

A Public Health Perspective on Violent Offenses Among Persons With Mental Illness

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Objective: This study reanalyzed existing data to assess the extent to which persons with mental illness might contribute to criminal violence in the community. **Methods:** Data were examined from a representative sample of 1,151 remanded offenders who underwent a full structured diagnostic interview that was used to provide one-month prevalence rates of mental illnesses as defined by the Structured Clinical Interview for DSM-III-R. Diagnoses of interest were mood, psychotic, anxiety, psychoactive substance use, adjustment, and miscellaneous axis I disorders and axis II personality disorders. Criminological data describing the number of offenses against persons and property and the number of victimless crimes were abstracted from police arrest reports and warrants. A violent crime was defined as any crime against a person. **Results:** The one-month prevalence of major mental and substance use disorders of newly admitted inmates was 61 percent. About 3 percent of violent offenses could be attributed to individuals who had a principal diagnosis of any non-substance use-related disorder. An additional 7 percent of violent offenses could be attributed to individuals who had a primary diagnosis of a substance use disorder. **Conclusions:** The results of the study support the hypothesis that people with mental and substance use disorders are not major contributors to police-identified criminal violence. Public perceptions of mentally ill persons as criminally dangerous appear to be greatly exaggerated. (*Psychiatric Services* 52:654–659, 2001)

Reducing stigmatization of persons with mental illness is a major goal of organizations that work to improve treatment, research, and tolerance for this population. Acts of criminal violence by mentally ill persons are often highly publicized and have a powerful impact on public fears, which can undermine efforts to achieve this goal.

An ongoing question about persons

with mental illness is whether they are more likely than the general population to commit violent acts (1). Results of studies conducted before 1980 consistently showed that persons with a serious mental illness such as schizophrenia were no more likely—and often were less likely—to commit a violent or criminal act than persons who did not have a mental illness (2,3). However, more recent studies have reported

higher than average rates of violence among persons with mental illnesses or substance use disorders (4–10).

Despite the change in the statistical trend, it is unlikely that a large portion of community violence is attributable to persons with mental illness (1), although few studies have directly addressed this important public health issue. The vast majority of persons with mental illness do not commit acts of violence (11). When people in this population do act violently, their most likely target is a close family member rather than a stranger (12). Even within families, the prevalence of violence is low. Estroff and colleagues (13) found that only 2 percent of individuals in close family networks of persons with serious mental illness were targets of violence, and most of them were mothers who were involved in a reciprocally threatening and hostile relationship with a child who was diagnosed as having schizophrenia and a co-occurring substance abuse problem, who was not receiving treatment, and who was financially dependent.

Using data from the Epidemiologic Catchment Area study, Wessely (14) estimated that only 3 percent of all violent incidents that occurred in the community could be attributed to persons with mental illness.

Although many acts of violence never come to the attention of law enforcement officials, violent acts that are identified as having been committed by a mentally ill person are those most often sensationalized in the media, further fueling public fear and intolerance (15).

The study reported here used a

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public health approach to determine the proportion of violent, remanded crimes in the community that could be attributed to persons with a defined Structured Clinical Interview for DSM-III-R (SCID) mental disorder, specifically a mood, psychotic, anxiety, adjustment, psychoactive substance use, or miscellaneous other axis I disorder or an axis II personality disorder. We were particularly interested in violent crimes attributable to individuals with an axis I disorder. Axis II disorders were of less interest because of the complexities associated with accurately identifying antisocial personality disorders in incarcerated populations.

Methods

The data analyzed in this study were originally collected and analyzed in 1992 to estimate the prevalence of *DSM-III-R* mental disorders in a pre-trial population (16). The methods and other findings are described in more detail in the original and subsequent studies (17,18).

The original study was conducted at the only detention center serving a geographic catchment area of 1.5 million residents in the southern portion of a province in western Canada. A majority of inmates entered this facility as prearrest cases; a minority were sentenced prisoners who were in transit, on courtesy holds, or serving intermittent sentences (on weekends, for example). As there were no diversion programs operating in the area at the time, the police had virtually no opportunity to redirect criminally violent offenders to alternative mental health dispositions. The study received ethical review and approval from the University of Calgary bioethics committee and from the Department of Justice in Alberta.

