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Other- and Self-Directed Forms of Violence and Their Relationships to DSM-IV Substance Use and Other Psychiatric Disorders in a National Survey of Adults

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Abstract

Objective—To examine associations between DSM-IV psychiatric disorders and other- and self-directed violence in the general population.

Methods—Data were obtained from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) Waves 1 & 2 (n=34,653). Four violence categories were derived from a latent class analysis (LCA) of 5 other-directed and 4 self-directed violent behavior indicators. Multinomial logistic regression examined class associations for gender, race-ethnicity, age and DSM-IV substance use, mood, anxiety, and personality disorders.

Results—Approximately 16% of adults reported some form of violent behavior distributed as follows: other-directed only, 4.6%; self-directed only, 9.3%; combined self- and other-directed, 2.0%; and no violence, 84.1%. The majority of the DSM-IV disorders included in this study were significantly and independently related to each form of violence. Generally, other-directed violence was more strongly associated with any substance use disorders (81%) and any personality disorders (42%), while self-directed violence was more strongly associated with mood (41%) and anxiety disorders (57%). Compared with these two forms of violence, the smaller group with combined self- and other-directed violence was more strongly associated with any substance use disorders (88%), mood disorders (63%), and personality disorders (76%).

Conclusion—Findings from this study are consistent with recent conceptualizations of disorders as reflecting externalizing disorders and internalizing disorders. The identification of the small category with combined forms of violence further extends numerous clinical studies which established associations between self- and other-directed violent behaviors. The extent to which the combined violence category represents a meaningful and reliable category of violence requires further detailed studies.

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1. Introduction

Much of our understanding of the association between psychiatric disorders and violence is based on clinical and other incarcerated populations. Epidemiologic studies in the general population overcome the selection bias in these studies and provide information on prevalence and identification of vulnerable subpopulations. The definition of violence encompasses a wide range of behaviors, behaviors that can be expected to lead to significant physical or psychological harm. Epidemiologic studies of violence and psychiatric disorder have defined violence in terms of severe trouble with law or based on two or more items related to physical fighting, assault, and other indicators of harm toward others [1,2,3]. A recent comprehensive study of associations between violent behaviors and psychiatric disorders in the general population indicates that, although only a minority (approximately 8%) of people with psychiatric disorders engage in violent behaviors, the risk of violent behavior before and after age 15 is significantly higher among persons with alcohol and drug use disorders, mood and anxiety disorders, and personality disorders [3]. Substance use disorders (SUDs) were shown to be the most significant contributors to violence. In addition to interpersonal aggression, harmful behaviors directed against self (e.g., suicide-ideation, suicide attempts, suicides, etc.) are also associated with psychiatric disorders [4,5,6]. The relationship between suicidal behaviors and interpersonal violence has been a focus of psychiatric studies for many years [7,8,9,10]. In the present study we are focused on psychiatric disorder correlates of violence directed against others and against self.

Current conceptualizations propose that psychiatric disorders are best understood by broad dimensions of externalization (alcohol/drug disorders, antisocial personality) and internalization (major depression, anxiety) [11–15]. Alcohol dependence, for example, is related to both externalizing and internalizing disorders, although the association with externalizing disorders exceeds its association with internalizing disorders [16,17]. SUDs and antisocial personality disorder have been shown to be independently related to suicidal behaviors [18,19,20,21,22]. When compared with people who have only externalizing or internalizing disorders, individuals with both types of disorders are more likely to attempt suicide [22]. A few studies have examined associations between different forms of violence in adolescent populations [23,24,25]. Significantly higher proportions of victimized compared with nonvictimized high school students reported both suicidal and violence behaviors [24]. A behavioral typology based on a cluster analysis for self-reports of dating violence, peer violence, and suicidal behaviors indicated that the cluster with the highest level of abusive and violence behavior included both victimization and perpetration as well as the highest level of suicidal behavior [23]. A recent study on a violence typology based on self-reports of past year other-directed violence and suicide attempts in a national high school survey yielded the following distribution estimates for four violence categories: other-directed, 17%; self-directed, 4%; combined self and other-directed, 3%; no violence, 76% [25]. When compared with students in the other-directed and self-directed violence categories, students in the combined violence category were more likely to be younger, depressed, and to engage in binge drinking and other substance use.

