# Perpetration of Violence, Violent Victimization, and Severe Mental Illness: Balancing Public Health Concerns

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***Objective:*** **This review examined U.S. empirical studies published since 1990 of the perpetration of violence and of violent victimization among persons with severe mental illness and their relative importance as public health concerns.** ***Methods:*** **MEDLINE, PsycINFO, and Web of Science were searched for published empirical investigations of recent prevalence or incidence of perpetration or victimization among persons with severe mental illness. Studies of special populations were included if separate rates were reported for persons with and without severe mental illness.** ***Results:*** **The search yielded 31 studies of violence perpetration and ten studies of violent victimization. Few examined perpetration and victimization in the same sample. Prevalence rates varied by sample type and time frame (recall period). Half of the studies of perpetration examined inpatients; of these, about half sampled only committed inpatients, whose rates of perpetration (17%–50%) were higher than those of other samples. Among outpatients, 2% to 13% had perpetrated violence in the past six months to three years, compared with 20% to 34% who had been violently victimized. Studies combining outpatients and inpatients reported that 12% to 22% had perpetrated violence in the past six to 18 months, compared with 35% who had been a victim in the past year.** ***Conclusions:*** **Perpetration of violence and violent victimization are more common among persons with severe mental illness than in the general population. Victimization is a greater public health concern than perpetration. Ironically, the discipline's focus on perpetration among inpatients may contribute to negative stereotypes. (*Psychiatric Services* 59:153–164, 2008)**

For decades, researchers have investigated violence perpetrated by persons with severe mental illness (1–6). This research has, in part, been driven by a common perception that persons with mental illness are dangerous (7–10). Far fewer empirical studies have examined the risk of violent victimization among persons with severe mental illness (11–20), and to our knowledge no comprehensive literature review has been published. Moreover, no literature review has weighed the relative importance of violence perpetration and violent victimization among persons with severe mental illness.

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Reviewing the literature on perpetration and victimization is timely. In the United States, severe mental illness is estimated to affect one in 17 persons, or 6% of adults (13.2 million people) (21). Long-term psychiatric hospitalizations are now rare; the median length of stay has been reduced from 41 days in 1971 to 5.4 days in 1997 (22). Consequently, more persons with severe mental illness now live in the community. Moreover, the recent homicides in Omaha and at the Virginia Polytechnic Institute and State University (Virginia Tech) have highlighted the importance of examining the role of mental illness in the perpetration of violence.

In this article, we review empirical studies conducted in the United States and published since 1990 of violence perpetration and violent victimization among persons with severe mental illness. We also weigh the relative importance—as public health concerns—of violence perpetration and violent victimization among persons with severe mental illness. Finally, we suggest directions for future research and discuss the implications of our conclusions for treatment and public health policy.

## Methods

### *Definitions*

Severe mental illness refers to a subset of psychiatric disorders—psychotic disorders and major affective disorders—that are characterized by severe and persistent cognitive, behavioral, and emotional symptoms

that reduce daily functioning. Despite medication and other treatment, symptoms periodically worsen such that short-term hospitalization is required (21).

### *Procedures*

All searches, restricted to studies conducted in the United States, were performed with three commonly used computerized bibliographic databases: MEDLINE, PsycINFO, and Web of Science. Studies were reviewed only if they were published empirical investigations of recent (past three years) prevalence or incidence of violence perpetration or violent victimization. We included studies of persons in treatment for severe mental illness; studies of special populations (for example, homeless persons) if separate rates were reported for persons with severe mental illness; and studies of nontreatment (community) samples if investigators compared persons with and without severe mental illness.

Two main searches—for perpetration of violence and violent victimization among persons with severe mental illness—were conducted with the following keywords: for violence perpetration, severe mental illness, mental illness, mental disorder, psychiatric disorder, psychopathology, violence, violent behavior, and violent act or acts; for violent victimization, severe mental illness, mental illness, mental disorder, psychiatric disorder, psychopathology, and victimization. Violent victimization includes rape and sexual assault, robbery, and physical assault (23).

## Results

### *Violence perpetrated by persons with severe mental illness*

*Incidence.* Incidence refers to the number of new cases of a disease that occur during a specified period of time in a population at risk of developing the disease (24). We could not find any studies that measured the incidence of violence perpetration.

*Prevalence.* Prevalence refers to the number of affected persons present in the population divided by the number of persons in the population within a given period of time (24). Table 1 lists studies of the prevalence of violence perpetration by the type of sample.

*Outpatients.* Table 1 lists four studies that examined outpatients (11,12,25,26). One study used a sample that was too small (N=42) to generate reliable prevalence rates (26). Prevalence of violence ranged from 2.3% (11) to 13.0% (25) and varied by time frame (recall period) and type of measure. The rates in the study by Brekke and colleagues (11) were lower than those in the other studies because of Brekke and colleagues' narrow definition of violence—criminal charges for a violent crime in the past three years (2.3%) and contacts with police for aggression against others (6.4%). Conversely, the rates in the study by Bartels and colleagues (25) were higher than those in other studies, most likely because these authors examined self-reported violence among "the most severely disturbed patients" discharged from a state hospital.