Participants

Inmates were selected by random sampling from daily admission logs between July and December 1992. All selected inmates were approached for an interview within 24 hours of their admission to the facility, before any bail hearings, forensic transfers, or other releases. A total of 4,770 inmates were admitted during the study months. Of these, 1,151 were asked to

participate in the study; 326 refused, yielding a response rate of 78 percent and a sampling fraction of about 25 percent. This response rate was considered to be acceptable, given that the inmates were not remunerated for their participation. Thirty-three inmates were ineligible for interviewing because of language or logistical barriers—for example, inaccessibility because of court appearances, consultations with officers of the court, or meetings with counsel.

No demographic differences were noted among the inmates who agreed to participate and those who refused. There were no significant differences between the sample group and the population of offenders admitted during the study period in terms of age, gender, ethnicity, education, category of crime, and month of admission. Because the sample was representative of all remanded offenders in a geographically defined area, it served as an appropriate basis for drawing population-based inferences.

Data collection

After a structured clinical interview, each participant received a single primary diagnosis from one of four forensic psychiatrists. The SCID Non-patient edition, modules B and C of the SCID Patient edition (19), and the Psychopathic Checklist (20) were used to structure the interview session and assist in the diagnostic formulation of all major *DSM-III-R* disorders. A sub-study confirmed interrater reliability for SCID diagnoses, with partial kappa coefficients ranging from .80 to 1 for broad disorder categories. Interrater agreement was monitored throughout the study with an evaluation after every 200 interviews.

Crime data detailing criminal code offenses were obtained from official police arrest reports and warrants of remand. All crimes against persons were considered violent offenses. Nonviolent offenses were defined as crimes against property and victimless offenses.

Results were based on the one-month prevalence of SCID-defined principal diagnoses. A principal diagnosis was defined as the only condition present or, when more than one condition was present, the most important condition or the condition re-

sulting in the most difficulty or functional impairment. Primary diagnoses were assigned by use of conventional *DSM-III-R* hierarchical and exclusion rules. Consequently, they are not directly comparable to those in studies that use nonhierarchical assignment rules—prevalence rates for certain mental disorders are higher when nonhierarchical rules are used—and specific combinations of comorbidities cannot be assessed.

The prevalence of antisocial personality disorder in incarcerated populations is typically high when *DSM-III-R*-based criteria are used because of their emphasis on law-breaking and arrest-prone behaviors. To avoid inflating the prevalence of axis II disorders, interviewers asked participants who received a diagnosis of antisocial personality disorder by means of the SCID also to complete the Psychopathic Checklist. Only participants who exceeded the checklist's recommended threshold were considered to have antisocial personality disorder and counted as meeting the criteria for an axis II diagnosis.

The use of primary diagnoses and the restrictive criteria for antisocial personality disorder will yield lower axis II prevalence figures than those reported in other studies. Given that our interest was in axis I disorders, this effect did not pose a significant interpretation problem.

Results

Sample characteristics

Table 1 presents detailed characteristics of the study participants. A total of 1,045 of the 1,151 participants were men (91 percent). Male and female participants did not differ significantly in age distributions. The mean±SD age was 28±8.8 years. Although both men and women had low educational levels, a significantly larger proportion of women had not attended high school ($\chi^2=9.33$, $df=3$, $p=.025$). Also, a significantly larger proportion of women were of aboriginal origin ($\chi^2=22.87$, $df=2$, $p<.001$).

The 1,151 participants had accrued a total of 4,991 charges for the current incarceration: 537 crimes against persons (10.8 percent), 1,622 crimes against property (32.5 percent), and 2,832 victimless offenses (56.7 per-

Table 1

Characteristics of participants in a study of violent behavior among offenders with mental illness