The aim of the current study is to examine the influence of externalizing and internalizing disorders on subgroups of individuals with self- and other-directed violent behavior indicators in a national adult survey. When compared to other-directed violence, suicidal behaviors, including suicidal ideation, are not particularly violent and are best described as potential indicators of self-harm. Even suicide attempts and suicides have been described as nonviolent (i.e., overdose, poisoning) or violent (i.e., gun shots, jumps) [26]. With these caveats in mind and with the focus on directionality, we chose to retain the term “violence” in its broadest sense for ease of comparison with other-directed violence. While it is to be expected, based on current literature, that externalizing psychiatric disorders will be related

to other-directed violence and internalizing psychiatric disorders to self-directed violence, an important focus of this study is to identify correlates for a third category of violence, which involves a combination of self- and other-directed forms of violence. This approach is distinct from the separate categorization of other-directed and self-directed forms of violence used in prior studies. Taking advantage of its ability to uncover homogeneous groups of individuals with similar phenotypic profiles from the overall heterogeneous population, we used latent class analysis (LCA) to provide a classification model for these forms of violence. We hypothesized that a 4-class solution model (i.e., other-directed, self-directed, combined other- and self-directed, and no violence) is superior to a 3-class solution model (i.e., other-directed, self-directed, and no violence).

2. Methods

2.1 Study design

Data for this analysis were taken from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The NESARC target population was the civilian noninstitutionalized population residing in households and group quarters (e.g., boarding houses, shelters, and dormitories), age 18 and older, in the United States, including all 50 States and the District of Columbia. Military personnel living off base were also included in the sampling frame. Blacks, Hispanics, and young adults ages 18 to 24 were oversampled. All potential NESARC respondents were informed in writing about the nature of the survey, the statistical uses of the data, and the voluntary aspect of their participation, and the Federal laws that rigorously provided for the strict confidentiality of the identifiable survey information. Those respondents consenting to participate after receiving this information were interviewed. The research protocol, including informed consent procedures, received full ethical review and approval from the U.S. Census Bureau and the U.S. Office of Management and Budget. The NESARC Wave 1 sample included a total of 43,093 respondents. Data collection was conducted through face-to-face interviews by highly trained interviewers in 2001–2002. The overall response rate was 81 percent. Weights are provided in NESARC data to account for oversampling, nonresponses, and the selection of one person per household. The weights were also adjusted to match the civilian noninstitutional population on socioeconomic variables based on the U.S. 2000 Census.

All respondents from Wave 1—except those who died, were institutionalized, left the country, or entered the military—were eligible for reinterview approximately 3 years later (2004–2005) in Wave 2 ($n=39,959$). The reinterview rate was 86.7%, yielding a total of 34,653 respondents for Wave 2. Because NESARC Wave 2 assessed certain personality disorders (PDs) that were not included in Wave 1, this analysis drew upon the total Wave 2 sample of 34,653 respondents and applied the sampling weights for Wave 2 to ensure that the weighted Wave 2 sample represented the original population of 2001–2002. Details about the NESARC sampling design and methodology are described elsewhere [27,28].

2.2 Measures

Violence indicators—Measures for other-directed violence since age 15 are based on self-reports of the following 5 symptom items: (1) ever get into a lot of fights that you started; (2) ever hit someone so hard that you injured them or they had to see a doctor; (3) ever physically hurt another person in any way on purpose; (4) ever use a weapon like a stick, knife, or gun in a fight; or (5) ever get into a fight that came to swapping blows with someone like a husband, wife, boyfriend, or girlfriend. Measures for self-directed violence are based on self-reports of the following 4 symptom items that lasted at least 2 weeks

during a lifetime: (1) attempted suicide; (2) thought about committing suicide; (3) felt like wanted to die; (4) thought a lot about own death.

