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Prevalence of Suicidal and Self-Injurious Behavior among Subjects with Intermittent Explosive Disorder

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Abstract

The prevalence of suicidal attempts and self-injurious behavior among 376 patients diagnosed with Intermittent Explosive Disorder (IED) was assessed via structured interviews. Results showed 16% of IED subjects reported self-aggression, with 12.5% reporting suicide attempts and 7.4% reporting non lethal self-injurious behaviors. Additional risk factors were identified.

Keywords

Intermittent Explosive Disorder; Self-Injurious Behavior; Suicide Attempts

1. Introduction

Self-aggression is a major public health concern with suicide a leading cause of death in young adults, and non-suicidal self-injurious behavior (SIB; e.g., self-cutting) often resulting in enduring physical and psychological scars (Briere and Gil, 1998). Other-directed aggression is a risk factor for self-aggression (Keilp et al., 2006) and a number of psychiatric disorders are associated with increased risk for both self and other-directed aggression, including post-traumatic stress disorder (PTSD), alcohol dependence and borderline personality disorder (BPD; Briere et al., 1998). However, disorders not typically associated with aggression also show increased self-aggression [i.e., major depressive disorder: MDD; (Zlotnick et al., 1999)], suggesting self and other-directed aggression represent overlapping but distinct constructs.

Intermittent Explosive Disorder (IED), a disorder of impulsive aggression, is prevalent in over five percent of the population (Kessler et al., 2006). Unfortunately, there is limited research assessing the relationship between IED and self-aggression. Coccaro et al. (1998) found that among 76 IED subjects 21% had a suicide attempt (SA) and 9% had SIB; however, their sample included a large proportion of patients with co-morbid BPD. The current study assessed prevalence and risk factors for self-aggresion among IED patients without co-morbid BPD.

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2. Methods

Participants were 267 men and 109 women (age *M* = 36.10; *SD* = 9.32) with IED integrated research criteria (IED-IR; McCloskey et al., 2006) recruited as part of ongoing aggression research studies in the Clinical Neuroscience and Psychopharmacology Research Unit (CNPRU). Written informed consent was obtained for all subjects. In addition to BPD, participants were excluded from all CNPRU studies if they reported lifetime bipolar or psychotic disorder, or a traumatic head injury. Subjects were predominately Caucasian (62.7%) and well-educated (77.5% had some college).

Participants completed a clinical interview conducted by trained diagnosticians. IED was assessed using DSM-IV and IED-IR criteria. The latter criteria are more clearly defined and include frequent verbal aggression (see McCloskey et al., 2006). The Structured Clinical Interview for DSM-IV and the Structured Interview for Disorders of Personality assessed Axis-I and Axis-II disorders respectively. The Suicidal Behavior Interview from the Schedule for Affective Disorders and Schizophrenia (Spitzer and Endicott, 1978) assessed prevalence and frequency of SA. A parallel interview developed by one of the authors (EFC) assessed SIB, defined as “a physically self-damaging act with the conscious intent to hurt one’s self, but not to end one’s life.” Diagnoses and self-aggression history were reviewed and confirmed by a committee of psychiatrists, psychologists and diagnosticians blind to the study hypotheses.

3. Results

Of the 376 IED-IR patients, 107 met only for (IED-IR) and 269 also met for DSM-IV IED. Consistent with previous studies (McCloskey et al., 2006); preliminary analyses found no significant differences on any self-aggression (all $P > 0.25$) or associated variables between the two IED diagnoses. Subjects were therefore combined into a single group (IED).

The prevalence of self-aggression in our IED sample was 16% (N=60). Forty-seven IED subjects (12.5%) attempted suicide (*M* = 1.26 attempts, *SD* = 0.65) and 28 IED subjects (7.4%) engaged in SIB (*M* = 20.17 acts, *SD* = 31.96), with 4% (N=15) engaging in both forms.

T-tests and X^2 analyses compared IED subjects grouped based on lifetime history of (a) any self-aggression (b) SIB and (c) suicide attempts on demographic and psychiatric variables. Because the purpose of this was to identify potential risk factors, we used a liberal criterion of $P < 0.05$ uncorrected for multiple comparisons, for inclusion in subsequent logistic regressions.

Results (table 1) show IED subjects with a history of self-aggression were more likely to be female and have more Axis-I and Axis-II diagnoses, including MDD, drug dependence and PTSD. When these variables were entered into a logistic regression, lifetime MDD (Wald = 6.59; *df* = 1; *P* = 0.01; Exp [B] = 2.45), and female gender (Wald = 5.92; *df* = 1; *P* = 0.02; Exp [B] = 2.19) were independent risk factors.

