



Intermittent Explosive Disorder and aversive parental care



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ABSTRACT

Parental bonding has been shown to have lasting impacts on the psychological development of children. Despite a growing body of research examining trauma as it relates to Intermittent Explosive Disorder (IED), no prior research has examined the relationship between parental bonding and IED. Six hundred fifty eight subjects were studied and categorized into one of three groups: Normal Control (no history of current or lifetime Axis I or Axis II disorder), Psychiatric Control (current and/or lifetime Axis I and/or Axis II disorders without IED), and IED (met current and/or lifetime criteria for IED). Self-reported parental care was assessed using the Parental Bonding Inventory (PBI). PBI Care scores were lowest among IED subjects, which were lower than among Psychiatric Control subjects, which were lower than among Normal Control subjects. PBI Control scores were highest among IED and Psychiatric Control subjects, which were higher than among Normal Control subjects. The diagnostic group differences in PBI Care/PBI Control scores were not impacted by the number of Axis I/II diagnoses. The findings in this study expand the link between childhood trauma exposure, violent behavior, and IED. This is the first report of an association of IED with an aversive childhood parenting environment.

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1. Introduction

Intermittent Explosive Disorder (IED) is the DSM-IV clinical description of problematic impulsive aggression, with an estimated prevalence between 5.4% and 6.9% (Coccaro, 2012). Although serotonergic abnormalities have been consistently linked to impulsive aggression, details regarding the mechanism whereby IED develops remain unclear. Data from the National Comorbidity Survey Replication (NCSR) study have provided some clues about the development of IED. In adults with IED, the mean age of onset of IED symptoms is 14 (Kessler et al., 2006). The prevalence of IED in adolescents, according to data from the NCSR Adolescent Supplement, is 7.8% (McLaughlin et al., 2012; Meaney, 2010). These findings highlight the need to examine developmental factors present in childhood and adolescence that play an etiological role in IED. Although genetic factors have an unequivocal role in brain development, early life environment plays an important role in shaping the development of emotional traits relevant to a wide range of psychiatric disorders (reviewed in Meaney (2010)). The experience of traumatic events has previously been found to be associated with abnormal aggressive behavior (Fincham et al., 2009; Silove et al., 2009). To date, a single study has examined the

relationship of trauma in childhood with IED specifically. Analysis of data from the NCSR found that a diagnosis of IED was associated with exposure to both childhood trauma (51.28% of persons with IED) and adult trauma (19.88% of persons with IED) (Nickerson et al., 2012). Interpersonal trauma had a stronger relationship to IED than trauma resulting from acts of nature or accidents. The study did not specifically examine aversive parenting practices, although the relationship between IED and childhood interpersonal traumas indicates that parental care needs to be examined in relation to IED. Parental care is protective against parental abuse and neglect, and is associated with opposing neurobiological effects in clinical samples (Lee et al., 2006). A large body of work has found that childhood trauma in the form of abuse and/or neglect represents a risk factor for psychiatric disorders broadly (Hildyard and Wolfe, 2002; Schafer and Fisher, 2011). Furthermore, there is a limited, but growing, body of longitudinal and cross-sectional evidence identifying experienced abuse in childhood as a risk factor contributing to aggression and violence in adulthood. In particular, it may be a significant risk factor for intimate partner violence (reviewed in Gil-González et al. (2008)).

Qualitative and quantitative research on parental bonding resulted in the identification of two opposing factors: 1. Parental warmth vs. parental rejection, and 2. Control vs. autonomy (Parker and Brown, 1979; Schaefer, 1965). The first factor describes positive evaluation, sharing, expressing of affection, emotional

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support, and fair treatment; it is opposed by ignoring, neglect, and rejection. The second factor describes intrusiveness and parental direction through guilt; it is opposed by encouragement of autonomy and independent thinking. Laxity in discipline, which was part of Schaefer's conceptualization of the second "control" factor, was de-emphasized by Parker, and was subsequently found to be less predictive of developmental problems (Safford et al., 2007).