Psychiatric disorders—Lifetime DSM-IV [29] diagnoses for substance use, mood, personality, and anxiety disorders were assessed by the Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS-IV), a structured interview instrument for lay interviewers [30]. Reliability and validity of the AUDADIS-IV diagnoses used in this study have been reported elsewhere [31]. Lifetime substance use disorders in the present study included alcohol use disorders, drug use disorders, and nicotine dependence. Nicotine dependence was assessed for any tobacco product including cigarettes, cigars, pipe, chewing tobacco, and snuff. DSM-IV PDs included paranoid, schizoid, schizotypal, histrionic, borderline, narcissistic, avoidant, dependent, and obsessive-compulsive disorders. Lifetime anxiety disorders included DSM-IV panic disorder with and without agoraphobia, social phobia, specific phobia, and generalized anxiety disorder. Lifetime mood disorders included DSM-IV bipolar 1, bipolar 2, and dysthymia. Because the indicators of violent behavior were selected from 5 symptom items related to conduct disorder and antisocial personality disorder (ASPD) and 4 symptom items related to major depressive disorders (MDD), ASPD and MDD were excluded from the analysis. The disorders used in the analysis are defined as “primary”—that is, they are not substance induced or due to a general medical condition. AUDADIS-IV methods for diagnosis of these disorders are described elsewhere [32,16,17,33,34].

Demographic variables—These included gender (male), age (18–29, 30–39, 40–49, and 50+), and race/ethnicity (non-Hispanic White, non-Hispanic Black, non-Hispanic American Indian/Alaskan Native, non-Hispanic Asian/Native Hawaiian/Pacific Islander, and Hispanic of any races).

2.3 Analyses

As mentioned earlier, latent class analysis (LCA) is a statistical tool to uncover homogeneous groups of individuals with similar phenotypic profiles. It is especially useful when a large number of indicators are available. We used a 3-step LCA procedure to identify categorical subtypes of violence as well as their associations with the covariates (i.e., psychiatric disorders and demographic characteristics). In this procedure covariates were treated as auxiliary variables independent of LCA estimation and thus did not influence how latent classes were formed [35]. Briefly, step 1 uses the 9 violence indicators to form latent classes, step 2 classifies individuals into their most likely classes, and step 3 regresses the classes on the covariates. In step 3, the regression takes into account classification uncertainties associated with the most-likely-class assignment to yield unbiased estimates. To avoid local maxima, the log likelihood values of the best solution were replicated over several sets of random starting values. LCA solutions were estimated for three to six classes. Final model selection regarding the number of appropriate classes was guided by study objectives (a 4-class solution was hypothesized to be superior to a 3-class solution), interpretation of class profiles, the Lo-Mendell-Rubin likelihood ratio test [36], and Bayesian Information Criteria (BIC). Classes identified by the final model were characterized based on their endorsement probabilities for each violence indicator. A multinomial logistic regression analysis compared these classes with respect to their associations to the covariates (psychiatric disorders and demographics variables). The analyses were implemented in the statistical modeling program Mplus [37]. Mplus allows for incorporation of sampling stratification, clustering, and weights in analytic procedures. These three sampling features were taken into account for parameter estimation as well as standard error and model fit calculations.

Although the focus of this study relates to the direction and not severity of violence, the self-directed compared with other-directed violence indicators are primarily nonbehavioral. For this reason, two additional and separate LCA models were conducted as sensitivity tests, which included only two suicidal indicators (i.e., suicide ideations and suicide attempts) and only suicide attempt, respectively. Because these LCA models yielded similar item endorsement profiles and findings comparable to the full LCA model, they are not presented here.

3. Results

The prevalence and correlations of the 9 violence indicators are shown in Table 1. Items within each of the two sets of indicators (other- and self-directed) are highly correlated (as shown in shaded areas) and have moderate correlations with items in the other set.

