Violence by Patients Admitted to a Private Psychiatric Hospital

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Objective: The authors determined the rates and patterns of violence toward persons by psychiatric patients before admission to the inpatient service of the Payne Whitney Clinic and determined which factors were associated with a greater risk of violence. _Method:_ During hospitalization, 763 patients were interviewed by a research assistant using a structured interview instrument. The interviewer inquired about demographic and socioeconomic information and about history of violence and alcohol and drug use. _Results:_ Having physically attacked another person in the month before admission was equally likely among male (13.6%) and female (14.7%) patients. The patterns of violence were similar for men and women in terms of target, severity of injuries, use of a weapon, and place of occurrence. Univariate analyses showed that only youth was associated with violence for male patients, while youth, low socioeconomic status, substance abuse, and axis II pathology were associated with a greater risk of violence for female patients. Logistic regression analyses showed that recent cocaine use was significantly associated with violence by female patients when age, socioeconomic status, and axis II pathology were controlled for. For male patients, recent heroin use was related to a greater risk of violence. _Conclusions:_ The frequency of violence by female patients was 150% higher than it was in a study at the Payne Whitney Clinic a decade ago. The frequency of violence by male patients was 50% higher than it was a decade ago. In the current study, substance abuse was associated with greater risk of violence by patients.

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I n the 1970s, as people became increasingly concerned about the rising level of violence in American society, debate began as to whether or not psychiatric patients were more likely than the general population to be violent. Arrest rates for violent crimes among psychiatric patients and the general population supported both sides (1).

Rather than use arrest rates, researchers turned to the direct assessment of violence by psychiatric patients. The first systematic studies of this kind, in the mid-1970s, assessed the frequency of violence through interviews and review of patient records (2–4). Roughly 10% of the patients admitted to psychiatric hospitals had attacked someone just before admission. Men, the young, and patients with schizophrenia were at greater risk of violence than other psychiatric patients. Patients with alcohol and/or drug abuse did not have an unusu-

ally high risk of violence, which is surprising since in the general population alcohol is associated with greater violence (5).

In a later study at Payne Whitney Clinic (6), patients admitted during 1981 and the first half of 1982 were interviewed, and it was found that 9.8% of the men and 5.9% of the women had been violent in the month before admission. Patients with schizophrenia and young men were at greater risk of violence than patients with other psychiatric disorders or women. There was no association between alcohol abuse and the risk of violence. Drug abuse was not studied. Studies of special populations around that time—for example, schizophrenic patients only or patients admitted involuntarily—showed higher rates of violence toward persons before admission, ranging from 15% to 22% (7–9). As with all the preceding studies, men were more likely to be violent than women.

Over the past decade there have been changes in American society, many for the worse. Violence has increased, particularly in poorer sections of urban centers. Use of crack cocaine, which has a strong pharmacologic effect on the propensity for paranoia and violence, has spread since the mid-1980s.

In the current study we used the same methods as were used in the study done a decade ago at the Payne

Whitney Clinic (6). We aimed to 1) determine the rates of violence toward persons by patients before admission; 2) determine which types of patients are at greater risk of inflicting violence on other persons, particularly in regard to demographic characteristics, diagnosis, and recent substance use; and 3) describe the nature of the violent episodes in terms of target, place of occurrence, use of weapons, and severity of injury.

METHOD

All patients 18 to 59 years of age who were admitted consecutively to the Payne Whitney Clinic in a $1\frac{1}{2}$-year period during 1991 and 1992 were eligible for this study. The Payne Whitney Clinic is a private university psychiatric hospital in Manhattan. During the study period it was the policy of the clinic to admit only voluntary patients. The payer mix was 37% Medicaid, 35% private third parties, 23% Medicare, and 5% self-pay. During the study 1,068 patients were admitted. Of these, 305 patients did not participate; 102 refused to give informed consent, and 203 were unable to be interviewed because of their illness or were discharged before an interview could take place. Thus, the study group consisted of 763 subjects. After complete description of the study to the subjects, written informed consent was obtained. Comparison of the participants and the nonparticipants revealed no significant difference in age, gender, race, psychiatric diagnosis, or socioeconomic status.