No study has yet examined the relationship between parental bonding and IED. The present study addresses this gap by comparing scores between IED subjects and control subjects on a validated questionnaire measure of parental bonding, the 25-item Parental Bonding Inventory (PBI) (Parker and Brown, 1979). PBI scores were compared between adults with IED and Normal Controls (without Axis I or Axis II disorders) as well as with Psychiatric Controls (with a non-IED Axis I or Axis II diagnosis). This study had four hypotheses: 1. IED subjects would have lower scores on a measure reflecting their perception of the degree of care and involvement of their parents with the subject, compared with Normal Control and Psychiatric Control subjects. 2. IED subjects would have higher scores on a measure reflecting their perception of the degree of control and overprotection by their parents toward the subject, compared with Normal Control and Psychiatric Control subjects. 3. These differences would be accounted for by differences in aggression and impulsivity but not by any differences in Axis I or II psychopathology or by variability in dimension of personality. 4. Similar findings would be noted for history of self-directed aggression (history of suicide attempt and self-injurious behavior).

2. Methods

2.1. Subjects

Six-hundred-fifty-eight physically healthy subjects participated in this study. All subjects were medically healthy and were systematically evaluated as part of a larger program designed to study correlates of impulsive aggressive and personality disorder related behaviors in human subjects. Subjects were recruited from public service announcements and through newspaper advertisements seeking out individuals who: a) reported psychosocial difficulty related to one or more Axis I and Axis II conditions or, b) had no evidence of psychopathology. All subjects gave informed consent and signed the informed consent document approved by our Committee for the Protection of Human Subjects (IRB). Of this group, 187 subjects had no history of current or lifetime Axis I or Axis II disorder and were designated as the Normal Control group. Two-hundred-six subjects with current and/or lifetime Axis I and/or Axis II disorders were designated as the Psychiatric Control group (by definition, individuals in this group did not meet criteria for a current or lifetime diagnosis of IED). The remaining 265 subjects met current and/or lifetime criteria for IED and were designated as the IED group. No subject met current diagnostic criteria for alcohol or other drug dependence and none had a life history of mania/hypomania, schizophrenia, or delusional, disorder.

2.2. Diagnostic assessment

Axis I and Axis II Personality Disorder diagnoses were made according to DSM-IV criteria (American Psychiatric Association, 2000). The diagnosis of Intermittent Explosive Disorder was made by Research Criteria, which specify: 1) bi-weekly verbal or physical aggression towards other individuals, animals, or property for 1 month; or three episodes or physical aggression within 1 year, 2) the aggression must be disproportionate to provocation or instigating stressors, 3) the aggressive behavior is impulsive and not goal oriented, 4) the aggressive behavior causes concern in the individual, and finally 5) the aggressive behavior is not better accounted for by another mitigating condition such as a mental disorder, substance abuse, or general medical condition. (Coccaro, 2011, 2012). Diagnoses were made using information from: (a) the Structured Clinical Interview for DSM Diagnoses (SCID-I; First, 1997) for Axis I disorders and the Structured Interview for the Diagnosis of DSM Personality Disorder (Pfohl et al., 1997) for Axis II disorders; (b) clinical interview by a research psychiatrist. The research diagnostic interviews were conducted by individuals with a masters, or doctorate, degree in Clinical Psychology. All diagnostic raters went through a rigorous training program that included lectures on DSM diagnoses and rating systems, videos of expert raters

conducting SCID/SIDP interviews, and practice interviews and ratings until the rater was deemed reliable with the trainer. This process resulted in good to excellent inter-rater reliabilities (mean kappa of 0.84 ± 0.05 ; range: 0.79–0.93) across mood, anxiety, substance use, impulse control, and personality disorders. Kappa for the diagnosis of specific PD, and for PD-NOS, was 0.84 and 0.83, respectively. Final diagnoses were assigned by team best-estimate consensus procedures (Klein et al., 1994; Leckman et al., 1982) involving research psychiatrists and clinical psychologists as previously described (Coccaro et al., 2012). This methodology has previously been shown to enhance the accuracy of diagnosis over direct interview alone (Kosten and Rounsaville, 1992).

