length of admission (in days)	Frequency	Percentage
1-29	146	59.3%
30-59	89	36.2%
60-90	11	4.5%
Total	246	100.0

Table 12.1: aggression and violence and length of admission in the hospital

Dependent Variables		Length of admission(in days)			Chi square χ^2	P value
		1-29	30-59	60-90		
Aggression	Y	49	13	1	12.077	.002
		33.6%	14.6%	9.1%		
	N	97	76	10	16.435	.000
		66.4%	85.4%	90.9%		
A & V	Y	64	15	2	50.432	.000
		43.8%	16.9%	18.2%		
Violence	N	82	74	9	50.432	.000
		56.2%	83.1%	81.8%		
	Y	33	61	8	50.432	.000
		22.6%	68.5%	72.7%		
	N	113	28	3	50.432	.000
		77.4%	31.5%	27.3%		

Statically significant relationship of length of admission and violence and aggression was noted in this study, showing the association of violence and aggression and length of hospital stay. Table showed positive association of length of

stay in the hospital and violence and negative association of length of stay with aggression and aggression and violence together.

AGGRESSION AND VIOLENCE BY MARITAL STATUS

In regards to marital status, where marital status was divided into five groups, about 55% of the study groups were married, followed by unmarried (29.7%), 7.3% and 6.5% were divorced and separated respectively and widows were only 2.4% as shown in table 13.

Table 13: marital status of the study population

Marital Status	Frequency	Percent
divorced	18	7.3%
married	133	54.1%
separated	16	6.5%
unmarried	73	29.7%
Widow/widower	6	2.4%
Total	246	100.0

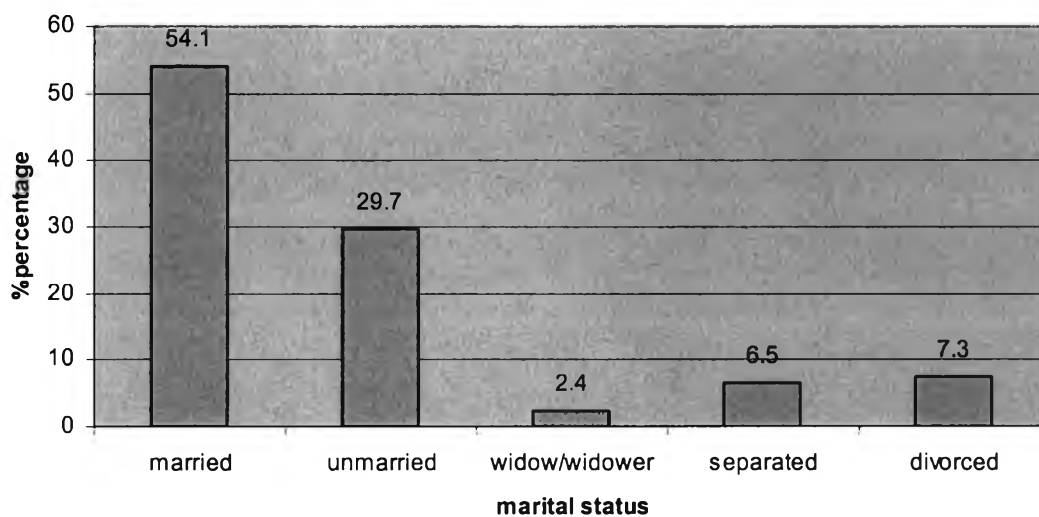


Figure: 4 marital status of the study group

As shown in table 13.1, study has shown that proportion of aggression and violence among divorced, separated and widow group was less as compared to married group and those who were unmarried either because they were too young to get married and also could be because of mental illness. Association between aggression and violence and marital status was statistically insignificant as well.

Table 13: aggression and violence and marital status

Dependent Variables		Marital Status					χ^2	P value
		Divorced	married	separated	widow	unmarried		
Aggression	Y	5	39	3	3	13	5.608	.230
		27.8%	29.3%	18.8%	50.0%	17.8%		
	N	13	94	13	3	60		
		72.2%	70.7%	81.3%	50.0%	82.2%		
A & V	Y	4	47	6	2	22	1.762	.792
		22.2%	35.3%	37.5%	33.3%	30.1%		
	N	14	86	10	4	51		
		77.8%	64.7%	62.5%	66.7%	69.9%		
Violence	Y	9	47	7	1	38	7.342	.111
		50.0%	35.3%	43.8%	16.7%	52.1%		
	N	9	86	9	5	35		
		50.0%	64.7%	56.3%	83.3%	47.9%		

Insignificant relationship of marital status and aggression and violence was noted in the study, showing no association of aggression and violence with marital status. Unlike other studies, being single (divorced/ separated/ widowed) or married had no significant effect on aggression and violence displayed.