A trained research assistant administered a closed-ended structured interview. The interview inquired about demographic and socioeconomic information and history of violence and alcohol and drug use. The demographic data obtained from the patient were subsequently verified in the chart. Socioeconomic status was computed by using education level and occupation and by following the criteria of Hollingshead and Redlich (10) (level I is the highest and level V is the lowest status). One of us (K.T.) determined axis I and II diagnoses for all patients at discharge by using chart information and following DSM-III-R criteria. The schizophrenia category contains primarily patients diagnosed as having schizophrenia; some had brief reactive psychosis, psychotic disorder not otherwise specified, or delusional disorder. The mania category contains mostly patients diagnosed with manic episode; some had cyclothymia. The depression category contains primarily patients with major depression; some had dysthymia. Patients with schizophrenia, mania, or depression and a diagnosis of psychoactive substance use disorder were classified by the former categories for the analysis of the relationship between type of axis I disorder and recent violence. The substance abuse category contains the rest of the patients with psychoactive substance use disorder, even though they may have had a diagnosis of organic disorder or other axis I category. Roughly one-half of the patients in the "other axis I disorder" category were diagnosed as having adjustment disorders. The patients were asked whether they had used alcohol, cocaine, heroin, amphetamines, phencyclidine, other hallucinogens, and inhalants in the month preceding admission.

The most recent episode of violence toward another person in the month preceding admission was assessed in regard to the target, place, use of a weapon, and severity of injuries, if any, to the victim. An injury was rated as "moderate" if the victim sustained injuries such as bruises, scratches, minor bleeding, or sprains, and it was rated as "severe" if there were injuries such as concussions, deep lacerations, bone fractures, or bullet wounds.

Gender-stratified analyses comparing violent patients to nonviolent patients included the age, race, diagnoses, and socioeconomic status of the perpetrator and use of alcohol or drugs in the month before admission as independent variables. Additional analyses were conducted to compare violent episodes by gender in terms of 1) whether the target was a spouse/lover, child, other family member, or other person; 2) whether there was no injury, a moderate injury, or a severe injury; 3) whether a weapon was used or not used; and 4) whether the attack took place in a private residence, on the street or in a car, in a public building, or in an institution.

Chi-square tests were used for comparison of the violent and non-

TABLE 1. Characteristics of Patients Admitted to a Private Psychiatric Hospital

Variable	Patients (N=763)[a]	
	N	%
Gender		
Male	354	46.4
Female	409	53.6
Age (years)		
18–29	239	31.3
30–39	263	34.5
40–49	165	21.6
50–59	96	12.6
Race/ethnicity		
White	448	58.7
African American	151	19.8
Latino	124	16.3
Asian or other	40	5.2
DSM-III-R diagnoses		
Axis I diagnostic category[b]		
Schizophrenia[c]	177	23.2
Mania[c]	116	15.2
Depression[c]	270	35.4
Psychoactive substance use disorder only	83	10.9
Organic disorder	25	3.3
Other axis I disorder	61	8.0
None (axis II disorder only)	31	4.1
Any psychoactive substance use disorder	169	22.1
Axis II diagnosis		
Present	250	32.8
Absent	512	67.2
Socioeconomic status[d]		
Level I	36	5.1
Level II	76	10.8
Level III	124	17.6
Level IV	159	22.6
Level V	310	44.0

[a]Total number varies because of missing data.
[b]Specific diagnoses are given in text.
[c]Patients with comorbid substance abuse and schizophrenia, mania, or depression are classified in the latter diagnostic categories.
[d]Hollingshead and Redlich (10); I=highest, V=lowest.

violent patients on categorical variables. Mann-Whitney tests were used for ordered categorical variables, i.e., age and socioeconomic status, in comparing violent and nonviolent patients. Chi-square tests were used for comparison of men and women in regard to the target of the violence, degree of injury, whether a weapon was used, and where the attack took place.