*Psychiatric emergency room patients.* As Table 1 shows, two studies examined psychiatric emergency room patients. Prevalence of violence ranged from 10.0% in the two weeks before patients' emergency room visits (27) to 36.0% in the previous three months (28). McNiel and Binder's (27) rates may be low because they used mental health records to assess violence instead of self-report. Conversely, Gondolf and colleagues (28), who studied an "accidental" sample (N=389), may have found higher rates because they used both self-reports and hospital records.

*Inpatients.* Table 1 shows that of the 31 published articles on violence perpetration among persons with severe mental illness, approximately half (48%, or 15 studies) (29–43) examined samples composed solely of inpatients. Of these, more than half (53%, or eight studies) (29,34–39,41) included committed inpatients in the sample—four studies examined only committed inpatients (29,34,35,41). Prevalence rates varied widely in these studies, depending on the measure of violence and when the violence took place relative to the hospitalization.

For violence occurring before hospitalization, findings varied by time frame and by type of hospitalization. Prevalence ranged from 14.2% among voluntary inpatients in the month before hospitalization (43) to 50.4% among committed inpatients in the four months before hospitalization (41). The higher rates of violence among committed inpatients than among other inpatients may be the result of the national dangerousness standard used in many states' commitment procedures, in which being "imminently" or "probably" dangerous precipitates hospitalization (44). Overall, the prevalence of violence was highest in studies of committed inpatients, those that used broader definitions of violent behavior (35, 41), and those that measured self-reported violence (35,41) instead of using medical chart reviews (29,40) or official records (medical records, police records, or civil commitment forms) (31).

For violence occurring during hospitalization, prevalence rates varied from 16.0% during the first week of hospitalization to 23.0% for violence occurring any time during hospitalization. Table 1 shows that all four studies of violence during hospitalization examined patients in locked units and assessed violence by using medical chart reviews (29,32–34).

For violence after hospitalization, findings varied by type of sample and time frame. The lowest prevalence rates of self-reported "physical violence" (3.7%) were reported within two weeks after discharge by voluntary inpatients (42). The highest rates (27.5%) were reported among inpatients participating in the MacArthur Violence Risk Assessment Study during the year after discharge, of whom over two-fifths had been involuntarily committed (39). Involuntary patients were significantly more likely to be violent at follow-up than voluntary patients (45). Table 1 shows that the prevalence of violence in the MacArthur Violence Risk Assessment Study decreased with time. Of note, after the analyses controlled for substance abuse, there were no significant differences in the prevalence of violence between the MacArthur sample of discharged patients and a control group of persons without mental disorders who lived in the community (39).

***Table 1***

Studies published since 1990 that examined the prevalence of violence perpetration among persons with severe mental illness

| Type of sample and study | Sample | Time frame | Type of data collection | Definition of violence | Prevalence of violence perpetration (%) |
|---|---|---|---|---|---|
| Outpatients | | | | | |
| Bartels et al., 1991 (25) | 133 outpatients with schizophrenic disorders | Past 6 months | Interview, record review | Assaultive behavior, destruction of property | 13.0 |
| Boles and Johnson, 2001 (26) | 42 outpatients enrolled in clinical case management | Past year | Interview | Physical injury; weapon use or threat; sexual assault; pushing, grabbing, or throwing something | 42.9 |
| Brekke et al., 2001 (11) | 172 outpatients with schizophrenic disorders | Past 3 years (every 6 months) | Interview | Police contact for aggression against others; | 6.4 |
| | | | | Criminal charges for a violent crime | 2.3 |
| Brunette and Drake, 1997 (12) | 172 case management outpatients with comorbid substance use disorders | Past year | Interview | Physical aggression | 11.5, women 8.4, men 6.4, overall[a] |
| Psychiatric emergency room patients | | | | | |
| Gondolf et al., 1990 (28) | 389 persons who visited a psychiatric emergency room | 3 months before the emergency room visit | Interviews and hospital records | Pushed, physically fought, hit, beat up; threatened or attacked with a weapon; sexual assault | 36.0 |
| McNiel and Binder, 2005 (27) | 2,294 psychiatric emergency room patients | 2 weeks before the emergency room visit | Archival databases | Physical aggression against others; threats with a lethal weapon; sexual assault | 10.0 |
| Inpatients | | | | | |
| Before hospitalization | | | | | |
| Binder and McNiel, 1990 (29) | 253 committed inpatients on a locked unit | 2 weeks | Medical chart review by trained professionals | Physical attacks | 20.9 |
| Kalunian et al., 1990 (31) | 195 geriatric inpatients | 2 weeks | Medical records, police records, civil commitment forms, collateral contacts | Physical assault | 20.0 |
| Straznickas et al., 1993 (40) | 581 short-term inpatients on a locked unit | 2 weeks | Medical chart review by trained clinical staff | Hitting, choking, pushing | 19.4 |
| Tardiff et al., 1997 (43) | 760 voluntary inpatients | 1 month | Close-ended structured interview | Physical violence toward persons | 14.2 |
| Swanson et al., 1998 (41)[b] | 331 committed inpatients awaiting outpatient commitment treatment | 4 months | Structured interview with patients, hospital records, or interview with collateral informant | Physical fighting, threatened a person with a weapon, picked up or arrested for assault; | 50.4 |
| | | | | Caused injury, used or threatened to use a weapon ("serious violence") | 17.8 |
| McNiel et al., 2000 (35) | 103 committed inpatients (for at least 4 days) | 2 months | Self-reported questionnaires | Physical aggression or threats using a lethal weapon | 44.7 |
| During hospitalization | | | | | |
| Binder and McNiel, 1990 (29)[c] | 253 committed inpatients on a locked unit | First 3 days | Medical chart review by trained professionals | Physical attacks | 17.4 |
| Lowenstein et al., 1990 (32) | 127 short-term inpatients on a locked unit | Any time during hospitalization | Nurses' observations (medical chart review) | Physical aggression against persons | 21.3 |