Characteristic	Males (N=1,045)		Females (N=106)		Total (N=1,151)	
	N	%	N	%	N	%
Age (years)						
17 to 24	427	41	40	38	467	41
25 to 34	378	36	41	39	419	36
35 to 44	174	17	18	17	192	17
45 or over	66	6	7	7	73	6
Education						
Grade 8 or less	92	9	19	18	111	10
Some high school	601	58	53	50	654	57
Completed high school	307	29	30	28	337	29
Postsecondary	44	4	5	9	48	4
Ethnicity						
Caucasian	801	77	61	58	862	75
Aboriginal	191	18	40	38	231	20
Other	53	5	5	5	58	5
Number of crimes against persons						
None	758	73	86	82	844	74
One	168	16	15	14	183	16
Two	72	7	3	3	75	7
Three or more	46	4	1	1	47	4
Number of crimes against property						
None	566	54	62	59	628	55
One	223	21	19	18	242	21
Two	101	10	10	10	111	10
Three or more	154	15	14	13	168	15
Number of other offenses						
None	240	23	18	35	258	23
One	309	30	32	15	341	30
Two	181	15	15	10	176	15
Three or more	334	32	40	42	374	33
Total number of offenses in all categories						
One	324	31	37	35	361	31
Two	201	19	16	15	217	19
Three	138	13	10	10	148	13
Four or more	381	37	42	40	423	37
Primary diagnosis (one month)						
Mood disorder	48	5	5	5	53	5
Psychotic disorder	14	2	1	1	15	1
Substance use disorder	492	47	43	41	535	47
Anxiety disorder	20	2	4	4	24	2
Adjustment disorder	8	1	2	2	10	1
Other axis I disorder	2	.2	0	—	2	.2
Axis II personality disorder	60	6	4	4	64	6
No disorder	401	38	47	44	448	39
Any axis II personality disorder						
Present	227	22	24	23	251	22
Absent	818	78	82	77	900	78
Attempted suicide						
Never	829	79	70	66	899	78
Once	115	11	19	18	134	12
Twice	46	4	8	8	54	5
Three times or more	55	5	9	9	64	6

cent). The distribution of charges was similar for men and women. A significantly larger proportion of men were charged with a violent offense (27 percent versus 18 percent; $\chi^2=4.23$, $df=1$, $p=.04$).

Despite the use of restrictive diagnostic criteria, psychiatric morbidity among the participants was relatively high. A total of 703 participants (61.1 percent) received a principal diagnosis involving either an axis I mental

disorder or an axis II personality disorder. Distributions of diagnoses did not differ significantly between men and women. Two of every three diagnoses were psychoactive substance use disorders (mostly alcohol related), making these the most prevalent of any disorder type. Psychotic disorders (mostly schizophrenia) were the least prevalent.

As expected, the prevalence of axis II disorders was low. Less than a third of the participants met the criteria for a personality disorder. The proportions of men and women who received a diagnosis of any axis II personality disorder were similar. A total of 187 participants (16 percent)—167 men (16 percent) and 20 women (19 percent)—were diagnosed as having both an axis I and an axis II disorder. Finally, one in five inmates reported having made one or more suicide attempts. Women were significantly more likely to report a history of suicide attempts ($\chi^2=9.97$, $df=3$, $p=.02$).

Prevalence of violence

Because offenders could have been charged with multiple offenses, a comparison of the proportion of violent offenders in each diagnostic category with the proportion of violent offenses is presented in Table 2.

Charges were grouped into three broad categories: charges against persons (all physical attacks or physical threats, including assault, sexual assault, and murder), property crimes (all theft or destruction of property), and miscellaneous victimless crimes (for example, motor traffic violations, drug offenses, disturbing the peace, and trespassing). The number of offenses allegedly committed by offenders with mental disorders was generally proportionate to their number in the inmate population. The largest discrepancy was only 3 percent, for offenders with non-substance-use disorders. For example, 5 percent of the participants had mood disorders (Table 1), and participants with mood disorders accounted for 6 percent of the violent offenders and 5 percent of the violent charges (Table 2).

Participants with substance use disorders accounted for almost half of all violent offenses (49 percent), whereas

participants with psychotic disorders accounted for less than 1 percent. One of every six violent offenses was committed by a person with a non-substance-use disorder, whereas one of every two was committed by a person with a primary substance use disorder.

The data summarized in Table 3 were used to examine whether offenders with mental disorders were charged with more serious offenses than those without mental illness. Offense categories were ranked according to their seriousness, from victimless offenses to violent offenses. Chi square analysis was used to compare differences in the proportions of these types of offense in each diagnostic group with those of offenders who had no diagnosis.

An inverse trend between the frequency of an offense and its severity was noted. Of the 4,991 offenses, 537 (11 percent) were classified as violent. Crimes of violence had the lowest frequencies, typically constituting about 10 percent of all the offenses in each diagnostic group. Victimless crimes accounted for 57 percent of all offenses and had the highest frequencies in each diagnostic group (range=50 percent to 72 percent). As Table 3 shows, when compared with offenders with no diagnosis, only two diagnostic groups showed a significant trend: a significantly greater proportion of violent offenses were committed by offenders with a principal diagnosis of adjustment disorder and a significantly smaller proportion of violent offenses were committed by offenders with a psychotic disorder.