Hierarchical logistic regression analysis was used to examine the risk factors for violence in the past month. The hypothesized risk factors included demographic characteristics (gender, age, and socioeconomic status) and clinical variables (substance abuse and presence of an axis II diagnosis). The logistic regression results are presented as relative risks with 95% confidence intervals. A two-tailed alpha level of 0.05 was used for all statistical tests.

RESULTS

The characteristics of the 763 patients in the study are presented in table 1. There were roughly equal proportions of men and women, with an overrepresentation of whites, those under 40 years of age (65.8%), and persons in the lower two socioeconomic strata (66.6%). The most frequent axis I disorders were depression

TABLE 2. Characteristics of Male and Female Patients Admitted to a Private Psychiatric Hospital Who Had or Had Not Been Violent Toward Other Persons in the Previous Month

	Men						Women					
Variable	Violent (N=48)[a]		Nonviolent (N=306)[a]		Analysis[b]			Violent (N=60)[a]		Nonviolent (N=349)[a]		Analysis[b]	
	Mean	SD	Mean	SD	z	p		Mean	SD	Mean	SD	z	p
Age (years)	31.0	7.8	35.2	10.2	−2.65	0.008		33.6	10.2	37.0	10.9	−2.20	0.03
Socioeconomic status[c]	4.4	1.7	4.1	1.4	−0.97	0.33		4.5	1.3	4.0	1.4	−2.53	0.01

	N	%	N	%	χ^2	df	p	N	%	N	%	χ^2	df	p
Race/ethnicity					3.89	3	0.27					1.58	3	0.66
White	26	54.2	176	57.5				33	55.0	213	61.0			
African American	7	14.6	55	18.0				13	21.7	76	21.8			
Latino	9	18.8	59	19.3				10	16.7	46	13.2			
Asian or other	6	12.5	16	5.2				4	6.7	14	4.0			
DSM-III-R diagnoses														
Axis I diagnostic category[d]					5.57	5	0.35					13.42	5	0.02
Schizophrenia	12	26.7	86	28.8				10	18.2	69	20.7			
Mania	8	17.8	41	13.7				7	12.7	60	18.0			
Depression	10	22.2	90	30.1				19	34.5	151	45.3			
Psychoactive substance use disorder only	9	20.0	41	13.7				11	20.0	22	6.6			
Organic disorder	0	0.0	15	5.0				2	3.6	8	2.4			
Other axis I disorder	6	13.3	26	8.7				6	10.9	23	6.9			
Axis II diagnosis present	19	12.2	89	29.8	2.11	1	0.15	29	52.7	113	33.9	5.75	1	0.02

[a]Total number varies because of missing data.   [c]Hollingshead and Redlich (10); 1=highest, 5=lowest.
[b]Mann-Whitney test or chi-square analysis. [d]Specific diagnoses are given in text.

(36.9%), schizophrenia (24.1%), and mania (15.8%). An axis I diagnosis of substance abuse was found in 14.1% of the schizophrenic patients (N=25), 11.2% of the manic patients (N=13), and 15.2% of the depressed patients (N=41). Regardless of other axis I diagnoses, 22.1% of the patients had an axis I diagnosis of substance abuse. In all cases the abused substances included drugs; no patient abused alcohol only. A total of 250 patients had axis II diagnoses, and one-half of these had borderline or antisocial personality disorder.