By definition, none of the Normal Control subjects had a current or lifetime history of any Axis I or II disorder. Of the 206 Psychiatric Control subjects, most (74%) had a lifetime history, of at least one Axis I disorder. Lifetime Axis I disorders were as follows: Any Depressive Mood Disorder ($n=68$); Any Anxiety Disorder ($n=39$); Alcohol or Drug Dependence ($n=44$); Other Impulse Control Disorder ($n=5$); Eating Disorder ($n=9$); Somatoform Disorder ($n=1$); Adjustment Disorder ($n=16$). Seventy-seven (37%) of the Psychiatric Control subjects met DSM-IV criteria for a specific personality disorder as follows: a) Cluster A ($n=19$): Paranoid ($n=15$), Schizoid ($n=7$), Schizotypal ($n=2$); b) Cluster B ($n=41$): Antisocial ($n=7$), Borderline ($n=15$), Histrionic ($n=4$), Narcissistic ($n=19$); c) Cluster C ($n=38$): Avoidant ($n=13$); Dependent ($n=1$), Obsessive–Compulsive ($n=26$). An additional 62 (30%) subjects were diagnosed as Personality Disorder-Not Otherwise Specified (PD-NOS). These subjects met DSM-IV General Diagnostic Criteria for Personality Disorder, had pathological personality traits from a variety of personality disorder categories and had clear evidence of impaired psychosocial functioning [Mean (\pm S.D.) Global Assessment of Function (GAF) score = 64.4 ± 7.7].

Of the 265 IED subjects, all had a lifetime history, of at least one Axis I disorder. Lifetime Axis I disorders were as follows: Any Depressive Mood Disorder (65%); Any Anxiety Disorder (38%); Alcohol or Drug Dependence Disorders (43%); Other Impulse Control Disorder (9%); Eating Disorder (9%); Somatoform Disorder (2%); Adjustment Disorder (5%). One-hundred-eighty-three (62%) of the IED subjects met DSM-IV criteria for a specific personality disorder as follows: a) Cluster A (26%): Paranoid (25%), Schizoid (1%); b) Cluster B (70%): Antisocial (34%), Borderline (44%), Histrionic (7%), Narcissistic (26%); c) Cluster C (39%): Avoidant (17%); Dependent (2%), Obsessive–Compulsive (26%). An additional 82 (31%) subjects were diagnosed as Personality Disorder-Not Otherwise Specified (PD-NOS). Similar to the corresponding Psychiatric Control subjects with PDNOS, these subjects also had clear evidence of impaired psychosocial functioning [Mean (\pm S.D.) GAF score = 59.6 ± 7.1].

2.3. Measures of perceived parental care and control

Self-reported parental care, the subjective perception and recollection of quality of parental care received, and the degree of parental control experienced, in childhood, was assessed using the Parental Bonding Inventory (PBI; Parker and Brown, 1979). The PBI is a 25-item self-rating scale, with each item measuring on a 4-point Likert scale qualitative aspects of individual parent (mother and father) behavior. The PBI parental care (PBI Care) subscale score represents a summation of data regarding perceived parental care from the mother and father from one of two dimensions of parental care (care vs. neglect). PBI Care describes experienced affection, emotional warmth, empathy and closeness vs. emotional coldness, indifference, and neglect. The second PBI dimension, Parental Control, describes intrusiveness and parental direction through guilt vs. encouragement of autonomy and independent thinking. The two PBI variables were inversely correlated in this sample ($r = -0.42$, $p < 0.001$, $n = 658$) suggesting that perceived parental care runs counter to perceived parental control.

2.4. Measures of aggression, impulsivity and relevant measures of personality

Aggression was assessed using the Aggression scale from the Life History of Aggression assessment (Coccaro et al., 1997) and impulsivity was assessed using the Barratt Impulsivity Scale (BIS-11; Patton et al., 1995). LHA Aggression contains five items related to life frequency of temper tantrums, general fighting, specific physical assault, specific property assault, and verbal assault. LHA Aggression has high internal consistency ($\alpha = 0.87$), excellent inter-rater reliability ($ICC = 0.95$), and good test–retest reliability up to 1 year ($r = 0.80$; Coccaro et al., 1997). The BIS-11 is a 34 item self-report questionnaire developed to assess impulsivity as a personality trait, taking into account the multi-factorial nature of the construct. Each item is scored on a four-point scale from: 1 ("rarely/never") to 4 ("almost always/always") and items are summed to yield a total impulsivity score. The psychometric properties of the BIS-11 are well documented (Patton et al., 1995). Self-directed aggression was assessed by history of suicidal behavior and self-injurious behavior as assessed during the SCID interviews (First, 1997). General personality and temperament were assessed using the Neuroticism, Psychoticism, and Extraversion scales from the Eysenck Personality Questionnaire (EPQ; Eysenck and Eysenck, 1975) and the Novelty Seeking, Harm Avoidance, and Reward Dependence scales from the Temperament Personality Questionnaire (TPQ; Cloninger, 1994)

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