Female gender and lifetime MDD were more prevalent in the SIB group. SIB subjects also had more Axis-I disorders. Logistic regression found only number of Axis-I disorders (Wald = 6.17; *df* = 1; *P* = 0.01; Exp [B] = 1.31) independently discriminated history of SIB among IED subjects.

IED suicide attempters were more likely than non-attempters to endorse lifetime drug dependence, MDD and a non-BPD cluster B personality disorder. They also had more Axis-I and Axis-II disorders. Of these, lifetime MDD (Wald = 8.82; *df* = 1; *P* < 0.01; Exp [B] = 2.93) and drug dependence (Wald = 5.25; *df* = 1; *P* = 0.02; Exp [B] = 2.71) predicted SA. When individuals with a history of drug dependence or MDD were excluded, 6% (12 of 203) of remaining IED subjects reported SA.

4. Discussion

To our knowledge, this is the largest published study on the prevalence of self-aggression among IED subjects. Approximately 1 out of 6 IED patients self-aggressed with 12.5% attempting suicide and 7.4% engaging in SIB. This supports research showing a relationship between IED and self-aggression (Coccaro et al., 1998) and extends these findings to a non-BPD sample. The two samples differed in SA prevalence, possibly reflecting added risk associated with co-morbid IED and BPD.

Women with IED were at increased risk for self-aggressive behavior overall, though this did not reach significance for either SA or SIB. Axis-I co-morbidity emerged as a risk factor for SIB. Increased psychopathology is associated with greater emotional dysregulation, a common antecedent of SIB (Yates, 2004). For IED patients, SIB may reflect an aggressive response style combined with extreme emotion dysregulation.

IED patients with a history of MDD were at greater risk for self-aggression including SA. This extends previous research linking MDD, self-aggression and other-directed aggression, including the complimentary finding that aggression predicted SA among MDD patients (Keilp et al., 2006). The association between MDD, IED and self-aggression is likely multi-determined. However, one area of interest is serotonergic dysregulation, a theorized biological mechanism for MDD and IED that has also been implicated in self-aggression (Mann et al., 1999).

Drug dependence was also a risk factor for SA. Thus MDD, drug dependence and Axis-I co-morbidity all predicted SA or SIB in IED. Approximately, one-half of IED patients have three or more co-morbid disorders, with MDD and substance disorders each occurring in about one-third of the population (Kessler et al., 2006). The psychiatric variables that lead to the greatest risk of self-aggression in IED are also common in IED.

This study did not evaluate IED as an independent risk factor for self-aggression. It is possible the relationship between IED and self-aggression is a byproduct of co-morbid psychopathology, though recent findings (e.g., Keilp et al., 2006) suggest otherwise. Despite this limitation, this study has important clinical implications. Patients with IED should receive rigorous and continuing assessment for self-aggression, particularly when significant Axis-I co-morbidity, lifetime MDD or drug dependence exists. Regular assessment of depressive symptoms and substance use is advised and intervention for these problems at a sub-clinical level may be warranted. These findings also highlight the need for further study into potential biological (e.g., serotonin), genetic and psychosocial mechanisms governing the tripartite relationship between IED, MDD and self-aggression.

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References

Briere J, Gil E. Self mutilation in clinical and general population samples: prevalence, correlates and functions. American Journal of Orthopsychiatry 1998;68:609–620. [PubMed: 9809120]

Coccaro EF, Kavoussi RJ, Berman ME, Lish JD. Intermittent Explosive Disorder-Revised: development, reliability, and validity of research criteria. Comprehensive Psychiatry 1998;39:368–376. [PubMed: 9829145]

Endicott J, Spitzer RL. A diagnostic interview: the schedule for affective disorders and schizophrenia. Archives of General Psychiatry 1978;35:837–844. [PubMed: 678037]

Keilp JG, Gorlyn M, Oquendo MA, Brodsky B, Ellis SP, Stanley B, Mann JJ. Aggressiveness, not impulsiveness or hostility, distinguishes suicide attempters with depression. Psychological Medicine 2006;36:1779–1788. [PubMed: 16959059]

Kessler RC, Borges G, Walters EE. Prevalence of and risk factors for lifetime suicide attempts in the national comorbidity survey. Archives of General Psychiatry 1999;56:617–626. [PubMed: 10401507]

Kessler RC, Coccaro EF, Fava M, Jaeger S, Jin R, Walters E. The prevalence and correlates of DSM-IV Intermittent Explosive Disorder in the national comorbidity survey replication. Archives of General Psychiatry 2006;63:669–678. [PubMed: 16754840]