Of the 354 male patients, 48 (13.6%) had been violent in the month before admission, as had 60 (14.7%) of the 409 female patients. All of the subsequent analyses comparing violent patients to nonviolent patients were stratified by gender. Table 2 compares patients who had been violent in the month before admission to those who had not been violent. The violent patients differed significantly from the nonviolent patients on four characteristics. For both men and women, the violent patients were significantly younger than the nonviolent patients. There were no other significant differences for the male patients. For women, the violent patients had significantly lower socioeconomic status than the nonviolent patients and were significantly more likely to have an axis I diagnosis of substance abuse. The violent female patients were also more likely than the nonviolent women to have any axis II diagnosis.

There were some differences between the violent and nonviolent patients in regard to recent substance use (table 3). The female violent patients (18.3%) were more than three times as likely as the nonviolent female patients (5.4%) to report having used cocaine in the

month before admission. There were two other marginally significant differences: the female violent patients were more likely to have used alcohol in the past month, and the male violent patients were more likely than the nonviolent men to have used heroin in the previous month. The numbers of patients reporting the use of other illicit drugs in the month before admission were small: amphetamines, N=4 (two men and two women), phencyclidine, N=3 (all men), other hallucinogens, N=4 (three men and one woman), and inhalants, N=2 (both men). There was no statistically significant difference (according to Fisher's exact test) between the patients who were violent and those who were not violent in the use of each of these drugs. Finally, we compared violent patients with schizophrenia, mania, depression, and other axis I disorders (excluding substance abuse) in regard to the use of alcohol, cocaine, heroin, and the other illicit drugs and found no statistically significant association of axis I pathology and substance use just before admission.

Next we incorporated the significant univariate results in logistic regression analyses. In light of the significant effect of a substance abuse diagnosis, we chose to further examine particular types of substances that were associated with violence in the past month. Although a substance abuse diagnosis was significantly associated with violence among women but not men, we still chose to examine the specific substances separately for each gender because the data did not support the assumption of no gender-by-cocaine interaction (χ^2=3.62, df=1, p=0.06). We conducted logistic regression analyses in which a substance abuse diagnosis was

TABLE 3. Recent Substance Use by Male and Female Patients Admitted to a Private Psychiatric Hospital Who Had or Had Not Been Violent Toward Other Persons in the Previous Month

	Men						Women					
	Violent (N=48)		Nonviolent (N=306)		Chi-Square Analysis (df=1)		Violent (N=60)		Nonviolent (N=349)		Chi-Square Analysis (df=1)	
Use of Substance in Month Before Admission	N	%	N	%	χ^2	p	N	%	N	%	χ^2	p
Alcohol					0.28	0.59					3.77	0.05
Yes	25	52.1	172	56.2			33	55.0	145	41.5		
No	23	47.9	134	43.8			27	45.0	204	58.5		
Cocaine					0.35	0.55					12.51	<0.001
Yes	9	18.8	47	15.4			11	18.3	19	5.4		
No	39	81.3	259	84.6			49	81.7	330	94.6		
Heroin					3.83	0.05					0.11	0.73
Yes	5	10.4	12	3.9			1	1.7	4	1.1		
No	43	89.6	294	96.1			59	98.3	345	98.9		

replaced by three variables: use of alcohol in the past month, use of cocaine in the past month, and use of heroin in the past month.

For the female patients, cocaine use was significantly associated with an elevated risk of violence (relative risk=2.90, 95% confidence interval=1.20–7.02), but use of alcohol (relative risk=1.40, 95% confidence interval=0.76–2.56) and use of heroin (relative risk=0.73, 95% confidence interval=0.07–7.24) were not when we controlled for age (relative risk=0.99, 95% confidence interval=0.96–1.01), socioeconomic status (relative risk=2.02, 95% confidence interval=0.98–4.16), and presence of an axis II diagnosis (relative risk=1.44, 95% confidence interval=0.78–2.64). The results differed for men. Heroin use was significantly associated with an elevated risk of violence (relative risk=5.34, 95% confidence interval=1.11–25.79), but alcohol (relative risk=0.84, 95% confidence interval=0.41–1.72) and cocaine (relative risk=0.54, 95% confidence interval=0.15–1.96) were not when we controlled for age (relative risk=0.96, 95% confidence interval=0.92–1.00), socioeconomic status (relative risk=0.88, 95% confidence interval=0.41–1.88), and presence of an axis II diagnosis (relative risk=1.58, 95% confidence interval=0.78–3.23). Further logistic regression analysis showed that the use of any one of these substances was associated with an elevated risk of violence (odds ratio=1.97, 95% confidence interval=1.05–3.69). There was a slightly higher risk of violence for patients who reported using two or more of these substances than for those using only one substance (odd ratio=2.73, confidence interval=0.97–7.63).