Violent offenses attributable to persons with mental disorders

Table 4 presents calculations of the incidence rates of violent offenses per 1,000 offenders for those with no disorder and for violent offenders with a mental disorder in three broad categories: non-substance-use disorders, substance use disorders, and all axis I disorders combined. Numerators for the calculations were the number of violent offenses attributable to offenders in each diagnostic category, and denominators were the total number of individuals in that group.

Table 4 also presents the attributable fraction exposed—that is, the per-

Table 2

Percentage of violent offenders and violent charges among inmates with no disorders and those with psychiatric and substance use disorders

Principal diagnosis	Violent offenders (N=305)		Violent offenses (N=537)	
	N	%	N	%
No disorder	107	35	188	35
Any non-substance-use mental disorder	57	19	85	16
Substance use disorder	141	46	264	49
Axis II personality disorder	24	8	36	7
Mood disorder	18	6	26	5
Anxiety disorder	8	3	1	2
Psychotic disorder	2	1	3	1
Adjustment disorder	5	2	8	2

centage by which the incidence rate for each diagnostic category would have to drop in order to match the rate among offenders without a disorder. For public health planners, this calculation represents the reduction that would occur if the exposure in question—in this case, mental illness—could be entirely eliminated or prevented (21). Finally, by expressing the theoretically preventable offenses as a proportion of all violent offenses in our sample, the extent to which persons with mental illness may contribute to violent remanded crime was estimated.

The incidence of violent offenses was higher among offenders in all diagnostic groups than among offenders with no disorder. To be comparable to the rate among offenders with no disorder, the incidence of violent offenses among persons with any mental disorder would have to drop by 16 percent, or 55 offenses. A reduction of this magnitude would yield a reduction of only 10 percent of the 537 violent offenses in this sample. Stated another way, one in ten violent crimes in our sample could be attributed to persons with a mental or substance use disorder. The bulk of these

Table 3

Number and types of charges among inmates with no disorders and those with psychiatric and substance use disorders

Principal diagnosis (percentage of inmates)	Crimes against persons (N=537)		Crimes against property (N=1,622)		Victimless crimes (N=2,832)		Total offenses (N=4,991)
	N	%	N	%	N	%	N
No diagnosis (39 percent)	188	10	685	35	1,060	55	1,933
Substance use disorder (47 percent)	264	11	676	29	1,380	60	2,320
Axis II disorder (22 percent)	36	11	122	39	158	59	316
Mood disorder (5 percent)	26	11	93	38	123	51	242
Anxiety disorder (2 percent)	11	11	27	26	67	64	105
Adjustment disorder (1 percent) ¹	8	40	5	25	7	35	20
Psychotic disorder (1 percent) ²	3	7	10	22	33	72	46
Any non-substance-use disorder (15 percent)	85	12	261	35	392	53	738

¹ $\chi^2=11.1$, $df=2$, $p=.001$, for the difference in proportion of offenses compared with offenders with no disorder

² $\chi^2=4.2$, $df=2$, $p=.04$, for the difference in proportion of offenses compared with offenders with no disorder

Table 4

Violent offenses, preventable offenses, and offenses attributable to mental illness among inmates with no disorders and those with psychiatric and substance use disorders

Diagnosis	Incidence rate of violent offenses per 1,000 offenders	Preventable offenses ¹		Percentage of violent offenses attributable to mental illness ²
		N	%	
No disorder	419.6			
Any non-substance-use disorder	509	15	18	3
Any substance use disorder	494.4	40	15	7
Any disorder	497.9	55	16	10

¹ The amount the incidence rate would have to drop to reach the rate among offenders with no disorders; calculated as the difference between the number of mentally ill persons and those with no disorder divided by the number of mentally ill persons (21)

² The proportion of preventable violent offenses is expressed as a percentage of all violent offenses in the sample (N=537 offenses). In public health terms, this reflects that portion of violent offenses that can be attributed to mentally ill persons (21).

offenses—about 7 percent—were attributable to offenders with a primary substance use disorder and only about 3 percent to offenders with a primary non-substance-use mental disorder.