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***Table 1***

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| Type of sample and study | Sample | Time frame | Type of data collection | Definition of violence | Prevalence of violence perpetration (%) |
|---|---|---|---|---|---|
| McNiel and Binder, 1994 (34) | 330 committed short-term inpatients on locked unit | Any time during hospitalization | Nurses' observations (medical chart review) | Physical aggression against persons | 23.0 |
| McNiel and Binder, 1995 (33) | 226 inpatients on a short-term locked unit | First week | Nurses' observations (medical chart review) | Physical aggression against persons | 16.0 |
| After discharge | | | | | |
| Estroff et al., 1994 (30) | 169 discharged inpatients | 18 months (every 6 months) | Interview, records | Arrested or charged and adjudicated for assault, battery, manslaughter, or murder; committed to psychiatric treatment because of hitting, sexual assault, or threat with an object or weapon | 14.6 |
| Tardiff et al., 1997 (42) | 430 discharged voluntary inpatients | 2 weeks | Close-ended structured interview | Physical violence | 3.7 |
| Steadman et al., 1998 (39)[d] | 1,136 discharged inpatients and 519 neighborhood controls | 1 year (every 10 weeks for 5 follow-up periods) | Interview with patient, interview with collateral informant, rehospitalization and arrest records | Batteries resulting in physical injury or involving use of a weapon; sexual assaults; threats made with a weapon | 27.5, 1 year; 13.5 1st follow-up; 10.3, 2nd; 6.9, 3rd; 7.6; 4th; 6.3, 5th |
| Silver et al., 1999 (38)[d] | 293 discharged inpatients | 20 weeks | Same as Steadman et al., 1998 (39) | Same as Steadman et al., 1998 (39) | 14.0 |
| Monahan et al., 2000 (36)[d] | 939 discharged inpatients | 20 weeks | Same as Steadman et al., 1998 (39) | Same as Steadman et al., 1998 (39) | 18.7 |
| Monahan et al., 2005 (37)[d] | 177 discharged inpatients | 20 weeks | Same as Steadman et al., 1998 (39) | Same as Steadman et al., 1998 (39) | 22.9 |
| Inpatients and outpatients | | | | | |
| Link et al., 1992 (50) | 232 former and current inpatients and outpatients | Past year | Interview | Hitting | 12.3 |
| Swanson et al., 1997 (48) | 298 outpatients and inpatients from the Epidemiologic Catchment Area survey (ECA) and the Triangle Mental Health Survey (TMHS) | ECA: past year; TMHS: past 18 months | Interview, hospital and court records | Fought more than once with swapping blows, excluding fights with partners; used a weapon in a fight; hit or threw things; spanked or hit a child resulting in bruises, bed rest, or a doctor's visit | 17.0, ECA; 16.2, TMHS |
| Swanson et al., 2002 (51) | 802 inpatients and outpatients | Past year | Interview | Physical fighting or assault resulting in bodily injury; use of a lethal weapon to harm or threaten someone; sexual assault | 13.0 |
| Swanson et al., 2004 (46) | 229 inpatients and outpatients with schizophrenia spectrum disorders | Past 6 months and past year | Interview, medical chart review, civil commitment documents, arrest records | Physical fighting with and without injury; weapon use | 15.3, past 6 months; 21.8, past year |
| Swanson et al., 2006 (47) | 1,410 inpatients and outpatients with schizophrenia | Past 6 months | Interview, family collateral information | Minor violence: simple assault without injury or weapon use; serious violence: assault using a lethal weapon or resulting in injury; threat with a lethal weapon; sexual assault | 19.1, any violence; 15.5, minor violence; 3.6, serious violence |

