Mental Disorder and Violent Victimization in a Total Birth Cohort

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Mental disorder may be associated with violent victimization. Unfortunately, few empirical studies have investigated this relation,[1] and none has done so using general population data. Addressing this association is important for two reasons. First, most previous studies of mental disorder and violence depicted people with mental disorders as violent actors.[2–6] These studies showed that people with mental disorders engaged in violence more often than people without mental disorders, particularly when their disorders involved alcohol or drug use. However, by ignoring the victimization experiences of people with mental disorders, these studies inadvertently reinforced the belief that people with mental disorders are dangerous[7] when they also may be more vulnerable to harm from others than non–mentally disordered people.

Second, understanding the association between mental disorder and violent victimization is important for designing community-based mental health services. Studies of treated samples indicate that victims with mental disorders exhibit unique symptom patterns,[8–10] require frequent use of emergency treatment services,[10] and experience victimization in substantial numbers that do not appear in their medical charts.[11–13] Ignoring victimization may therefore undermine treatment success and contribute to the physical and psychological harm experienced by people with mental disorders.

Two hypotheses have been suggested for explaining the association between mental disorder and violent victimization. One hypothesis, enhanced vulnerability to attack, suggests that people with mental disorders are often unable to engage in alert self-protection and self-defense.[1] The second hypothesis, victimization as an informal social control, suggests that people with mental disorders often behave in ways that elicit grievances in others, which may lead to social control efforts that eventuate in victimization.[14] Both hypotheses

Objective. We examined the association between mental disorder and violent victimization in a general population sample.

Methods. We performed a multivariate analysis of violent victimization in a 12-month period on a total birth cohort with follow-up data that assessed, during their 21st year, males and females born in Dunedin, New Zealand, in the early 1970s.

Results. Compared with people with no mental disorder, (1) people with anxiety disorders experienced more sexual assaults, (2) people with schizophreniform disorders experienced more threatened and completed physical assaults, (3) people with alcohol dependence disorders experienced more completed physical assaults, and (4) people with marijuana dependence disorders experienced more attempted physical assaults. These results held after control for psychiatric comorbidity, demographic characteristics, and the study participants' own violent behavior.

Conclusion. Mentally disordered young adults tend to experience more violent victimization in the community than those without a mental disorder. (*Am J Public Health.* 2005;95:2015–2021. doi:10.2105/AJPH.2003.021436)

predict a positive association between mental disorder and violent victimization.

Examination of previous research revealed several methodological limitations that we wanted to overcome. First, previous studies of the association between mental disorder and victimization have operationalized mental disorders by examining current or former psychiatric patients.[1,8–16] Unfortunately, data on psychiatric patients can tell us little about associations in the general population, because most people with mental disorders do not receive mental health treatment.[17] In addition, mentally disordered victims of violence are more likely to seek psychiatric treatment than nonvictims,[10] thereby inflating observed victimization rates.

Second, most previous studies did not include comparison data on non–mentally disordered people measured with the same research protocol.[1,16] A notable exception is a recent study[14] in which the 10-week prevalence of violent victimization among 270 discharged psychiatric patients was compared with 519 nonpatients drawn from the same neighborhoods as the patients. Violent victimization was significantly higher for patients than nonpatients (15.2% vs 6.9%, respectively). This finding has yet to be replicated with a general population sample.

Third, most previous studies used small samples of patients, preventing reliable estimates of victimization rates to be calculated for different types of mental disorder.[8,9,11–13,15] Because half of all persons meeting the diagnostic criteria for mental disorder have at least one other disorder,[18–20] it is important to examine whether different types of mental disorder are uniquely associated with victimization. In addition, small samples prevent researchers from controlling for characteristics known to be associated with both mental disorder and violent victimization (e.g., gender, socioeconomic status [SES]) and may produce spurious results.

Fourth, most previous studies failed to measure violence perpetration.[1,8–13,15] Because people with mental disorders are more likely to engage in violence than people without mental disorders,[2–6] they also may be more likely to become victims in situations in which their violent behavior is met with resistance or retaliation.[14] However, the degree to which violence perpetration explains the association between mental disorder and violent victimization remains unknown.

