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Remitted depression moderates self-injurious behavior in personality-disordered research volunteers

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Abstract

The moderating effects of depression on self-injurious behavior among personality-disordered individuals ($N=40$) was examined. Self-injurious behavior (SIB) was assessed using a well-validated laboratory measure. Remitted depression was associated with greater sensitivity to self-aggressive cues, indicating that remitted depression may be a risk factor for SIB.

Keywords

Depression; Self-Aggression; Personality Disorder

1. Introduction

Self-injurious behavior (SIB) occurs in up to 60% of psychiatric patients, with personality psychopathology as a prominent risk factor (Briere and Gill, 1998; Klonsky et al., 2003). SIB may serve an emotion regulation function, as SIB is often preceded by increased negative affect (Yates, 2004). However, the relationship between non-lethal self-injurious behavior and depressive disorders remains unclear (e.g., Herpertz et al., 1997; Nock et al, 2006).

The course of major depressive disorder (MDD) may be partially responsible for conflicting findings in this area. For example, it is possible that an acute depressive episode may inhibit, rather than exacerbate, SIB due to decreased initiation of goal-directed activity and reduced motivation to change a negative mood state. Also, social cues that could prompt self-injury (McCloskey and Berman, 2003; Crouch and Wright, 2004) may be less salient during a depressive episode due to attention and concentration deficits. However, recurrent depressive episodes may have a long-term effect on neurobiologic functioning that could increase risk for impulsive acts and responsiveness to self-aggressive cues during remission.

We examined the extent to which personality-disordered (PD) individuals with and without current MDD self-aggress using a well-validated laboratory measure (the Self-Aggression Paradigm: SAP; Berman and Walley, 2003). We predicted (1) remitted depressives will exhibit

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greater self-aggression than current depressives and non-depressed controls; and, (2) self-aggressive cues will facilitate self-aggression among individuals with remitted depression.

2. Methods

2.1 Participants

Eighteen men and twenty-two women (age $M = 38.33$; $SD = 9.86$) were recruited via radio and print advertisements as part of ongoing studies of neuropsychological correlates of personality disorders. This protocol was approved by the University of Chicago Institutional Review Board. Written informed consent was obtained from all participants. Exclusionary criteria included current substance dependence, mental health treatment, or history of bipolar disorder, psychotic disorder, or traumatic head injury. The sample was predominately Caucasian (62.5%) with at least some college education (82.5%). Participants were grouped based on DSM-IV diagnoses using the Structured Clinical Interview for DSM-IV (SCID) and the Structured Interview for Disorders of Personality (SID-P). Groups were: (a) No lifetime Axis I or II disorders (Healthy Volunteer: HV; $n = 14$), (b) PD without lifetime mood disorder (Personality Disorder Control: PDC; $n = 10$), (c) PD with major depressive disorder in full remission (MDD-R; $n = 9$), or (d) PD with current major depressive disorder (MDD-C; $n = 7$). The groups did not differ with respect to age, gender, ethnicity, or education. The PD groups did not differ in number of Axis I or II disorders or SIB history. Depressed groups did not differ in age of depression onset or number of depressive episodes (all P s > 0.10).

2.2 Apparatus

The Self-Aggression Paradigm (SAP) is a laboratory measure of SIB disguised as a competitive reaction-time task with another (fictitious) subject. During the SAP, participants select from a range of electric shocks (low to high) for self-administration, with self-aggression defined as the level of shock chosen. Evidence supports the construct and criterion validity of the SAP (e.g., Berman and Walley, 2003; McCloskey and Berman, 2003).

2.3 Procedure

The diagnostic interviews were conducted on day 1. On day 2, after testing negative for recent alcohol or illicit drug use, the participant completed a four item (angry, depressed, fearful, happy) visual analogue scale (VAS). The experimenter (who was unaware of the participant's diagnostic status) next attached fingertip electrodes to the participant's index and middle finger and explained they would be competing against another "subject" in an adjoining room. A pain threshold was then determined for the participant (and the bogus subject, an audiotape of a confederate played over an intercom) by increasing shock levels until a 1-s shock was rated "extremely unpleasant."

