Nonsuicidal self-injury, potentially addictive behaviors, and the Five Factor Model in undergraduates

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ABSTRACT

Nonsuicidal Self-Injury (NSSI) is the deliberate inflicting of physical injury to one's own body that is not due to accident or conscious attempt at suicide. This study examined NSSI, other excessive or potentially addictive behaviors, and borderline personality features. Undergraduates ($N = 151$) completed the Deliberate Self Harm Inventory (Gratz, 2001), the NEO PI-R (Costa & McCrae, 1992), and the Shorter PROMIS Questionnaire (SPQ; Christo et al., 2003). The SPQ measures impulsive or compulsively motivated behavior, such as symptoms of substance use disorder, disordered eating, and involvement in dysfunctional intimate relationships. The sample was divided according to the number and type of NSSI incidents reported, and 41 (27%) of the students had self-injured, including 20 (13%) who had self-injured 10 or more times or who had practiced 3 or more methods of NSSI. These severe self-injurers had significantly elevated rates of alcohol and drug abuse, disordered eating, sexual compulsivity, and dysfunctional interpersonal relationships. They also scored higher on facets of Neuroticism, with lower scores on facets of Agreeableness and Conscientiousness. Personality facet profiles suggested that borderline personality features may be elevated among those who practice frequent and varied NSSI, and these results suggest involvement of maladaptive strategies for emotional self-regulation.

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1. Introduction

Nonsuicidal Self-Injury (NSSI) is the deliberate inflicting of physical injury to one's own body that is not due to accident or conscious attempt at suicide (Gratz, 2003). Although some forms of NSSI may be symptomatic of severe psychiatric disturbance, this behavior is practiced at varying levels of intensity and frequency by many adolescents and young adults, with lifetime prevalence estimates ranging from 13% to 35% (Fliege, Lee, Grimm, & Klapp, 2009b). Some have argued that NSSI should be considered a discrete clinical syndrome (Muehlenkamp, 2005), but it is currently classified by the DSM-IV-TR (American Psychiatric Association., 2000) as a phenomenon separate from impulse control disorders, and as a diagnostic symptom of borderline personality disorder. NSSI is a maladaptive strategy for emotional self-regulation (Gratz & Roemer, 2008), and the present study examined the co-occurrence of NSSI and other excessive or potentially addictive behaviors that may also reflect emotional dysregulation, and the personality traits that may be associated with this behavior.

Self-injurers have high rates of both eating disorder (Claes, Vandereycken, & Vertommen, 2004, 2005; Croyle & Walsh, 2007; Fliege, Lee, Grimm, Fydrich, & Klapp, 2009a; Ross, Heath, & Toste, 2009; Sansone & Levitt, 2002), and substance abuse (Goldstein, Flett, Wekerle, & Wall, 2009; Haw, Hawton, Casey, Bale, & Shepherd, 2005; Ogle & Clements, 2008). NSSI appears to acquire compulsive properties in some self-harmers (Csorba, Dinya, Plener, Nagy, & Pali, 2009), and Sinclair, Hawton, and Gray (in press) found that NSSI predicted alcoholism after a 6 year follow up. These results are consistent with the high comorbidity that exists between substance use disorders (Trull, Sher, Minks-Brown, Durbin, & Burr, 2000), eating disorders (Cassin & von Ranson, 2005), and borderline personality disorder (Godt, 2008).

There may be individual characteristics that contribute to NSSI (Casillas & Clark, 2002). One likely candidate is trait impulsivity, which is common to borderline personality disorder (Tragesser & Robinson, 2009), substance use (Bornovalova, Lejuez, Daughters, Rosenthal, & Lynch, 2005), and bulimia nervosa (Fischer, Smith, & Cyders, 2008). Impulsivity is a multidimensional trait that is represented by facets of Neuroticism, Extraversion, and Conscientiousness (Whiteside & Lynam, 2001). Evidence also suggests a role for low Agreeableness, which has been associated with both bulimia (e.g. Claes et al., 2006) and substance use (Ball, 2005). These findings are further supported by a meta-analysis of the DSM-IV-TR personality disorders and their relationships with the Five

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Factor Model (Samuel & Widiger, 2008), in which borderline personality disorder was found to correlate with high Neuroticism, low Agreeableness, and low Conscientiousness across 16 studies.