The Bayesian information criteria (BIC) associated with different LCA solutions were distributed as follows: 3-class, 117295; 4-class, 115636; 5-class, 115457; 6-class, 115460. The hypothesized 4-class model is superior to the 3-class model (BIC difference = 1659; Lo-Mendell-Rubin likelihood ratio test = 3168, $p < .001$). While there are slight improvements with the 5-class model based on the BIC criteria (BIC difference = 179), inspection of the endorsement probabilities (item profiles) indicated the presence of an additional class with low endorsement probabilities for self-directed indicators. Based on the uniqueness of the combined other- and self-directed violence class in both models, the reduced sample sizes in the larger class solution, and major study objectives, we chose the more parsimonious 4-class solution.

Item endorsement probabilities yielded from the 4-class LCA model are shown in Table 2. The item endorsement probabilities clearly indicated separate classes for other-directed violence (class 1), self-directed violence (class 2), combined other- and self-directed violence (class 3), and a class with no or minimal violence (class 4). The four classes are distributed as follows: other-directed, 4.6%; self-directed, 9.3%; combined, 2.0%; and no violence, 84.1%.

Distributions of background variables for each violence class are shown in Table 3. In contrast to the higher proportions of male gender (73.0%) for other-directed violence and higher proportions of female gender (66.0%) for self-directed violence, gender differences in the combined violence class are less pronounced (male, 54.7%; female, 45.3%). Slightly higher proportions of Native Americans and lower proportions of Asian Americans are present for all forms of violence. Individuals in the other-directed and combined violence categories are younger in age while self-directed violence is unrelated to age. Individuals in the combined violence category, compared with the other two violence categories, are distinguished by higher proportions of any substance use disorder (88.2%), mood disorders (63.3%), personality disorders (76.2%), and anxiety disorders (66.7%).

The results of the multinomial logistic regression are shown in Table 4. In view of the large number of comparisons, the findings are summarized separately below for violence versus no violence (classes 1–3 vs. 4), self- versus other-directed violence (classes 2 vs. 1), and combined violence versus other-directed violence and self-directed violence (classes 3 versus 1 and 2).

3.1 Violence versus no violence

Male gender gives significantly higher odds for being in classes 1 and 3 and significantly lower odds for being in class 2 relative to class 4. Blacks compared with Whites, have significantly higher odds for being in class 1 and 3 and significantly lower odds for being in

class 2 relative to class 4, while Hispanics have significantly higher odds for being in class 1. When compared with adults aged 50 years and older, younger adults ages 18–29 and 30–39 have higher odds for being in class 1 relative to class 4. People with each substance use disorder and bipolar 1 mood disorder have significantly higher odds for being in each of the violence classes relative to class 4. People with bipolar 2 and dysthymia have significantly higher odds for being in classes 2 and 3 relative to class 4. Paranoid, schizotypal, borderline, and obsessive-compulsive PDs have higher odds for being in each of the violence classes relative to class 4. Avoidant PD has higher odds for being in classes 2 and 3 relative to class 4. Schizoid PD has higher odds for being in class 3 relative to class 4. Panic disorder (without agoraphobia) and specific phobia have higher odds for being in each of the violence categories relative to class 4. Panic disorder (with agoraphobia) and social phobia have higher odds for being in class 2 relative to class 4. Generalized anxiety has higher odds for being in classes 2 and 3 relative to class 4.

3.2 Self-directed versus other-directed violence

Male gender, Black race, Hispanic ethnicity, older age, substance use disorders, and paranoid and obsessive-compulsive PDs give lower odds for being in class 2 relative to class 1, while each mood disorder, social phobia, and generalized anxiety disorder give higher odds for being in class 2 relative to class 1.

3.4 Combined versus other-directed violence

Male gender and Black race gives lower odds for being in class 3 relative to class 1, while drug use disorders; each mood disorder; schizoid and borderline PDs; give higher odds for being in class 3 relative to class 1.

3.5 Combined versus self-directed violence

Male gender; Black race; alcohol use disorders; drug use disorders; nicotine dependence; paranoid, and schizoid PDs; and specific phobia give higher odds for being in class 3 relative to class 2, while social phobia gives lower odds for being in class 3 relative to class 2.