To overcome these limitations, we estimated rates of violent victimization for a range of mental disorders in a total birth

cohort of young adults at age 21. We examined unique associations between mental disorder and violent victimization, controlling for psychiatric comorbidity, demographic factors, and violence perpetration.[14,17–20]

METHODS

Sample

Participants were from the Dunedin Multidisciplinary Health and Development Study, a longitudinal investigation of health and behavior in a total birth cohort.[21,22] Study participants were born in Dunedin, New Zealand, between April 1972 and March 1973. Of these, 1037 children (91% of eligible births; 52% males) participated in the first follow-up assessment at age 3 and were followed up at ages 5, 7, 9, 11, 13, 15, 18, 21, and 26. Participants represented the full range of SESs in New Zealand's South Island and were primarily White individuals. We used data from the age-21 assessment when a total of 944 study participants provided information on past-year physical and sexual assault.

Participants gave written informed consent for each of the interview modules separately. We carried out each module in a separate room with a different interviewer who was blind to the participant's responses in other interview modules.

Measures

Mental disorder. We attained mental disorder diagnoses by means of the Diagnostic Interview Schedule[23] on the basis of *DSM-III-R* criteria[24] with a reporting period of 12 months before the interview.[25] Axis I mental disorders were grouped into 5 diagnostic families: (1) depression disorders (17.8%), including major depressive episode and dysthymia; (2) anxiety disorders (20.4%), including generalized anxiety disorder, panic disorder, agoraphobia, social phobia, simple phobia, and obsessive-compulsive disorder; (3) schizophreniform disorder (4.1%), including individuals who responded "yes, definitely" to interview questions probing symptoms of schizophrenia, including bizarre beliefs such as someone spying on them, being sent special messages through the television, or experiencing sensory perceptions such as hearing voices others could not hear (excluded were

symptoms that occurred solely under the influence of alcohol or drugs, or during a major depressive episode); (4) alcohol dependence disorder (9.8%); and (5) marijuana dependence disorder (9.7%). Of the study participants, 40.5% met the criteria for at least 1 of these disorder types, and 15.8% met the criteria for 2 or more disorder types. We use the term "comorbidity" to refer to study participants in the latter group.

The 12-month prevalence of mental disorder in the Dunedin study corresponds to the 12-month prevalence for 15- to 24-year-old participants in the US National Comorbidity Survey.[25,26] Although structured interviews such as the one we used are prone to over identify "psychotic" beliefs that may not reflect a clinically psychotic state,[27] it is important to note that 85% of the schizophreniform group we identified had comorbid diagnoses, 77% had symptoms that interfered with their lives, 54% had their symptoms corroborated by an informant, 39% received mental health treatment, and 10% were taking psychiatric medication.[25]

Violent victimization. To ascertain the 1-year prevalence of violent victimization in the Dunedin sample,[28,29] we asked study participants to indicate whether they had been the victim of 4 different types of assault in the previous 12 months: threatened physical assaults, attempted physical assaults, completed physical assaults, and sexual assaults. For the first 3 types of victimization, study participants selected responses from a list of examples (e.g., hitting, punching, kicking, biting, choking, arm twisting, pushing, using a weapon [gun, knife, etc.], and burning or scalding). Sexual assaults were defined as forced sex and referred to attempted or completed vaginal, oral, or anal intercourse. Three hundred sixty-seven study participants (38.9%) experienced some sort of violent victimization during the year before the interview, 128 (13.6%) experienced threatened physical assault, 90 (9.5%) experienced attempted physical assault, 244 (25.8%) experienced completed physical assault, and 39 (4.1%) experienced sexual assault. Of the study participants, 8.9% experienced 2 different types of violent victimization, 2.0% experienced 3 different types, and 0.4% experienced all 4 types of violent victimization. We

gave a list of contact organizations offering support for victims to all participants at the end of the interview.

Violence perpetration. We measured violence perpetration by means of two data sources: self-reports and court convictions for violent offenses. Self-reports of violence that occurred during the 12 months before the interview were obtained with a standardized interview developed for the National Youth Survey and National Institute of Justice multisite surveys.[30] The instrument consists of a 6-item violence scale covering simple assault, aggravated assault, robbery, and gang-fighting. Because a single simple assault was relatively common (27.4%), but thereafter the distribution of the violence measure was strongly skewed, individuals who reported 2 or more different types of violent offenses (7.5% of the sample) were defined as self-reported violent offenders.

