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Predictors of aggression in 3.322 patients with affective disorders and schizophrenia spectrum disorders evaluated in an emergency department setting

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ABSTRACT

Introduction: The aim of this study is to determine odds of aggression and associated factors in patients with schizophrenia-spectrum disorders (SSD) and affective disorders who were evaluated in an emergency department setting.

Methods: A retrospective study was conducted using de-identified data from electronic medical records from 3.322 patients who were evaluated at emergency psychiatric settings. Data extracted included demographic information, variables related to aggression towards people or property in the past 6 months, and other factors that could potentially impact the risk of aggression, such as comorbid diagnoses, physical abuse and sexual abuse. Bivariate analyses and multivariate regression analyses were conducted to determine the variables significantly associated with aggression.

Results: An initial multivariate regression analysis showed that SSD had 3.1 times the odds of aggression, while bipolar disorder had 2.2 times the odds of aggression compared to unipolar depression. A second regression analysis including bipolar subtypes showed, using unipolar depression as the reference group, that bipolar disorder with a recent mixed episode had an odds ratio (OR) of 4.3, schizophrenia had an OR of 2.6 and bipolar disorder with a recent manic episode had an OR of 2.2. Generalized anxiety disorder was associated with lower odds in both regression analyses.

Conclusion: As a whole, the SSD group had higher odds of aggression than the bipolar disorder group. However, after subdividing the groups, schizophrenia had higher odds of aggression than bipolar disorder with a recent manic episode and lower odds of aggression than bipolar disorder with a recent mixed episode.

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1. Introduction

Over the last decade, media reports of violence in the U.S. have focused in large part on mass shootings purportedly caused by individuals with mental illness, including the Aurora theater shooting, the Sandy Hook elementary school shooting and the Charleston church shooting to name a few. Such cases of gun violence have aired widely on cable news networks, with the consequence of broadly linking violent

behavior with mental illness in public consciousness. Though most research finds an association between mental illness and violence, the precise nature of the relationship and the specificity of violence as a feature of certain psychiatric diagnoses remains unclear (Steadman et al., 1998; Mullen et al., 2000; Ballester et al., 2012). Efforts to elucidate the relationship between mental illness and violence include the seminal MacArthur Violence Risk Assessment study and its observation of the prevalence of community violence among those with a psychiatric diagnosis in a large sample of individuals discharged from an inpatient setting (Steadman et al., 1998). Data from the study showed that 28.5% of those diagnosed with unipolar depression committed an act of aggression in the year following discharge, compared to 22% of those diagnosed with bipolar disorder and 14.8% of those diagnosed

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with schizophrenia. However, researchers have since found differing rates and conditions of aggression among individuals with a psychiatric diagnosis and some even argue that mental illness is not indelibly associated with aggression (Mullen et al., 2000; Elbogen and Johnson, 2009; Nielssen et al., 2012). Despite that considerable heterogeneity exists among those diagnosed with schizophrenia and affective disorders, the ascertainment of accurate rates and conditions of aggressive behavior among those with such diagnoses can better inform risk assessment and public attitudes. We conducted an electronic medical records chart review to compare the odds of aggression between patients with schizophrenia spectrum disorders (SSD) and affective disorders who were evaluated in the emergency room of a tertiary hospital in New York. We hypothesized that those with a SSD would have a greater association with aggression compared to those with affective disorders.

2. Methods

A retrospective study was conducted using de-identified data from electronic health records (EHR) from patients evaluated at the Medical Emergency department at the Long Island Jewish Medical Center or the Health Evaluation Clinic (HEC) at The Zucker Hillside Hospital between August 3rd 2011 and July 5th 2012. The HEC is an evaluation center taking patients who “walk in” looking for psychiatric treatment as well as those brought in for evaluation by police and/or emergency medical services.

We obtained EHR from patients with ICD9 codes: 295.00–295.95 (schizophrenia spectrum disorders) or ICD9 codes: 296.00–296.99 and

311 (affective disorders). The data extracted were obtained from the initial comprehensive psychiatric evaluation, which was conducted by an attending psychiatrist or a psychiatry resident supervised by an on-site psychiatrist. Data included (1) demographic information, (2) comorbid diagnoses (3) current and recent homicidal thoughts and aggressive behavior; (4) current stressors at the time of the evaluation and (5) other factors including a history of abuse or neglect. Self-report was the primary means of collecting data. Of note, only a subset of patients responded to questions related to physical abuse, sexual abuse or neglect. No post-hoc definitions of homicidal ideation, intent, or plan or aggression were used for the analyses. Data regarding suicidal ideation and behavior was also collected and has been previously published (Gallego et al., 2015). We obtained information regarding patient diagnosis directly from the EHR. Of note, the psychiatric diagnosis was entered by clinicians in the EHR after performing the routine comprehensive psychiatric assessment. Given that our study used only de-identified data, it was deemed exempt from requiring IRB approval.