4. Discussion

The current study expands the epidemiologic evidence for the association between violence and psychiatric disorders in the general population [1,2,3] by providing national prevalence estimates for other-directed (4.6%) and self-directed (9.3%) forms of violence as well as a smaller proportion of individuals with both forms of violence (2.0%). Controlling for sociodemographic characteristics and the presence of other disorders, the majority of the DSM-IV disorders included in this study were significantly and independently related to each form of violence. Associations between other-directed violence (class 1), compared with no violence (class 4), were consistent with findings reported [3]. Differences in the measurement of violent behavior and analytic strategies between the present study and other population studies, however, limit comparisons of results. Individuals [3], for example, were classified positive for violent behavior based on reports of 2 or more of 7 violence indicators, whereas in the present study LCA was used to classify individuals based on all 9 violence indicators (other- and self-directed indicators of harm) along with the demographic and psychiatric covariates.

Overall, other-directed compared with self-directed violence was more strongly associated with any substance use disorder (81.1% versus 60.3%), while self-directed compared with other-directed violence was more strongly associated with mood disorder (40.6% versus 18.3%) and anxiety disorder (57.1% versus 33.4%). These associations are consistent with

recent conceptualizations of psychiatric disorders as reflecting underlying externalizing (alcohol/drug disorders, antisocial personality disorder) and internalizing dimensions (major depression, anxiety disorders) [11,13,14,15]. The present findings, though based on specific psychiatric disorders and not latent general liabilities for externalizing/internalizing dimensions, offer support for a broader paradigm in which both of these liabilities are related to violence perpetration against self and others. As noted earlier, studies have related these dimensions to suicide attempts [21,22]. Future studies are needed to assess the common and differential impact of these liabilities for more extensive measures of other- and self-directed violent behaviors, including assault, spouse abuse, dating-violence, self-injury, suicide attempt, and risky behaviors related to self-harm.

The major finding from the present study relates to the smaller class of individuals in the general population with both forms of violence (2.0%), a national estimate related to numerous clinical studies that have established associations between other- and self-directed violent behaviors [7,9,10]. While the majority of this category's adjusted odds ratios for demographic and psychiatric risk factors fell between that for the other-directed only and self-directed only categories, its odds ratios for drug and nicotine dependence, bipolar disorders, and schizoid personality disorder were significantly higher. The combined violence class was conspicuous with the presence of persons with any personality disorder (76.2% compared with 42.1% for externalizing violence and 46.5% for internalizing violence) and mood disorders (63.3% versus 18.3% and 40.6%). These proportions are indicative of greater psychopathology and are consistent with other studies that find that the combination of internalizing and externalizing disorders increases the risk for aggression (Sher et al., 2005) and suicide attempts [21,22]. Previous studies indicate that alcohol-dependent subjects with a history of suicidal behavior exhibit a profile with higher impulsivity and aggressive behavior [38–40]. Among subjects with nonsubstance-induced major depression, those who had a history of alcoholism had higher lifetime aggression and impulsivity than those without a history of alcoholism and were more likely to report a history of childhood abuse, suicidal attempts, and tobacco use [38]. Factors such as higher aggressiveness, impulsivity, and hostility or earlier age at onset of bipolar disorder increased the likelihood that AUD would be associated with suicide among bipolar disorder patients with SUD compared with those without SUD [39].

While much of the literature has examined risk factors for violence against others (including homicide) separately from studies of suicide ideation/attempts and completed suicide, the present study afforded the opportunity of examining risk factors for both outcomes. Consistent with numerous studies, self-directed violence compared with no violence was related to female gender; each substance use disorder; each mood disorder; each anxiety disorder, and several personality disorder [41,42,5,6,43,44].

Respondents with suicidal symptoms, when compared with those exhibiting violence toward others, were less likely to be male, Black, Hispanic, and were more likely to be younger and to report mood disorders (40.6% versus 18.3%) and anxiety disorders (57.1% versus 33.4%). Although this group has higher odds for each substance use disorder than the no-violence group, its odds for substance use disorders were lower than for those with violence directed at others. Similarly, while mood disorders are common for both forms of violence [39], the odds for mood disorders are higher among the self-directed compared with the other-directed violence group.