We obtained court convictions for violence in all New Zealand and Australian courts by searching the central computer system of the New Zealand police. Thirty-seven study participants were convicted for a violent offense in the 12 months before the interview, including inciting or threatening violence, using an attack dog on a person, presenting a weapon, threatening a police officer, rape, manual assault, assault on a police officer, assault with a deadly weapon, aggravated robbery, and homicide. Thirty-one men and six women, 3.9% of the sample, were defined as past-year violent offenders according to official records.

Given the large overlap between self-reported and court-recorded violence in the Dunedin sample (the odds of conviction were 17 times greater for study participants who self-reported 2 or more violent offenses), a dichotomous violence measure was constructed, coded 1 for those 90 study participants who had self-reported 2 or more different violent offense types or had been convicted for a violent offense in the past year. An alternative coding identifying as violent perpetrators study participants with 1 or more different violent offense types yielded results similar to the results reported below. (New Zealand and the United States show comparable prevalence rates of assault, rape, robbery, burglary, and auto theft in national

TABLE 1—Sample Characteristics

	Total Sample (n = 944), %	No Mental Disorder (n = 562), %	Any Mental Disorder (n = 382), %	χ^2	df	P
Gender				1.78	1	NS
Male	51.1	52.8	48.4			
Female	48.9	47.2	51.6			
Educational attainment[a]				28.16	3	.01
No school certificate	12.8	9.3	18.1			
School certificate	19.6	16.9	23.6			
Sixth form certificate	41.9	44.7	38.0			
University attendance	25.6	29.2	20.4			
Employment status				12.20	3	.007
Unemployed	14.5	11.7	18.6			
Employed	52.5	53.9	50.4			
Student	28.6	30.7	25.4			
Homemaker	4.3	3.6	5.5			
Romantic relationship				24.39	4	.01
Not dating	8.7	9.6	7.3			
Casual dating	23.6	23.6	23.6			
Serious dating	41.8	45.7	36.0			
Cohabiting	23.2	17.9	31.0			
Married	2.8	3.2	2.1			

Note. The category of any mental disorder included study participants who met diagnostic criteria for at least one of the following disorders or disorder family: depression, anxiety, schizophreniform, alcohol dependence, or marijuana dependence. Study participants who did not meet diagnostic criteria for any of these disorders were classified into the no-mental-disorder category. The continuous measure of parental SES could not be fitted in this table. However, mean difference analysis indicated that the mean level of SES was significantly lower in the group with any disorder (*m* = 3.69, SD = 1.07) compared with the group with no mental disorder (*m* = 3.84, SD = 1.15) (*t* = 1.94, *P* = .05).
[a]During this period, almost all students took school certification examinations. These examinations are used to determine promotion in secondary and technical schools; passing also helps secure employment in the labor market. A sixth form certificate is equivalent to a high school diploma in the United States.

victimization surveys,[31] and the Dunedin cohort closely matches people of similar ages from American surveys in terms of self-reported violence.[32])

Social and demographic controls. The following control variables were taken into account to rule out spuriousness: gender, family SES, education, employment, and relationship status (Table 1). Family SES was scored into 1 of 6 categories on the basis of the parents' educational level and occupation (1 = unskilled laborer to 6 = professional).[33] Education was coded as the highest attainment achieved by age 21 (0 = no school certificate, 1 = school certificate, 2 = sixth form certificate, 3 = university attendance).[34] Employment status indicates the study participants' main current activity (unemployed, employed, student, or homemaker). Relationship status was defined as a relationship with an intimate partner during the past 12 months that had lasted at least 1 month.[35]

Consistent with previous research,[36] study participants with mental disorders exhibited significantly lower levels of education, employment, and family SES (Table 1). In addition, mentally disordered individuals were significantly less likely than non–mentally disordered people to be in serious dating relationships but more likely to be cohabiting.

Statistical Analyses

We used contingency tables (Table 2) to test the bivariate associations between each type of

TABLE 2—Overall Risk of Violent Victimization Among People With Mental Disorder at Age 21 Years