Correlational studies of NSSI and the Five Factor Model have produced mixed results. Brown (2009) found NSSI to be associated with the typical borderline pattern of high Neuroticism, low Agreeableness and low Conscientiousness. However, Goldstein et al. (2009) found NSSI to correlate positively with Neuroticism and Openness to Experience but not with Agreeableness or Conscientiousness. In clinical populations, self-injurers have lower Extraversion than non-self-injurers (Claes et al., 2010), and Claes et al. (2004) found low Extraversion and elevated Neuroticism among self-injuring patients. These disparate results may be due to sampling idiosyncrasies, and to the fact that brief measures of the big five personality traits were used. Brown used a 50-item questionnaire with items drawn from the International Personality Item Pool (Goldberg et al., 2006), Goldstein et al. used the Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003), and Claes et al. used the 60-item NEO-FFI (Costa & McCrae, 1992). None of these brief instruments are capable of measuring the specific facets of the Five Factor Model, which is unfortunate because the Five Factor Model may not be the optimal scheme for characterizing NSSI. Traits like impulsiveness and angry hostility are important contributors to borderline personality (Goma-y-Freixanet, Soler, Valero, Pascual, & Sola, 2008) that are treated as mere facets of Neuroticism and not as full fledged dimensions of personality (Zuckerman, 2008). Furthermore, the four impulsivity-related facets of the Five Factor Model are distributed across three different domains (Whiteside & Lynam, 2001). Given that NSSI is a diagnostic criterion of borderline personality disorder, an examination of the phenomenon at the facet level is important. The Five Factor Model is a dominant view of normal-range personality, and specific combinations of its facets appear to also characterize the DSM-IV-TR personality disorders to a degree of specificity that is not possible using the domain scores (Samuel & Widiger, 2008). Procedures have been developed for optimally combining the facet scores from the 240-item NEO PI-R (Costa & McCrae, 1992) as a way of psychometrically identifying individuals with personality disorder features (Miller, Bagby, Pilkonis, Reynolds, & Lynam, 2005; Miller et al., 2008). The need for a facet level analysis of NSSI is demonstrated by results from a subsample of 41 patients in the Claes et al. (2004) study who completed the NEO PI-R in addition to the NEO-FFI. Among that small sample of eating disorder patients, the self-injurers had scores indicating that they were significantly more anxious and willing to please, but less cheerful, efficient and ambitious than their non-self-injuring counterparts.

This study was done to examine the self-defeating, excessive and potentially addictive behaviors that occur in self-injurers from a nonclinical population, and to characterize their personality within the Five Factor Model. It was predicted that students who practice NSSI would be more likely to have substance use problems, eating disorder symptoms, and personality characteristics typical of borderline personality disorder.

2. Method

2.1. Participants

Participants were introductory psychology students at a small Canadian university. The sample consisted of 122 women and 31 men aged 17 through 25 years (M = 19.0, SD = 1.78). Twenty-five additional participants who were older than 25 or who did not report their age were excluded from the analysis. Data from another four participants were excluded because they failed to complete either the SPQ or NEO PI-R.

2.2. Procedure

All procedures were reviewed by the ethics review committee of the University of New Brunswick. Students were recruited from introductory Psychology courses for course credit. Questionnaires were completed anonymously in supervised group sessions with informed consent. No students were excluded from participating in the study. Written instructions emphasized that the signed consent forms would be separated from the questionnaires to ensure confidentiality.

2.3. Materials

2.3.1. Neuroticism, Extraversion and Openness Personality Inventory – revised

The NEO PI-R (Costa & McCrae, 1992) is a reliable and valid self-report that measures the domains and facets of the Five Factor Model. The test contains 240 self-referent statements that are rated on a 5-point scale from "strongly disagree" to "strongly agree". Raw domain and facet scale scores were used in all analyses. Borderline personality symptom counts were calculated for each participant using the formula provided by Miller et al. (2005). These scores were then compared against the Miller et al. (2008) norms for American adults using the 65, 70, and 75 T-score cutoffs.

2.3.2. Shorter PROMIS Questionnaire

The SPQ (Christo et al., 2003) is a self-report of excessive and potentially addictive behaviors, including use of alcohol, illegal drugs, prescription drugs, gambling, sex, dominant and submissive intimate relationships, shopping, food binging, starvation, caffeine, work, exercise, and dominant and submissive compulsive helping. Each of the 16 subscales contains 10 self-referent statements that respondents endorse on a 6-point scale from 0 (not like me) through 5 (like me). As suggested by MacLaren and Best (2010), we replaced the word *nicotine* with *cigarettes* in all of the items of the tobacco scale, but results using this modified smoking scale are not reported because student norms for it have not been established. Following the recommendation of Christo et al. (2003), participants were classified as having a *significant problem* with one of the potentially addictive behaviors if they had a score which fell above the 90th percentile according to the MacLaren and Best (2009) norms.

2.3.3. Deliberate Self Harm Inventory

The DSHI (Gratz, 2001) is a standardized self-report that contains 16 forms of NSSI. In order to reduce social desirability and response bias, the items of the DSHI (Gratz, 2001) were embedded within the SPQ. Every tenth item was one of the DSHI items and they were presented with the same 6-point scale as the other SPQ questions.

2.3.4. Classification criteria

Participants who reported having self-injured were segregated into Low NSSI and High NSSI groups. We used 10 incidents of NSSI behavior as a criterion because "...it is considered to be a clinically meaningful cutoff for NSSI" (Gratz & Roemer, 2008). We added the item "I have intentionally hurt myself more than ten times in my life (not including suicide attempts)". The 10 incident criterion has been empirically supported by Zanarini et al. (2006), as has the criterion that three or more different types of NSSI behavior should be considered an indicator of severe NSSI. We therefore decided to also use the admission of three different types of NSSI as a criterion for classification into the High NSSI group. An open-ended question was provided at the end to allow participants to write in any forms of self-harm that were not covered by other