***Table 1***

*Continued from previous page*

| Type of sample and study | Sample | Time frame | Type of data collection | Definition of violence | Prevalence of violence perpetration (%) |
|---|---|---|---|---|---|
| Elbogen et al., 2007 (49) | 907 inpatients and outpatients receiving public mental health services in 4 U.S. states | Past year | Interview | Physical fighting or actions causing bodily injury; harming or threatening another with a lethal weapon; sexual assault; an arrest of any type | 26.0 |
| Community sample | | | | | |
| Swanson et al., 1990 (55) | 10,059 persons from 3 sites (Baltimore, Raleigh-Durham, N.C., and Los Angeles) of the ECA survey | Past year | Structured interview | Fought more than once with swapping blows, excluding fights with partners; used a weapon in a fight; physical fighting while drinking; hit or threw things; spanked or hit a child resulting in bruises, bed rest, or a doctor's visit | 3.7, overall; 2.1, no mental illness; 11.7, major depressive disorder; 11.0, mania; 12.7, schizophrenic disorders |
| Swanson, 1993 (54) | 7,053 persons from 2 sites (Durham and Los Angeles) of the ECA survey | Past year | Structured interview | Two indices of violence: same as Swanson et al., 1990 (55) (5 items); same as Swanson et al., 1990 (55) minus "fighting while drinking" (4 items) | 5 items: 7.0, severe mental illness; 2.3, no mental illness; 4 items: 6.8, severe mental illness; 2.0, no mental illness |
| Silver and Teasdale, 2005 (53) | 3,438 persons from 1 site (Durham) of the ECA survey | Past year | Structured interview | Same as Swanson et al., 1990 (55) | 3.2, overall; 8.3, severe mental illness |
| Corrigan and Watson, 2005 (52) | 5,865 persons from the National Comorbidity Survey | Past year | Structured interview | Same as Swanson et al., 1990 (55) | 2.6, overall; 2.0, no mental illness; 4.6, major depressive disorder, lifetime; 7.1, major depressive disorder, 12 months; 12.2, bipolar disorder, lifetime; 16.0, bipolar disorder, 12 months; 11.5, psychosis, lifetime; 3.2, psychosis, 12 months |

[a] The authors did not report findings for the entire sample; this percentage was derived by dividing the total number of "physical aggressions" (N=11) by the total number of persons in the sample (N=172).

[b] From the Outpatient Commitment Study

[c] This study is the same as the study by Binder and McNiel (1990) listed under the "Inpatients, before hospitalization" subsection of the table. The authors measured violence perpetration before and during hospitalization.

[d] From the MacArthur Violence Risk Assessment Study, a prospective study assessing violence risk in inpatients (N=1,136) discharged from acute psychiatric inpatient facilities in three U.S. cities; the authors also compared their sample with a community control group of respondents from a similar neighborhood (N=519). Some articles examined the full sample; others examined subsamples. All reported prevalence rates are for discharged inpatients only, excluding the community control group.

In summary, studies of inpatients with severe mental illness show that perpetration of violence is most prevalent among committed patients before hospitalization, when violence may have precipitated their commitment. Moreover, prevalence rates were higher in studies that assessed a broad range of self-reported violent acts than in those that relied solely on medical chart reviews.

*Studies combining inpatients and outpatients.* Six studies combined inpatients and outpatients. All collected self-reported data, and time frames varied from the past six months (46,47) to the past 18 months (48). Prevalence rates of violence ranged from 12.3% to 26.0% (46–51), lower than prevalence rates found in most studies of inpatients and higher than rates found in most studies of outpatients. The highest rate (26.0%), which was reported by Elbogen and colleagues (49), combined self-reported violent behavior and any arrest (violent and nonvio-

lent), which may have inflated the rates in this study.

*Community samples.* As Table 1 shows, only four of the 31 articles reported studies in which community samples were examined (52–55). In the four articles, data were from two multisite community surveys of mental disorders—the National Institute of Mental Health Epidemiologic Catchment Area (ECA) survey (53–55) and the National Comorbidity Survey (NCS) (52). Because these surveys were not designed to assess violent behavior, the authors derived a dichotomous variable—any violence (yes or no)—from the sections on mental disorders, physical health, and recent life events.

In studies that used the ECA data (53–55), the authors used five questions from the Diagnostic Interview Schedule's antisocial personality disorder and alcohol use disorder modules; respondents were scored as violent if they responded positively to one or more items. Items varied in the level of severity assessed from "physical fighting while drinking" to "used weapon in a fight." Among persons with severe mental illness, prevalence of any violent behavior in the past year ranged from 6.8% to 8.3% (53–55)—up to four times higher than among persons who were not diagnosed as having a mental disorder. Swanson and colleagues (54,55) also examined differences by age, gender, and socioeconomic status in comparisons of persons with major mental disorders and persons without any disorder; however, subsamples were too small to estimate the effect of major mental disorder separately within sociodemographic categories (56).