The characteristics of the most recent violent episode

TABLE 4. Characteristics of the Most Recent Violent Episode of Male and Female Patients Admitted to a Private Psychiatric Hospital Who Had Been Violent Toward Other Persons in the Month Before Admission

	Men (N=48)[a]		Women (N=60)[a]		Total (N=108)[a]		Chi-Square Analysis		
Characteristic of Violent Episode	N	%	N	%	N	%	χ^2	df	p
Target							5.17	3	0.16
Spouse or lover	11	22.9	23	38.3	34	31.5			
Child	1	2.1	4	6.7	5	4.6			
Other family member	12	25.0	13	21.7	25	23.1			
Other person	24	50.0	20	33.3	44	40.7			
Physical injury to victim							4.41	2	0.11
None	21	50.0	36	65.5	57	58.8			
Moderate[b]	15	35.7	17	30.9	32	33.0			
Severe[c]	6	14.3	2	3.6	8	8.2			
Use of a weapon							0.57	1	0.45
Yes	7	15.6	6	10.5	13	12.7			
No	38	84.4	51	89.5	89	87.3			
Location							3.04	3	0.39
Private residence	24	55.8	40	71.4	64	64.6			
Street or car	6	14.0	6	10.7	12	12.1			
Public building	8	18.6	5	8.9	13	13.1			
Institution	5	11.6	5	8.9	10	10.1			

[a]Total number varies because of missing data.
[b]Scratches, minor bleeding, sprains, bruises.
[c]Bullet wounds, concussions, fractures, deep lacerations.

in the month before admission are presented in table 4. Family members, particularly spouses or lovers, were the most frequent targets of attacks by the patients, although children were infrequent targets. Persons other than family members who were targets of attack were usually acquaintances (N=17). The rest were health care professionals (N=5), authority figures such as police or guards (N=4), persons at work (N=3), other patients (N=2), or total strangers (N=13). Attacks produced injuries for 40 victims, and for eight of these victims the injuries were severe. Weapons, predominantly knives and blunt objects, were used by 13 violent patients. Most attacks took place in private residences, some took place in health care facilities and other institutions, and the rest were in public. There was no significant difference between the male and female perpetrators in the target of violence, the severity of injury to

the victim, whether a weapon was used, or where the attack took place.

DISCUSSION

Approximately 14% of patients admitted to our hospital had been violent toward other persons in the month before admission. Female patients were just as likely as male patients to have been violent, and the characteristics of the violent attacks were the same for the two sexes. Violence was often directed at family members in private residences, and while weapons were used infrequently, over one-third of the attacks resulted in physical injuries. Other persons attacked by patients included friends and acquaintances and persons who had contact with the patients as caregivers, co-workers, or other patients in health care settings. Ten percent of the attacks occurred in health and other types of institutions.

These findings support the concern of others that the association of violence and psychiatric disorders must be recognized and addressed. Although Monahan (11) and Torrey (12) stressed that most psychiatric patients are not violent, there is evidence from a number of studies that a subgroup of psychiatric patients—for example, substance abusers, psychotic patients, and noncompliant patients—are at greater than normal risk of violence. There is a need to educate the public, family members, and health care workers as to how violence by psychiatric patients can occur and what can be done to prevent it. A patient's potential for violence must be assessed, and family members should be involved to work out strategies for preventing future violence. A task force of the American Psychiatric Association has called for the education of health care workers about their safety and about the management of violence by patients (13).