Discussion

Results from this study show a relatively high one-month prevalence (61 percent) of any principal axis I disorder—about 46 percent for substance use disorders and 15 percent for non-substance-use disorders. High prevalences of mental illness and substance use disorders among remanded populations have been consistently reported in Canada (22–24), the United States (25–28), and the United Kingdom (29,30), with higher prevalences reported in studies that do not use *DSM-III-R* hierarchical exclusion rules and those that estimate the lifetime prevalences of the disorders.

The high rate of mental disorders among pretrial offenders relative to community samples (31–33) is generally considered to be a result of poorly executed deinstitutionalization and community care policies (34). Proponents of the “criminalization hypothesis” argue that inadequate housing, lack of assertive community-based mental health treatment programs, and inaccessibility of long-stay inpatient beds have resulted in the incarceration of large numbers of persons with mental illness, often for minor offenses.

However, with only two exceptions, the offenders with mental disorders in our sample were not more likely to be charged with a minor offense. Indeed, as a group, their charge profile was similar to that of offenders without mental illness. With respect to the exceptions, offenders with adjustment disorders were more likely to be charged with a violent offense, and those with a psychotic disorder were less likely. Therefore, our results support the criminalization hypothesis only for offenders with a psychotic disorder—a minority of offenders in our sample.

The notion that mentally ill individuals are dangerous and pose a significant risk of violence to the public reinforces social stigma and discrimination and reduces opportunities for successful community integration and improved quality of life (3). The results of our study support previous speculations that the public’s fear greatly exceeds the actual risk (1). Using a public health approach (21), we calculated the proportion of violent offenses that could be attributed to persons with mental illness. Less than 3 percent of violent crimes could be attributed to persons with a principal diagnosis reflecting a non-substance-use disorder—that is, a mood, psychotic, anxiety, adjustment, or miscellaneous other axis I disorder or an axis II personality disorder—and an additional 7 percent could be attributed to

those with a principal psychoactive substance use disorder.

Because our sample was representative of all offenders arrested and detained by police for violent crimes in a geographically defined area, these findings support the hypothesis that the public risk of criminal violence by a person with a mental disorder or a substance use disorder is low. From the perspective of public health interventions, only one in ten violent crimes in our sample could have been prevented if these disorders did not exist.

With respect to generalizability to other locales, the generally low base rates of criminal violence in Canada will inflate the overall estimate, because the denominator for the calculation—the total number of violent crimes—was small. In societies with a high baseline rate of criminal violence, the denominator will be much larger and the proportion of violent offenses attributable to persons with mental illness much smaller (35).

Furthermore, different arrest and detention policies, particularly with respect to diversion to treatment, could significantly alter results. Our study took place in an area where law enforcement officers seldom used their discretion to divert violent offenders to mental health alternatives. No formal diversionary programs existed, and access to assessment and treatment through forensic psychiatric programs was good. Transfers out of the justice system to mental health alternatives were still possible but did not usually occur within 24 hours after detention. Because we interviewed newly admitted offenders within the first 24 hours of detention, results will more closely estimate the true relationship between mental illness and crime at the community level (36). Studies of inmates conducted later in their pretrial detention or after they have been sentenced may yield lower crime rates among offenders with mental illness (29).

This study could not examine the specific, fear-inducing qualities of violent crime committed by mentally ill individuals, and no data were obtained on the relationship of the victim to the perpetrator. Future research should examine the extent to which persons with mental illness

commit seemingly random violent acts that are distinguishable by their bizarre or fear-inducing qualities. The extent to which public perceptions may be influenced by these qualitative characteristics should also be investigated. A typology of violence would be a useful first step—one, as Marzuk (37) has suggested, capable of distinguishing between the young man who robs a convenience store and the elderly woman who strikes out at imaginary demons with her cane.

Conclusions

The belief that mentally ill persons are dangerous is the cornerstone of public apprehension and fear about this population. In turn, community intolerance has influenced the placement of transitional housing, the availability of community treatment options, and employment opportunities (1,2). Recent research showing higher rates of violence among subgroups of mentally ill persons may support this view and inadvertently reinforce social stigma and discrimination (15). By adopting a public health perspective, studies such as ours can show that people with mental and substance use disorders are not major contributors to community violence, and by so doing, perhaps help diminish public fear and intolerance. ♦

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