A number of limitations of the study need to be pointed out. First, the measurement and categorization of violent behavior in the present study is based on retrospective lifetime reports and is restricted to a limited number of question items. Self-directed violence measures are primarily nonbehavioral ideations and feelings, as only 2.7% of respondent

reported actual suicide attempts. Although the present findings are consistent with the current literature, replication with more specific behavioral indicators of violence perpetration (i.e., arrest for assault), and self-harm (i.e., hospital admission for suicide attempt and self-injury) in other general population, clinical, and incarcerated samples is required. Second, the study is limited to cross-sectional data and does not allow assessment of directionality (i.e., substance use disorders lead to violence, violence leads to substance use disorders, or presence of other factors common to both substance use disorders and violence) and the temporal order of violence behaviors. Third, since many persons who engage in violence may be incarcerated or homeless and thus are not included in the survey sample used in the present study, estimates of the prevalence of violence categories are conservative.

There are several implications from the present study. First, suicide and homicide commonly have been studied independently, and prevention and treatment strategies have adopted similar, though somewhat independent, routes as well. It may facilitate future research to examine not only interpersonal violence but also self-directed aggressive behavior within an integrated conceptual framework. Second, the associations between psychiatric disorders and self- and other-directed violence, while consistent with current conceptualization of externalizing and internalizing disorders, provide support for interactions between these two dimensions. In addition to externalizing disorders, there were significant and independent associations between internalizing disorders and other-directed violence. Similarly, there were significant and independent associations between externalizing disorders and self-directed violence. The presence of a small yet significant latent class for combined forms of violence is an important finding in the present study. The extent to which the combined violence category represents a meaningful and reliable category of violence requires further detailed studies, especially on the contribution of early onset of conduct and other personality disorders, attention deficit hyperactivity disorder, and history of childhood abuse.

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Table 1

Prevalence and correlations of violence indicators.

Violence Indicators	Item Prevalence (%)	Correlations							
		Other-directed				Self-directed			
	N=34,653	1	2	3	4	5	6	7	8
Other-directed									
1. Started fights	3.0								
2. Injured someone	6.3	.65							
3. Intent to injure	5.4	.56	.64						
4. Use a weapon	2.8	.62	.74	.62					
5. Swap blows	6.9	.50	.50	.46	.54				
Self-directed									
6. Suicide attempt	2.7	.39	.34	.28	.39	.42			
7. Suicide ideation	10.4	.36	.29	.30	.34	.41	.90		
8. Want to die	13.2	.34	.24	.27	.33	.40	.87	.95	
9. Think about dying	11.0	.30	.24	.25	.31	.35	.74	.81	.83

Table 2

Item endorsement probabilities of violence class.

Violence Indicators	Endorsement Probability			
	Class 1 (Other-directed)	Class 2 (Self-Directed)	Class3 (Combined)	Class 4 (No violence)
	N=1,599 (4.6%)	N=3,233 (9.3%)	N=690 (2.0%)	N=29,131 (84.0%)
Other-directed				
Started fights	.21	.01	.39	.01
Injured someone	.54	.02	.59	.01
Intent to injure	.38	.05	.41	.02
Use a weapon	.27	.01	.38	.00
Swap blows	.34	.12	.54	.03
Self-directed				
Suicide attempt	.00	.19	.40	.00
Suicide ideation	.03	.78	.93	.01
Want to die	.04	.93	.97	.02
Think about dying	.07	.63	.77	.04

Table 3

Distribution (%)^a of background characteristics by violence class status.