Mann JJ, Waternaux C, Haas GL, Malone KM. Toward a clinical model of suicidal behavior in psychiatric patients. American Journal of Psychiatry 1999;156:181–189. [PubMed: 9989552]

McCloskey MS, Berman ME, Noblett KL, Coccaro EF. Intermittent Explosive Disorder-Integrated Research Diagnostic Criteria: Convergent and Discriminant Validity. Journal of Psychiatric Research 2006;40:231–242. [PubMed: 16153657]

Yates TM. Developmental psychopathology of self-injurious behavior: compensatory regulation in posttraumatic adaptation. Clinical Psychology Review 2004;24:35–74. [PubMed: 14992806]

Zlotnick C, Mattia JI, Zimmerman M. Clinical correlates of self mutilation in a sample of general psychiatric patients. The Journal of Nervous and Mental Disease 1999;187:296–301. [PubMed: 10348084]

Table 1

Demographic Variables and Psychopathology as a function of Self-Aggression

	Any Self-Aggression			SIB			Suicide Attempts		
	Y (N=60)	***N (N=316)***	**X^2/ t**	***Y (N=28)***	***N (N=348)***	**X^2/ t**	***Y (N=47)***	***N (N=329)***	**X^2/t**
Sex: *n* (% male)[a]	34 (56.7)	233 (73.7)	7.13**	15 (53.6)	252 (72.4)	4.47*	29 (61.7)	238 (72.3)	2.26
Race: *n* (% white)	36 (60.0)	198 (62.6)	0.63	17 (60.7)	217 (62.9)	0.05	26 (55.3)	208 (63.8)	1.27
Age: *M*(SD)	35.18 (9.55)	36.27 (9.28)	0.82	33.14 (8.23)	36.33 (9.38)	1.75	35.68 (9.84)	36.16 (9.26)	0.33
Num. Axis I Dx: *M*(SD)[b]	2.70 (1.86)	1.78 (1.65)	3.84**	3.00 (1.91)	1.85 (1.67)	3.47**	2.62 (1.64)	1.84 (1.71)	2.95**
Num. PD: *M*(SD)	1.48 (0.79)	1.26 (0.74)	2.11*	39 (0.73)	1.29 (0.75)	0.71	1.62 (.84)	1.25 (0.73)	3.16**
Cluster A PD: *n* (%)	11 (18.3)	48 (15.1)	0.37	4 (14.3)	55 (15.8)	0.05	10 (21.3)	49 (14.9)	1.27
Cluster B PD: *n* (%)	20 (33.3)	76 (24.0)	2.28	9 (32.1)	87 (25.0)	0.70	18 (38.3)	78 (23.7)	4.60*
Cluster C PD: *n* (%)	7 (25.0)	68 (21.5)	0.98	7 (25.0)	75 (21.6)	0.18	11 (23.4)	71 (21.6)	0.08
MDD: *n*(%) [a,c]	35 (58.3)	93 (29.4)	18.76**	17 (60.7)	111 (31.9)	9.59**	27 (57.4)	101 (30.7)	13.10**
Other Mood Dx: *n* (%)	12 (20.0)	53 (16.7)	0.37	7 (25.0)	58 (16.7)	1.26	10 (21.3)	55 (16.7)	0.60
PTSD: *n*(%)	6 (10.0)	12 (3.8)	4.25*	2 (7.1)	16 (4.6)	0.37	4 (8.5)	14 (4.3)	1.63
Other Anx Dx : *n* (%)	19 (31.6)	67 (21.2)	3.13	10 (35.7)	76 (21.8)	2.83	13 (27.7)	73 (22.2)	0.70
Alcohol Dep: *n* (%)	18 (30.0)	72 (22.7)	1.23	9 (32.1)	81 (23.3)	1.12	16 (34.0)	74 (22.5)	3.01
Other Drug Dep: *n*(%)[c]	21 (35.0)	57 (18.0)	8.84**	9 (32.1)	69 (19.8)	2.39	19 (40.4)	59 (17.9)	12.7**

Note: Cluster B personality disorders did not include borderline personality disorder. There was no missing data, DF X^2 = (1); DF t = (374); SIB = self-injurious behavior, Num = number, Dx = disorders, PD = personality disorder, MDD = major depressive disorder, PTSD = post traumatic stress disorder, Anx = anxiety, Dep = dependence

[a] significant risk factor for any self-aggression

[b] significant risk factor for SIB

[c] significant risk factor for suicide attempts

* $p < .05$

** $p < .01$.

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