In the study using NCS data (52), respondents were scored as violent if they reported that they "had serious trouble with the police or the law" or "had been in a physical fight." Analyses focused on differences among diagnostic groups. Prevalence of violence ranged from 4.6% in the past year for persons with a lifetime diagnosis of major depressive disorder to 16.0% for persons with a past-year diagnosis of bipolar disorder; these rates were two to eight times higher than the prevalence among persons without a mental disorder. Findings from this study, however, conflated violent behavior with involvement with the police, which may or may not have been precipitated by violence.

### *Violent victimization among persons with severe mental illness*

*Incidence.* Most general population studies of crime victimization, such as the National Crime Victimization Survey (NCVS) (23), examine incidence. To our knowledge, only one study of adults in treatment with severe mental illness investigated the incidence of recent violent victimization (19). Using the same instruments as the NCVS, Teplin and colleagues (19) examined 936 randomly selected persons with severe mental illness from a random sample of treatment facilities—outpatient, day treatment, and residential treatment—in Chicago. There were 168.2 incidents of violent victimization per 1,000 persons per year, more than four times greater than the rate in the general population. Incidence ratios remained statistically significant even after the analysis controlled for sex and race-ethnicity.

*Prevalence.* Table 2 shows that all ten studies examined self-reported prevalence of victimization. Prevalence varied because of differences in sample sizes, time frames, and type of sample. One study had too small a sample to generate reliable prevalence rates of relatively uncommon events such as violent victimization (15). Studies of treatment populations with larger samples ($N \geq 100$) found prevalence rates of recent violent victimization between 8.2% in the past four months (16) and 35.0% in the past year (14). The largest study of homeless persons with severe mental illness found that 44.0% had been violently victimized in the past two months (17). Among studies that assessed violent victimization in the past year—the same time frame as the NCVS—prevalence rates ranged from 25.3% (19) to 35.0% (14), compared with 2.9% in the NCVS.

Prevalence rates appear to vary by type of victimization. However, these differences may be attributable to the way that victimization was measured. For example, White and colleagues (20) asked only one question about victimization in the past six months. Other studies collected detailed information on the type of victimization (13,14,17,19).

Prevalence rates also varied by the type of sample. For example, 19.0% of the sample of outpatients and patients in residential treatment in the study by Teplin and colleagues (19) and 35.0% of the combined sample of inpatients and outpatients in the study by Goodman and colleagues (14) had been victims of physical assault in the past year. Similarly, prevalence of rape and sexual assault in the past year ranged from 2.6% among outpatients (19) to 12.7% in a combined sample of outpatients and inpatients (14). Prevalence of victimization among homeless persons with severe mental illness was generally higher than in treatment samples (13,17). Irrespective of the type of sample and type of victimization, prevalence was much higher in all studies listed in Table 2 than in the general population, as found in the NCVS (23).

### *Comparing perpetration of violence and violent victimization*

Are persons with severe mental illness more likely to be perpetrators of violence or victims of violence? Table 3 summarizes and compares the prevalence of violence perpetration and violent victimization from the studies in Table 1 and Table 2.

Only three studies assessed perpetration and victimization among the same participants. Brekke and colleagues (11) found that among outpatients with schizophrenic disorders, 6.4% had contact with police for "aggression against others" in the past three years and 34.0% reported being violently victimized. The marked differences in rates may be attributable to the fact that violence perpetration was counted only if the person had contact with the criminal justice system; many violent behaviors do not come to the attention of the police or culminate in formal processing (57). Had the authors used a broader measure of violence, the reported differences between perpe-

***Table 2***

Studies published since 1990 that examined the prevalence of violent victimization among persons with severe mental illness