Background Characteristics	Class 1 (Other-directed) N=1,599 (4.6%)	Class 2 (Self-directed) N=3,233 (9.3%)	Class 3 (Combined) N=590 (2.0%)	Class 4 (No violence) N=29,131 (84.0%)	Total N=34,653
Gender					
Male	73.0	34.0	54.7	47.9	47.9
Female	27.0	66.0	45.3	52.1	52.1
Race/ethnicity					
White	64.6	74.9	70.2	70.9	70.8
Black	18.9	8.7	13.9	10.8	11.1
Native American	3.8	3.4	5.1	1.9	2.2
Asian	1.2	3.0	1.9	4.6	4.3
Hispanic	11.5	10.0	8.9	11.8	11.6
Age					
18–29	25.4	18.5	28.6	15.3	16.3
30–39	22.9	18.4	24.8	18.4	18.7
40–49	21.6	23.7	22.3	21.2	21.5
50+	30.1	39.4	24.3	45.1	43.5
Substance use disorders					
Alcohol Use Disorders	69.5	44.6	76.3	30.5	34.6
Drug Use Disorders	35.7	23.1	57.6	8.4	12.0
Nicotine dependence	46.9	37.3	66.9	19.2	23.1
Any of the above substance use disorders	81.1	60.3	88.2	40.5	45.1
Mood disorders					
Bipolar 1	12.4	18.5	38.1	2.6	5.2
Bipolar 2	3.2	5.9	9.5	1.0	1.7
Dysthymia	2.1	16.1	15.8	1.8	3.4
Any of the above mood disorders	18.3	40.6	63.3	5.3	10.4
Personality disorders					
Paranoid	11.9	12.9	35.3	2.2	4.3
Schizoid	5.9	8.3	23.0	1.9	3.1

Background Characteristics	Class 1 (Other-directed)	Class 2 (Self-directed)	Class3 (Combined)	Class 4 (No violence)	Total
	N=1,599 (4.6%)	N=3,233 (9.3%)	N=590 (2.0%)	N=29,131 (84.0%)	N=34,653
Schizotypal	9.9	12.9	25.6	2.1	3.9
Histrionic	5.2	4.8	15.4	0.9	1.8
Borderline	13.3	21.6	42.9	2.9	5.9
Narcissistic	14.9	11.3	23.0	4.7	6.2
Avoidant	3.0	9.8	18.7	1.1	2.3
Dependent	0.5	1.9	6.1	0.1	0.4
Obsessive-compulsive	17.8	18.1	32.6	5.9	8.1
Any of the above personality disorders	42.1	46.5	76.2	14.3	19.9
<u>Anxiety disorders</u>					
Panic without agoraphobia	8.9	17.2	23.9	4.1	5.9
Panic with agoraphobia	2.1	7.9	12.4	0.9	1.9
Social phobia	8.9	22.2	26.5	4.8	7.0
Specific phobia	20.1	30.1	43.2	12.6	15.1
Generalized anxiety	10.1	26.8	33.2	4.8	7.7
Any of the above anxiety disorders	33.4	57.1	66.7	20.5	25.4

^aPercentages are weighted.

Table 4

Adjusted odds ratio of violence class status for gender, race/ethnicity, age, and lifetime DSM-IV substance use, mood, personality, and anxiety disorders.