DSM-III-R Mental Disorder	Victim of Threatened Physical Assaults (n = 128) % (no.)	Victim of Threatened Physical Assaults (n = 128) OR (95% CI)	Victim of Attempted Physical Assaults (n = 90) % (no.)	Victim of Attempted Physical Assaults (n = 90) OR (95% CI)	Victim of Completed Physical Assaults (n = 244) % (no.)	Victim of Completed Physical Assaults (n = 244) OR (95% CI)	Victim of Sexual Assaults (n = 39) % (no.)	Victim of Sexual Assaults (n = 39) OR (95% CI)
No mental disorder	8.2 (46)	. . .	7.5 (42)	. . .	20.5 (115)	. . .	0.9 (5)	. . .
Any mental disorder[a]	21.5 (82)	3.07 (2.1, 4.5)	12.6 (48)	1.78 (1.2, 2.8)	33.8 (129)	1.98 (1.5, 2.7)	8.9 (34)	10.88 (4.2, 28.1)
Specific mental disorder								
Depression disorders (n = 168)	21.4 (36)	2.03 (1.3, 3.1)	11.9 (20)	1.36 (0.8, 2.3)	31.0 (52)	1.36 (0.9, 2.0)	10.7 (18)	4.31 (2.2, 8.3)
Anxiety disorders (n = 193)	20.7 (40)	1.97 (1.3, 3.0)	9.8 (19)	1.05 (0.6, 1.8)	28.5 (55)	1.19 (0.8, 1.7)	11.9 (23)	6.22 (3.2, 12.0)
Schizophreniform disorder (n = 38)	44.7 (17)	5.93 (3.0, 11.6)	15.8 (6)	1.84 (0.7, 4.5)	57.9 (22)	4.27 (2.2, 8.3)	13.2 (5)	4.24 (1.6, 11.6)
Alcohol dependence disorder (n = 92)	26.1 (24)	2.56 (1.5, 4.3)	12.0 (11)	1.32 (0.7, 2.6)	46.7 (43)	2.85 (1.8, 4.4)	7.6 (7)	2.10 (0.9, 4.9)
Marijuana dependence disorder (n = 91)	26.4 (24)	2.60 (1.6, 4.3)	23.1 (21)	3.40 (2.0, 5.9)	44.0 (40)	2.50 (1.6, 3.9)	9.9 (9)	3.00 (1.4, 6.5)

Note. OR = odds ratio; CI = confidence interval.
[a]The category of any mental disorder includes study participants who met diagnostic criteria for at least one of the following disorders or disorder family: depression, anxiety, schizophreniform, alcohol dependence, or marijuana dependence. Study participants who did not meet diagnostic criteria for any of these disorders were classified into the no-mental-disorder category.

mental disorder (depression, anxiety, schizophreniform, alcohol dependence, and marijuana dependence disorders) and each type of violent victimization (threatened physical assault, attempted physical assault, completed physical assault, and sexual assault). We used multivariate logistic regression to examine the association between each mental disorder and each type of violent victimization, controlling for psychiatric comorbidity, demographic characteristics, and violence perpetration (Table 3). Our analyses controlled for study participant violence and provided a conservative test of the hypothesis that victimization is the result of violence perpetration. This is because our violence perpetration measure included acts of violence that may have occurred at any time during the 12-month recording period, including the time period immediately after victimization. Interaction terms between gender and mental disorder did not statistically improve the fit of multivariate models. Therefore, we used the combined sample of males and females for our analyses.

RESULTS

Bivariate Associations

The overall association between having any type of mental disorder and experiencing at least 1 of the 4 types of violent victimization in the past year was positive and statistically significant (odds ratio$=2.19$, $df=1$, $P<.001$). In addition, Table 2 (rows 1 and 2) shows that having any mental disorder was associated with a higher rate of each type of violent victimization. Table 2 (rows 3–7) shows that positive associations with victimization occurred for the different types of mental disorder, although these associations varied in magnitude. Specifically, people suffering from depression and anxiety disorders had significantly higher rates of threatened physical assaults and sexual assaults; people suffering from schizophreniform disorder had significantly higher rates of threatened physical assaults, completed physical assaults, and sexual assaults; people suffering from alcohol dependence disorder had significantly higher rates of threatened physical assaults and completed physical assaults; and people suffering from marijuana dependence disorder had significantly higher rates of all 4 types of victimization.

Multivariate Models

Three explanations for the bivariate associations shown in Table 2 are presented in Table 3. These are (1) that the associations with victimization across the different mental disorder types are caused by psychiatric comorbidity,[17] (2) that the associations are spuriously related to demographic characteristics,[37] and (3) that the associations are the result of the study participants' own violence. To examine these explanations, we estimated three logistic regression models for each victimization outcome. The first three columns of Table 3 show results predicting threatened physical assaults. Compared with those with no mental disorder, study participants with schizophreniform disorder experienced higher rates of threatened physical assault, after control for psychiatric comorbidity, demographic characteristics, and violence perpetration. The association between alcohol dependence disorder and threatened physical assaults remained significant after control for psychiatric comorbidity but was reduced and rendered nonsignificant when demographic characteristics were controlled.