| Type of sample and study | Sample | Time frame | Type of data collection | Definition of violence | Prevalence of violent victimization (%) |
|---|---|---|---|---|---|
| Outpatients, day, and residential patients | | | | | |
| Brekke et al., 2001 (11) | 172 outpatients with schizophrenic disorders | Past 3 years | Interview | Physical assault, rape, robbery | 34.0 |
| Brunette and Drake, 1997 (12) | 172 case management outpatients with comorbid substance use disorders | Past year | Interview | Violent crime | 32.4, women<br>16.8, men<br>19.8, overall[a] |
| Goodman et al., 1999 (15) | 50 outpatients | Past year | Interview | Physical assault; sexual assault | 55.0, women<br>40.0, men |
| Teplin et al., 2005 (19) | 936 outpatients, day, and residential treatment patients | Past year | Structured interview | Physical assault, rape or sexual assault, robbery | 25.3 |
| White et al., 2006 (20) | 308 patients receiving short-term residential treatment | Past 6 months | Structured interview | Rape, mugging, or robbery | 25.6 |
| Inpatients | | | | | |
| Before hospitalization | | | | | |
| Hiday et al., 1999 (16)[b] | 331 committed inpatients awaiting outpatient commitment treatment | 4 months | Structured interview with patients | Violent crime, including physical assault, rape, or mugging | 8.2 |
| After discharge | | | | | |
| Silver, 2002 (18)[c] | 270 discharged inpatients and 477 neighborhood controls | 10 weeks | Interview (patient and collaterals); medical chart and arrest records review | Physical or sexual assault, use of or threat with a weapon | 15.2 |
| Inpatients and outpatients | | | | | |
| Goodman et al., 2001 (14) | 782 inpatients and outpatients | Past year | Structured interview | Physical or sexual assault | 35.0 |
| Homeless persons with severe mental illness | | | | | |
| Goodman et al., 1995 (13) | 99 homeless women | Past month | Interview | Physical or sexual abuse | 20.0, physical;<br>15.0, sexual |
| Lam and Rosenheck, 1998 (17) | 1,839 homeless persons | Past 2 months | Interview | Robbery, theft, threat with a weapon, physical or sexual assault | 44.1 |

[a] Because the authors did not report findings for the entire sample, this percentage was derived by dividing the total number of violent victimizations (N=34) by the total number of persons in the sample (N=172).

[b] From the Outpatient Commitment Study

[c] From the MacArthur Violence Risk Assessment Study. Prevalence rates are for discharged inpatients only.

tration of violence and violent victimization might have been less dramatic. A study by Brunette and Drake (12) had similar findings; 6.4% of their sample had been physically aggressive in the past year, and 19.8% had been a victim of a violent crime in the past year. In the Outpatient Commitment Study, Swanson and colleagues (41) found that among committed inpatients, the prevalence of violence perpetration in the four months before commitment ranged from 17.8% for "serious violence" to 50.4% for a broader measure of violence; in contrast, 8.2% reported violent victimization (16).

Why was the prevalence of perpetration of violence so high in the Outpatient Commitment Study? Most likely, it was because participants were sampled soon after commitment. The authors did not indicate the proportion of individuals in the sample who were committed because of their violent behavior. The discrepancies between violence perpetration and violent victimization may also have resulted from differences in the definitions of violence. Victimization was narrowly defined as self-reported "violent crimes"; perpetration of violence referred to a range of violent behaviors elicited from patients and their collaterals as well as from hospital records.

*Table 3*

Comparison of rates of violence perpetration and violent victimization in studies published since 1990 that examined the prevalence of perpetration and victimization among persons with severe mental illness

| Type of sample | Studies of perpetration of violence | Time frame | Range of prevalence rates (%) | Studies of of violent victimization | Time frame | Range of prevalence rates (%) |
|---|---|---|---|---|---|---|
| Outpatients, day, and residential patients | Bartels et al., 1991 (25); Brekke et al., 2001 (11); Brunette and Drake, 1997 (12) | Past 6 months to past 3 years | 2.3–13.0 | Brekke et al., 2001 (11); Brunette and Drake, 1997 (12); Teplin et al., 2005 (19); White et al., 2006 (20) | Past year to past 3 years | 19.8–34.0 |
| Inpatients and outpatients | Elbogen et al., 2007 (49); Link et al., 1992 (50); Swanson et al., 1997 (48); Swanson et al., 2004 (46); Swanson et al., 2006 (47) | Past 6 to 18 months | 12.3–21.8 | Goodman et al., 2001 (14) | Past year | 35.0 |
| Inpatients | Outpatient Commitment Study | 4 months before hospitalization | 17.8; 50.4[a] | Outpatient Commitment Study | 4 months before hospitalization | 8.2 |
| | Binder and McNiel, 1990 (29); Kalunian et al., 1990 (31); McNiel et al., 2000 (35); Straznickas et al., 1993 (40); Tardiff et al., 1997 (43) | 2 weeks to 2 months before hospitalization | 14.2–44.7 | | | |
| | Binder and McNiel, 1990 (29); Lowenstein et al., 1990 (32); McNiel and Binder, 1994 (34); McNiel and Binder, 1995 (33) | First 3 days to any time during hospitalization | 16.0–23.0 | | | |
| | MacArthur Violence Risk Assessment Study: Steadman et al., 1998 (39) | 10 weeks after hospital discharge | 13.5 | MacArthur Violence Risk Assessment Study: Silver, 2002 (18) | 10 weeks after hospital discharge | 15.2 |
| | Monahan et al., 2000 (36); Monahan et al., 2005 (37); Silver et al., 1999 (38); Steadman et al., 1998 (39) | 20 weeks to 1 year after hospital discharge | 14.0–27.5 | | | |
| | Estroff et al., 1994 (30); Tardiff et al., 1997 (42) | 2 weeks to 18 months after hospital discharge | 3.7–14.6 | | | |
| Psychiatric emergency room patients | Gondolf et al., 1990 (28); McNiel and Binder, 2005 (27) | 2 weeks before the emergency room visit | 10.0–36.0 | | | |
| Homeless persons with severe mental illness | | | | Goodman et al., 1995 (13); Lam and Rosenheck, 1998 (17) | Past 1–2 months | 44.1 |
| Community samples | Silver and Teasdale, 2005 (53); Swanson, 1993 (54); Swanson et al., 1990 (55) | Past year | 6.8–8.3 | | | |