Background Characteristics ^b	Contrast of Violence Classes ^d							
	1 vs. 4	2 vs. 4	3 vs. 4	2 vs. 1	3 vs. 1	3 vs. 2		
	OR	99%CI	OR	99%CI	OR	99%CI	OR	99%CI
Demographic Characteristics								
Gender (female)								
Male	2.89 *	2.13–3.95	0.57 *	0.48–0.66	1.45 *	1.01–2.10	0.20 *	0.14–0.27
Race/ethnicity (White)								
Black	3.07 *	2.10–4.49	0.77 *	0.60–0.98	1.77 *	1.15–2.73	0.25 *	0.16–0.38
Native American	2.16	0.88–5.30	1.22	0.77–1.54	1.66	0.66–4.17	0.56	0.21–1.47
Asian	0.84	0.06–1.61	0.85	0.54–1.33	0.52	0.52–3.55	2.75	0.52–14.5
Hispanic	1.64 *	1.02–2.65	0.96	0.77–1.20	1.15	0.66–2.20	0.59 *	0.35–0.98
Age (>=50)								
18–29	2.04 *	1.37–3.04	1.07	0.84–1.34	1.47	0.78–2.76	0.52 *	0.33–0.81
30–39	1.54 *	1.01–2.40	0.88	0.73–1.07	1.23	0.76–2.27	0.57 *	0.36–0.90
40–49	1.11	0.73–1.67	0.95	0.78–1.14	0.89	0.51–1.54	0.85	0.55–1.42
Substance Used Disorder								
Alcohol Use Disorders	4.39 *	2.89–6.69	1.36 *	1.15–1.62	3.16 *	1.96–5.12	0.31 *	0.20–0.48
Drug Use Disorders	2.94 *	2.16–4.01	1.86 *	1.49–2.31	4.81 *	3.11–7.49	0.63 *	0.45–0.88
Nicotine dependence	2.37 *	1.70–3.29	1.49 *	1.26–1.77	3.28 *	2.11–5.09	0.63 *	0.44–0.88
Mood Disorder								
Bipolar 1	2.69 *	1.65–4.39	4.17 *	3.22–5.41	6.75 *	4.17–10.9	1.55 *	1.01–2.51
Bipolar 2	1.51	0.96–3.40	4.41 *	2.86–5.99	7.51 *	3.84–14.7	2.29 *	1.18–4.42
Dysthymia	1.52	0.65–3.51	8.69 *	6.90–10.9	12.8 *	6.98–23.6	5.73 *	2.50–13.1
Personality Disorder								
Paranoid	2.87 *	1.67–4.93	1.55 *	1.10–2.17	4.44 *	2.56–7.70	0.54 *	0.30–0.96
Schizoid	0.85	0.43–1.72	1.12	0.76–1.65	2.07 *	1.77–3.66	1.31	0.66–2.58
Schizotypal	2.00 *	1.15–3.47	1.96 *	1.38–2.77	2.34 *	1.27–4.31	0.98	0.56–1.69

Background Characteristics ^b	Contrast of Violence Classes ^a											
	1 vs. 4			2 vs. 4			3 vs. 4			2 vs. 1		
	OR	99%CI		OR	99%CI		OR	99%CI		OR	99%CI	
Histrionic	1.49	0.80–2.80		1.26	0.79–2.01		1.71	0.90–3.21		0.84	0.45–1.57	
Borderline	1.99*	1.16–3.41		2.98*	2.27–3.90		4.66*	2.58–7.92		1.50	0.86–2.60	
Narcissistic	1.15	0.71–1.85		0.80	0.59–1.10		0.81	0.47–1.37		0.70	0.43–1.14	
Avoidant	0.99	0.42–2.31		1.82*	1.25–2.61		1.97*	1.03–3.77		1.85	0.80–4.28	
Dependent	1.13	0.16–9.72		1.53	0.45–5.18		2.59	0.62–11.0		1.35	0.17–10.5	
Obsessive-compulsive	2.47*	1.67–3.65		1.48*	1.15–1.90		1.51*	1.01–2.60		0.60*	0.40–0.90	
Anxiety Disorder												
Panic without agoraphobia	1.67*	1.03–2.73		2.20*	1.68–2.88		2.69*	1.60–4.54		1.31	0.79–2.16	
Panic with agoraphobia	0.78	0.28–2.15		1.51*	1.01–2.34		1.45	0.70–2.99		1.93	0.77–4.84	
Social phobia	0.82	0.46–1.48		1.69*	1.28–2.23		0.70	0.40–1.21		2.05*	1.26–3.74	
Specific phobia	1.49*	1.09–2.03		1.23*	1.01–1.50		1.86*	1.28–2.68		0.82	0.58–1.17	
Generalized anxiety	1.27	0.76–2.14		2.09*	1.66–2.63		1.47	0.85–2.51		1.65	0.97–2.80	
										1.15	0.64–2.08	
										0.70	0.40–1.20	

^a 1=Other-directed violence; 2=Self-directed violence; 3=Combined other- and self-directed violence; 4=No violence.

^b Reference group in parentheses.

* Significant at p<0.01;