Table 3 (columns 4–6) shows results for attempted physical assaults. Compared with those with no mental disorder, study participants with marijuana dependence disorder experienced a higher rate of attempted physical assaults, after control for psychiatric comorbidity, demographic characteristics, and violence perpetration.

Table 3 (columns 7–9) shows results for completed physical assaults. Compared with those with no mental disorder, study participants with schizophreniform disorder and substance dependence disorders experienced higher rates of completed physical assaults within the past year. Except for marijuana dependence disorder, these associations remained significant after control for psychiatric comorbidity, demographic characteristics, and violence perpetration. The association between marijuana dependence disorder and completed physical assaults remained significant after control for psychiatric comorbidity but was reduced and rendered nonsignificant when demographic characteristics were controlled.

Finally, Table 3 (columns 10–12) shows results for sexual assaults. Compared with those

with no mental disorder, study participants with anxiety disorders experienced a higher rate of sexual assaults within the past year. This result held after control for psychiatric comorbidity, demographic characteristics, and violence perpetration.

Comparing the Bivariate and Multivariate Models

As shown in Table 3, after controlling for psychiatric comorbidity, most of the associations between mental disorder and violent victimization shown in Table 2 were reduced substantially. Of the associations that remained statistically significant, two (i.e., the association between alcohol dependence disorder and threatened physical assault and the association between marijuana dependence disorder and completed physical assault) were reduced and rendered nonsignificant when the demographic characteristics were controlled. Together, these results indicate that psychiatric comorbidity and demographic characteristics contribute in part to the associations between mental disorder and violent victimization observed at the bivariate level, but that a substantial amount of the association remained after these factors were controlled.

Sensitivity Analyses

We conducted sensitivity analyses to resolve two potential problems with our data. First, because the victimization groups were not mutually exclusive, their associations with specific mental disorders could be attributable to the co-occurrence of different types of victimization. To address this concern, we re-ran each analysis controlling for types of victimization other than the outcome. These analyses yielded results that were the same as those shown in Table 3, indicating that overlap in victimization experiences did not bias our findings. Second, we were concerned that the analyses shown in Table 3 included more covariates than could be reliably supported by the number of cases with victimizations in the data, a situation that could result in model "overfitting."[38] To address this concern, we re-ran the analyses controlling for gender and SES only. Once again, the reduced models yielded results that were the same as those shown in

TABLE 3—Associations Between Mental Disorder and Violent Victimization at Age 21 Years, With Control for Psychiatric Comorbidity, Demographic Factors, and Violence Perpetration