[a] 17.8%, for "serious violence"; 50.4%, for a broader measure of violence perpetration

The MacArthur Violence Risk Assessment Study provided some information about violence perpetration and violent victimization among discharged inpatients. The authors reported that 13.5% of the sample had perpetrated violence (39) and 15.2% had been victims (18) ten weeks after discharge from a psychiatric inpatient unit. However, because one report used a subsample (18), rates are not directly comparable.

Other studies listed in Table 3 show that irrespective of the type of sample and regardless of the time frame, violent victimization is more prevalent than violence perpetration. For example, among outpatients and residential patients with severe mental illness, 20.0% to 34.0%, depending on the time frame and gender, had been a victim of recent violence (11,12,19,20), compared with 2.0% to 13.0% who had perpetrated violence (11,12,25). Similarly, in samples that combined outpatients and inpatients, 35.0% reported violent victimization in the past year (14), compared with 12.0% to 22.0% who had perpetrated violence (depending on whether the time frame was 12 or 18 months and who reported recent perpetration of violence) (46–50).

## Conclusions

Perpetration of violence and violent victimization are more common among persons with severe mental illness than in the general population (19,53–55). Studies analyzing the Epidemiologic Catchment Area data found that approximately 2% of persons without a mental disorder perpetrated violence in the past year, compared with 7% to 8% of persons with severe mental illness (53–55). For victimization, the disparity between the general population (3%) and persons with severe mental illness (25%) is even greater, as found in the NCVS (19).

Overall, our review does not support the stereotype that persons with severe mental illness are typically violent (7–10). This stereotype may persist, in part, because of researchers' focus on inpatients. Although fewer than 17% of persons with severe mental illness in the United States are hospitalized (58), nearly half of the studies that investigate violence among persons with severe mental illness examined only inpatients (29–43). Among these, the largest and most well-cited studies focused on involuntarily committed inpatients. The Outpatient Commitment Study included only involuntarily committed inpatients. Two-fifths of the sample in the MacArthur Violence Risk Assessment Study had been involuntarily committed, a significant predictor of subsequent violence (45). Because commitment criteria include imminent dangerousness (to self or others) (44), findings derived from samples of involuntarily committed patients are generalizable only to the most acutely disturbed patients—those whose situations have required involvement of the courts.

How much violence in the United States is caused by persons with mental illness? One study found that overall, the attributable risk of mental illness to the perpetration of violence in the United States is approximately 2% (52); by comparison, two demographic variables—gender and age—are more powerful predictors of violence (52). Nearly 40% of arrests for serious violent crimes (murder, nonnegligent homicide, forcible rape, robbery, and aggravated assault) are of males 24 years and younger (59).

Despite the small attributable risk of severe mental illness to perpetration of violence, negative stereotypes of persons with severe mental illness dominate the public's view (60,61) and behavioral scientists' focus. Among 39 studies that met our inclusion criteria, 79% (N=31) studied perpetration of violence. The focus on violence perpetration extended to nonempirical articles as well. A computerized search of MEDLINE and PsycINFO yielded 283 empirical or review articles mentioning crime victimization among persons with mental illness; more than 13 times that many articles were found on perpetration of violence (19).

### *Directions for future research*

On the basis of our review, we suggest the following directions for research.

*Focus on victimization.* Symptoms of severe mental illness—poor judgment, impaired reality testing, and disorganized thought processes (62–65)—and homelessness, a phenomenon common among persons with severe mental illness (13,17), increase susceptibility to violent victimization. To guide the development of effective interventions, the field needs studies of patterns of vulnerability, risk, and sequelae of violent victimization. For example, studies must investigate how clinical symptoms and environment (for example, homelessness, lifestyle, and impoverished neighborhoods) interact to affect victimization. Researchers must also investigate long-term consequences of victimization.

*Study perpetration and victimization in the same sample using comparable definitions and measures.* The field has been hampered by the paucity of studies that examine perpetration and victimization in the same sample and by the lack of consistency in definitions and measures within and across studies. We recommend that future studies use established, validated definitions and measures of violence and victimization. Standardized instruments such as the NCVS provide comprehensive data on the prevalence, incidence, and patterns of victimization, and results are comparable to national general population data. We also recommend multimethod, cross-validation designs (for example, use of self-reports and arrest records) and suggest that future investigators study incidence as well as prevalence.