Scripted instructions were then given to the participant and bogus opponent via intercom. The task was "to see which subject could lift a finger off a reaction time key quickest." Before each trial, a shock from 0 (no shock) through 10 (pain threshold) or 20 (a "severe shock twice the intensity of the 10") was selected that would be administered "to the person who had the slower reaction time" (in actuality, the 20 and 10 were of equal intensity).

The participant completed 28 trials, losing on half the trials. After every trial the participant was notified about the fictitious subject's shock selection via 12 panel lights labeled, 0 to 10, and 20. The trials consisted of 4 blocks that varied as to the level of shock the fictitious subject selected, averaging 2.5, 5.5, and 8.5, for blocks 1 through 3, respectively. For block 4 the other "subject" chose a "severe" shock (20) on two trials. These four blocks represented increasing levels of self-aggressive cues. After the SAP, the participant completed a second VAS then were debriefed.

3. Results

Mean shock selection

A 4×4 (Group $\times$ Self-Aggressive Cues) ANOVA for mean self-selected shock revealed a significant group by cues interaction $F(9, 108) = 2.74, P = 0.006, \eta^2 = 0.19$. This interaction was accounted for by the effect of self-aggressive cues on the MDD-R subjects, $F(3, 87) = 5.45, P = 0.001$, but not for the HV, PDC, or MDD-C subjects (all $P > 0.15$). Specifically, only the MDD-R subjects behaved in an increasingly self-aggressive manner in response to the self-aggressive cues of the opponent (see Figure 1).

Severe (20) shock selection

Four of the forty subjects (10%) selected a 20 shock, all of whom were in the MDD-R group, $\chi^2(3) = 15.30, P < 0.001$. Post-hoc Fisher's exact tests showed that the proportion (44%) of participants in the MDD-R group who selected the 20 shock exceeded that of the HV (0%; $P = 0.01$) and PDC (0%; $P = 0.03$) groups and tended to exceed the MDD-C group (0%; $P = 0.08$). Three of the four subjects who selected a 20 shock only did so after seeing the opponent select an extreme shock.

VAS scores

$4(\text{group}) \times 2(\text{pre-SAP versus post-SAP})$ ANOVAs were performed for each of the VAS items. Only anger showed a significant time $\times$ group interaction, $F(3, 36) = 3.46, P = 0.028, \eta^2 = 0.25$. Follow-up analysis indicated that only the MDD-R group significantly decreased their anger pre- to post-SAP, $F(3, 36) = 7.13, P = 0.01$.

4. Discussion

Results indicate that remitted depressives appear particularly sensitive to the presence of self-aggressive cues. This finding is consistent with research showing that self-aggressive models in the social environment increase the incidence of SIB (Crouch and Wright, 2004). These results should not be interpreted to mean that SIB is not possible in PD individuals during a major depressive episode. Rather, the presence of self-aggressive cues seem less relevant for the expression of SIB in PD individuals with current depression or no history of depression, and other factors may be identified in future studies that are associated with SIB in these populations. Finally, only MDD-R individuals showed reduced anger after the SAP, supporting the hypothesis that self-aggression may serve an emotion regulation function.

The study findings are limited by our small sample size. Replication using larger samples is needed to replicate and extend our findings. These results should also be viewed as complementary to non-laboratory findings on SIB, with each method generating new hypotheses to be confirmed or modified. Nonetheless, our results indicate that clinicians should be especially attentive to the presence of self-injurious social cues as depressive symptoms remit in their PD patients.

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Fig. 1.
Mean Self-Shock as a Function of Diagnostic Group and Increasing Self Aggressive Cues
* $P < 0.05$.