	Threatened Physical Assaults (n = 128, 13.6%), With Control for			Attempted Physical Assaults (n = 90, 9.5%), With Control for			Completed Physical Assaults (n = 244, 25.8%), With Control for			Sexual Assaults (n = 39, 4.1%), With Control for		
	Psychiatric Comorbidity OR (95% CI)	Psychiatric Comorbidity and Demographics OR (95% CI)	Psychiatric Comorbidity, Demographics, and Violence OR (95% CI)	Psychiatric Comorbidity OR (95% CI)	Psychiatric Comorbidity and Demographics OR (95% CI)	Psychiatric Comorbidity, Demographics, and Violence OR (95% CI)	Psychiatric Comorbidity OR (95% CI)	Psychiatric Comorbidity and Demographics OR (95% CI)	Psychiatric Comorbidity, Demographics, and Violence OR (95% CI)	Psychiatric Comorbidity OR (95% CI)	Psychiatric Comorbidity and Demographics OR (95% CI)	Psychiatric Comorbidity, Demographics, and Violence OR (95% CI)
Variables												
Depression disorders	1.32 (0.8, 2.2)	1.77 (1.0, 3.0)	1.75 (1.0, 2.9)	1.22 (0.7, 2.2)	1.74 (0.9, 3.2)	1.69 (0.9, 3.2)	1.03 (0.7, 1.6)	1.19 (0.8, 1.8)	1.14 (0.7, 1.8)	2.06 (1.0, 4.4)	1.62 (0.7, 3.6)	1.62 (0.7, 3.6)
Anxiety disorders	1.35 (0.8, 2.2)	1.52 (0.9, 2.5)	1.49 (0.9, 2.5)	0.85 (0.5, 1.5)	1.04 (0.6, 1.9)	1.01 (0.5, 1.9)	0.89 (0.6, 1.3)	1.00 (0.7, 1.5)	0.96 (0.6, 1.5)	4.26 (2.0, 9.0)	3.74 (1.7, 8.1)	3.74 (1.7, 8.1)
Schizophreniform disorder	4.10 (2.0, 8.3)	3.74 (1.8, 7.8)	3.60 (1.7, 7.5)	1.33 (0.5, 3.5)	1.06 (0.4, 2.9)	0.99 (0.4, 2.7)	3.56 (1.8, 7.2)	3.41 (1.7, 7.8)	3.19 (1.5, 6.7)	1.72 (0.6, 5.1)	1.86 (0.6, 2.9)	1.86 (0.6, 2.9)
Alcohol dependence	1.85 (1.1, 3.2)	1.54 (0.9, 2.7)	1.49 (0.8, 2.7)	0.86 (0.4, 1.8)	0.70 (0.3, 1.5)	0.67 (0.3, 1.4)	2.34 (1.5, 3.8)	2.09 (1.3, 3.4)	1.97 (1.2, 3.2)	1.13 (0.4, 3.0)	1.37 (0.5, 3.8)	1.36 (0.5, 3.8)
Marijuana dependence	1.70 (1.0, 3.0)	1.14 (0.6, 2.1)	1.08 (0.6, 2.0)	3.46 (1.9, 6.2)	2.37 (1.3, 4.4)	2.17 (1.2, 4.1)	1.85 (1.1, 3.0)	1.57 (0.9, 2.6)	1.33 (0.8, 2.2)	2.08 (0.8, 5.3)	2.70 (1.0, 7.6)	2.69 (0.9, 7.7)
Control variables												
Male		2.49 (1.6, 3.9)	2.40 (1.5, 3.8)		3.93 (2.2, 6.9)	3.74 (2.1, 6.6)		2.09 (1.5, 2.9)	1.95 (1.4, 2.7)		0.40 (0.2, 0.9)	0.40 (0.2, 0.9)
Family SES		0.98 (0.8, 1.2)	1.00 (0.8, 1.2)		0.71 (0.6, 0.9)	0.73 (0.6, 0.9)		1.00 (0.9, 1.2)	1.02 (0.9, 1.2)		0.95 (0.6, 1.4)	0.95 (0.7, 1.4)
School certificate		0.37 (0.2, 0.7)	0.40 (0.2, 0.8)		1.03 (0.5, 2.2)	1.13 (0.5, 2.4)		1.01 (0.6, 1.8)	1.20 (0.7, 2.1)		1.49 (0.4, 5.4)	1.50 (0.4, 5.5)
Sixth form certificate		0.60 (0.3, 1.1)	0.65 (0.4, 1.2)		1.22 (0.6, 2.4)	1.35 (0.7, 2.7)		1.11 (0.7, 1.9)	1.37 (0.8, 2.4)		1.37 (0.4, 4.9)	1.37 (0.4, 5.0)
University attendance		0.49 (0.2, 1.0)	0.52 (0.3, 1.1)		0.70 (0.3, 1.7)	0.77 (0.3, 1.9)		1.17 (0.6, 2.1)	1.40 (0.7, 2.6)		1.88 (0.4, 8.2)	1.89 (0.4, 8.3)
Unemployed		1.42 (0.8, 2.4)	1.33 (0.8, 2.3)		0.99 (0.5, 1.8)	0.89 (0.5, 1.7)		1.11 (0.7, 1.7)	0.93 (0.6, 1.5)		1.23 (0.5, 3.3)	1.23 (0.5, 3.3)
Serious dating		1.02 (0.6, 1.6)	1.02 (0.6, 1.6)		1.09 (0.6, 1.9)	1.09 (0.6, 1.9)		1.57 (1.1, 2.3)	1.58 (1.1, 2.3)		0.90 (0.4, 2.1)	0.90 (0.4, 2.1)
Cohabiting		1.14 (0.7, 1.9)	1.10 (0.6, 1.9)		1.21 (0.7, 2.2)	1.17 (0.6, 2.2)		2.10 (1.4, 3.2)	1.96 (1.3, 3.0)		0.98 (0.4, 2.4)	0.98 (0.4, 2.4)
Violent perpetration			1.55 (0.9, 2.8)			1.77 (0.9, 3.4)			3.25 (1.9, 5.5)			1.02 (0.3, 3.2)

Note. OR = odds ratio; CI = confidence interval.