The rate of violence among patients admitted to the Payne Whitney Clinic that was found in this study is greater than the rates reported in studies from the mid-1970s and the early 1980s (3, 4). Comparison of the current study and one done with similar methods at the Payne Whitney Clinic a decade ago (6) shows that the rates of violence have increased roughly 40% for men and 150% for women. The increased frequency of violence, more dramatic for female patients, cannot be explained by changes in the characteristics of the patients in the two studies. The patients in both studies were all admitted on a voluntary basis, and the age, diagnostic, and payer compositions of the study groups were similar except for a 12% increase in Medicaid patients in the current study. For example, patients in the 18–29-year-old group constituted 31% of the 1981–1982 study group and 31% of the current study group, while patients with schizophrenia or mania constituted 38% of both study groups.

The increase in violence may be related to increased substance abuse by psychiatric patients, but we are unable to determine this because cocaine and heroin use was not assessed in the earlier study. In the current study, comparison of violent and nonviolent men revealed youth and recent use of heroin as risk factors for violence. The violent female patients were more likely than the nonviolent female patients to be young, to be from lower socioeconomic levels, to have an axis II diagnosis, to have an axis I diagnosis of substance abuse, and to report recent use of cocaine. Although youth, lower socioeconomic status, and axis II pathology are associated with greater risk of violence, substance abuse is probably the underlying major factor associated with the increase in violence among the female patients. Diagnoses of schizophrenia and mania were not related to a greater risk of violence, as they were in earlier studies (3, 4, 6–9). Furthermore, there was no evidence that substance abuse among violent patients was more prevalent in one type of axis I disorder than in another type, except, of course, for an axis I diagnosis of psychoactive substance use disorder itself. We believe that this supports substance abuse per se as a factor in violence and that exacerbation of axis I pathology—for example, psychosis—is not the cause of violence.

We are careful not to assume a direct causal link between substance abuse, particularly cocaine abuse, and the increase in the rate of violence among female patients shown in the current study. The psychopathology and behavior warranting a diagnosis of substance abuse and the time period of reported cocaine use did overlap with the time period during which the violence occurred, namely, the month before admission. However, there may be no causal connection. Further exploration of the role of cocaine use and other substance abuse in violence, particularly for female psychiatric patients, is necessary.

Our study supports earlier findings of a strong correlation between substance abuse and violence by patients in the community (14). In our study, there was evidence that polysubstance abuse increased the risk of violence even more than the use of one substance did. Violence may be related to substance use in three ways: 1) a direct pharmacologic effect; 2) exposure to a dangerous environment, such as drug dealing and crack houses; and 3) coincidentally, as a trait of aggressive, risk-taking people. The use of cocaine may be associated with irritability, impulsivity, hyperactivity, and suspiciousness that can turn into paranoid delusional thinking (15–18). Researchers have suggested that violence by drug abusers is related to their lifestyle, particularly for women (19, 20). The use of cocaine and other illicit drugs is associated with violence in two ways: 1) illegal drug dealing, which includes control of sales territory, retaliation, and self-defense; and 2) activities through which money is obtained for drugs, such as robbery and prostitution (21, 22).

If there is a direct link between violence and cocaine use by psychiatric patients, why is the association stronger for women? Why are male patients not at greater risk of violence if they use cocaine? Does a shift in gender-specific roles occur when a woman is under

the influence of cocaine or is engaged in buying cocaine? How do psychopathology and social class affect the dynamics of cocaine use and violence? These questions can be answered only by in-depth interviews of patients and their families, their friends, and other persons around them so as to separate the clinical pharmacology from the environmental aspects of cocaine use in terms of violence.

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