*Investigate community populations, not only persons in treatment.* Nearly 90% of the studies of perpetration that we reviewed (27 of 31 studies) sampled patients from clinics or hospitals (11,12,25–43,46–51). Among the studies that examined prevalence of victimization, all sampled persons in treatment (11–20). We need information on the estimated five million persons with severe mental illness in the United States who do not receive treatment (66). Cost-effective strategies include adding items from the NCVS and from established assessments of violence to community-based epidemiologic surveys (19).

*Improve the prediction of violence perpetration.* Some of the positive symptoms of psychosis—persecutory delusions, suspiciousness, hallucinations, and grandiosity as well as symptoms that undermine internal control and threaten harm—increase the risk of perpetrating violence (47,48,67–69) (in contrast, see the article by Appelbaum and colleagues [70]). In addition, specific negative symptoms of psychosis—lack of spontaneity and flow of conversation, passive or apathetic social withdrawal, blunted affect, poor rapport, and difficulty with abstract thinking—may decrease the risk of serious violence (47). To improve the prediction of violence, however, the field must focus on a broader array of variables, not only on symptoms of mental illness. Multiple iterative classification trees are a promising approach, whereby researchers combine personal, clinical, contextual, and historical risk factors to predict the likelihood of future violence (37,71,72). However, this technique has been applied only to discharged psychiatric inpatients to predict their short-term outcomes (20 weeks). Studies should be replicated in other populations—outpatients and persons who are not in treatment—and should examine long-term outcomes. Understanding the key risk factors for violence will provide a foundation for effective prevention strategies.

*Disentangle the causal relationships between severe mental illness, victimization, and perpetration.* Perpetration of violence and violent victimization occur within a socioenvironmental context. Hiday (73) posited a theoretical model whereby social disorganization and poverty—phenomena common among many persons with severe mental illness—increase persons' vulnerability to victimization and their propensity to perpetrate violence. Repeated victimizations may lead to suspicion and mistrust, which in turn may lead to conflictive and stressful situations—in short, a cycle of victimization and perpetration (73). Future studies should examine how the socioenvironmental context moderates and mediates the relationship between victimization and perpetration.

### *Implications for treatment and mental health policy*

We suggest the following steps to reduce the perpetration of violence and violent victimization among persons with severe mental illness.

*Encourage mental health centers to assess risk of victimization and perpetration.* Improving detection is the first step to improving services (19). Mental health service providers can then implement programs for persons at greatest risk. To reduce victimization, interventions should include information about modifiable risk factors, such as substance abuse, homelessness, medication adherence, and conflictual relationships, that can help persons with severe mental illness to develop skills that enhance personal safety and improve conflict management. To reduce perpetration of violence, interventions should address symptom management—identifying triggers, coping with psychotic symptoms or mood changes, and adhering to medication regimens.

*Disseminate information about the relative risk of violence perpetration and violent victimization.* To reach policy makers and the general public, researchers should disseminate research findings in lay journals and newspapers (74). Media campaigns on television and in newspapers may reduce stigma by improving the public's image of persons with severe mental illness. Increased public awareness may also stimulate needed community and federal support for employment, housing, and social services for persons with severe mental illness.

*Reduce barriers to mental health treatment.* Treatment that combines medication management, psychotherapy, and case management can decrease victimization (75) and violent behavior (45,76,77). However, persons with severe mental illness often face substantial barriers to receiving mental health services. The Epidemiologic Catchment Area survey found that 40% of persons with severe mental illness did not receive any care in a one-year period (58). Internal barriers, such as stigma associated with mental illness and denial of illness, may prevent persons from seeking care (58,78). Structural barriers include limited access to public transportation, transient living conditions that interfere with continuity of care, and language barriers (58,79). Reducing barriers to treatment could concomitantly reduce victimization and violent behavior.

*Develop and evaluate innovative programs for persons with severe mental illness and comorbid substance use disorders.* The Substance Abuse and Mental Health Services Administration estimates that approximately half of persons with severe mental illness have also had a substance use disorder in their lifetime (80). Treating substance use disorders among persons with severe mental illness is crucial to reducing victimization and perpetration. Despite the importance of such treatment, the development of effective interventions for persons with comorbid mental and substance use disorders has lagged behind the need (81). Effective treatments will reduce exposure to environmental risks associated with substance abuse and thus the likelihood of victimization and perpetration.

Although society may regard persons with mental illness as dangerous criminals (8,10), our review of the literature shows that violent victimization of persons with severe mental illness is a greater public health concern than perpetration of violence. Although some symptoms of severe mental illness are correlated with violence, severe mental illness accounts for only a modicum of violence. Ironically, the discipline's focus on the perpetration of violence among inpatients may contribute to the negative stereotypes of persons with severe mental illness, which are often based on the label of "mental patient," not on observed behavior (82,83). We must balance the dual public health concerns of protecting the safety of the public and protecting persons with severe mental illness from criminal victimization.


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