2.1. Analysis by diagnostic groups

Baseline characteristics were compared by diagnostic groups. To make this comparison we initially grouped the various diagnoses in the following manner.

The SSD group was comprised of the following diagnoses: 1) schizophrenia; 2) schizoaffective disorder; 3) schizophreniform disorder; 4) patients with a concomitant diagnosis of schizophrenia and bipolar

Table 1
Baseline characteristics based on diagnostic groups.

Variable	All sample (N = 3,322)	Affective disorders (N = 2,402)	Schizophrenia spectrum disorders (N = 920)	p-value
Sex, Male (%)	1,551 (46.7)	997 (41.5)	554 (60.2)	<0.001
Age, mean years (SD)	35.2(19.1)	32.9(19.9)	41.5(15.0)	<0.001
Diagnoses				
Unipolar depression, n(%)	1,176 (35.4)	1,176 (100)	0 (0.0)	
Bipolar disorder, n(%)	768 (23.1)	768 (32.0)	0 (0.0)	
Manic	174 (5.27)	174 (7.29)	0 (0.0)	
Depressive	148 (4.46)	148 (6.16)	0 (0.0)	
Mixed	76 (2.32)	76 (3.21)	0 (0.0)	
Unspecified	370 (11.08)	370 (15.32)	0 (0.0)	
Depression NOS, n(%)	77 (2.3)	77 (3.2)	0 (0.0)	
Mood disorder NOS, n(%)	687 (20.7)	687 (28.6)	0 (0.0)	
Dysthymic disorder, n(%)	47 (1.4)	47 (2.0)	0 (0.0)	
Schizophrenia, n(%)	359(10.8)	0 (0.0)	359 (39.0)	
Schizoaffective disorder, n(%)	557 (16.8)	0 (0.0)	557 (60.5)	
Schizophreniform disorder, n(%)	4 (0.1)	0 (0.0)	4 (0.4)	
PTSD, n(%)	143 (4.3)	129 (5.4)	14 (1.5)	<0.001
Panic Disorder, n(%)	75 (2.3)	70 (2.9)	5 (0.5)	<0.001
OCD, n(%)	98 (3.0)	79 (3.3)	19 (2.1)	0.062
GAD, n(%)	82 (2.5)	77 (3.2)	5 (1.0)	<0.001
Anxiety NOS, n(%)	146 (4.4)	138 (5.8)	8 (1.0)	<0.001
Aggression Variables				
Current homicidal aggression/aggressive behavior, n(%)	525 (15.8)	299 (12.5)	226 (24.6)	<0.001
Aggression to others (past 6 months), n(%)	414 (12.5)	235 (9.8)	179 (19.5)	<0.001
Only thoughts, n(%)	109 (3.3)	59 (2.5)	50 (5.4)	<0.001
Behavior, (n)%	305 (9.2)	176 (7.3)	129 (13.0)	<0.001
Aggression to property (past 6 months), n(%)	227 (6.8)	151 (6.3)	76 (8.3)	0.044
Only thoughts, n(%)	12 (0.4)	9 (0.4)	3 (0.3)	0.21
Behavior, n(%)	161 (4.9)	107 (4.5)	54 (5.9)	0.21
Current Stressors				
Despair, n(%)	234 (7.0)	208 (8.7)	26 (2.8)	<0.001
Health Issue, n(%)	223 (6.7)	183 (7.6)	40 (4.4)	0.001
Losses (financial or relationships), n(%)	478 (14.4)	428 (17.8)	50 (5.4)	<0.001
Anniversary of stress or loss, n(%)	47 (1.4)	40 (1.7)	7 (0.8)	0.048
Other factors				
Physical abuse*, n(%)	215 (22.2) [967]	173 (23.1)	42 (19.4)	0.24
Sexual abuse*, n(%)	232 (24.2) [958]	190 (25.6)	42 (19.6)	0.069
Neglect*, n(%)	41 (5.0) [814]	32 (5.1)	9 (4.8)	0.84

The sum of individual affective disorder diagnoses do not match the total number of patients with affective disorders as some patients had comorbid affective diagnoses in the database; NOS: Not Otherwise Specified; PTSD: Post-traumatic stress disorder; OCD: Obsessive Compulsive Disorder; GAD: Generalized Anxiety Disorder. []: Number of subjects for which data was entered. Variables where data was not collected from all subjects.

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