Table 3, suggesting that our findings were not the product of overfitting.

DISCUSSION

We examined violent victimization among people with and without a mental disorder living in the community. Results showed that compared with people with no mental disorder, people with anxiety disorders experienced more sexual assaults, people with schizophreniform disorders experienced more threatened and completed physical assaults, people with alcohol dependence disorders experienced more completed physical assaults, and people with marijuana dependence disorders experienced more attempted physical assaults. These results held after control for psychiatric comorbidity, demographic characteristics, and the study participants' own violent behavior.

One explanation for these findings is that people with mental disorders living in the community are more vulnerable to attack than their non–mentally disordered counterparts. To the extent that a mental disorder undermines a person's capacity to engage in alert self-protection, or leads a person to appear as if he or she would be ineffective at self-defense, people with mental disorders may be attractive targets to those motivated to engage in violent assault. Moreover, mentally disordered victims may be less likely to report assaults to the police because they fear their allegations will not be taken seriously.[7] Reduced access to the protection of law may leave people with mental disorders vulnerable to attack from assailants who estimate their likelihood of detection and punishment as low.

Another explanation of the findings is that suffering from a mental disorder may lead people to behave in ways that elicit grievances (or produce negative emotions) in others, causing those others to engage in social control efforts that may culminate in violence.[14] For example, a person with a mental disorder who has stopped taking her medication and intends to acquire illegal drugs may be confronted by a caretaker (oftentimes a family member or romantic partner) who wants to dissuade her from her course of action. If met with resistance, such attempts at social control may result in victimization as

the caretaker resorts to increasingly extreme measures to achieve the desired behavioral goal. In this way, attempts at social control that are initiated for the good of the person with a mental disorder may culminate in that person's victimization.

Because the data analyzed here were cross-sectional, one limitation of this study was that we could not determine whether mental disorder was a risk factor for violent victimization, and we advise caution in using these data to support such a claim. For example, the observed association between anxiety disorder and sexual assault may be attributable to the effects of sexual assault on anxiety disorders. In this regard, victimization may function as a serious (although seldom measured) stressful life event that raises the risk of experiencing anxiety symptoms. The problem of causal ordering is not a simple one that can be solved by using traditional longitudinal data but requires the development of new methods of data collection to obtain better temporal resolution of both mental disorder and victimization experiences.[39]

A second limitation of this study is that we did not examine the role of mental health treatment. It is thus impossible to determine from our data whether currently available treatment interventions will lower the risk of violent victimization that is associated with mental disorder, although recent research on outpatients in North Carolina suggests that this may be so.[40]

A third limitation is that our victimization measure does not provide information on the multiple types of victimization that might be experienced by mentally disordered people during a single victimization encounter.

Finally, the fact that this study used data from a 21-year-old birth cohort can be seen as both a strength and as a weakness. The strength is that our results generalize to an age group for whom the risk of violent victimization is at its peak.[41] The limitation is that we are unable to generalize our findings to people substantially older or younger than our sample, for whom rates and types of mental disorder, victimization, and violence may differ from those observed here.

Limitations not withstanding, our findings indicate that violent victimization is a serious problem that must be examined both epi-demiologically and within the context of mental health services. Moreover, these findings underscore the need to focus mental health services on helping to protect mentally disordered people from victimization in the community, in addition to helping protect the public from the harm they might commit. Understanding the complex ways in which mental disorders produce, or are produced by, victimization, the ways in which different mental disorders interact to affect victimization, and the ways in which violence and victimization interrelate over time should be high priorities for future research. In the meantime, increasing public awareness of the vulnerabilities of people with mental disorders to victimization should help reduce the public's perception of mental disorder solely as something to be feared, which may in turn reduce the stigma and rejection that are typically experienced by people with mental disorders.[7] ■

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This article was accepted June 2, 2004.

Contributors

Eric Silver was primarily responsible for conceptualizing this study and writing this article. Louise Arseneault conducted all of the data analyses. John Langley, Avshalom Caspi, and Terrie E. Moffitt provided the data on which this article is based and gave substantive comments on this article throughout its production.

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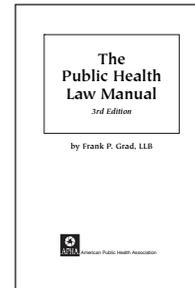
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