



## Exploring the relationship between non suicidal self-injury and borderline personality traits in young adults



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### ABSTRACT

Non-suicidal self-injury (NSSI) is highly prevalent during late adolescence and young adulthood. There is some evidence of a link between NSSI and Borderline Personality Disorder (BPD), but little is known about the association between BPD traits and the various functions that maintain NSSI. The main purpose of this study was to explore the association between borderline personality traits and NSSI functions in a sample of college students. We also compared NSSI functions in college students who engaged in NSSI to those in an age-matched sample of BPD patients. This study included a total of 238 college students and 36 BPD patients. Participants were asked to complete a number of clinical measures. In the non-clinical sample, BPD features were more pronounced in the presence of NSSI, and we observed a differential relationship between NSSI functions and psychopathological BPD-traits. The NSSI clinical variables most strongly associated with BPD were frequency, variety of methods and severity, but not age of onset. Our results provide new information on the relationship between BPD and NSSI in young adults, and could be used to improve the early detection of vulnerable BPD-individuals and in planning NSSI treatment.

### 1. Introduction

Non-suicidal self-injury (NSSI) is a growing public health concern, recently included as a diagnostic entity in section III of Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a condition requiring further study (American Psychiatric Association, 2013). It refers to deliberate destruction of body tissue without lethal intention, including self-cutting, burning or beating behaviors (Nock, 2010). Onset of NSSI usually occurs in adolescence, between the ages of 11 and 15 (Glenn and Klonsky, 2011; Hankin and Abela, 2011; Klonsky, 2011), and is highly prevalent during late adolescence and young adulthood (García-Nieto et al., 2014; Jacobson and Gould, 2007). In this regard, the prevalence of NSSI is 13–45% among adolescents (Bentley et al., 2014; Lloyd-Richardson et al., 2007; Muehlenkamp et al., 2012; Nock, 2010; Ross and Heath, 2002), and 4–28% in adults (Bentley et al., 2014; Briere and Gil, 1998).

Repetitive NSSI has been associated with poor psychological and social function (Skegg, 2005) and has been linked to (future) suicidal behavior (Guan et al., 2012; Victor and Klonsky, 2014). Importantly, NSSI is associated with comorbid psychological disorders, including depression, anxiety and Borderline Personality Disorder (BPD) (Klonsky et al., 2003; Nock et al., 2006).

The association between NSSI and BPD is especially significant as most BPD patients engage in NSSI (49–90%; Glenn and Klonsky, 2013; Selby et al., 2012). BPD remains a difficult-to-treat mental disorder, is associated with significant suffering and disability, and carries important social and economic costs (Lieb et al., 2004; Salvador-Carulla et al., 2014). Similar to NSSI, BPD symptoms peak during late adolescence and young adulthood (American Psychiatric Association, 2013; Crowell et al., 2009). However, NSSI is more prevalent than the diagnoses of BPD (4–28% and 3–6% respectively; Grant et al., 2008; Trull et al., 2010), which highlights the importance of examining NSSI

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independently of BPD during these age periods.

While the association between NSSI and BPD has been reported consistently in many studies with clinical (Kleindienst et al., 2008; Sadeh et al., 2014) and community samples (Brickman et al., 2014; Cerutti et al., 2011), much less is known about the factors underlying this association (or absence thereof). This may be partly due to lack of systematic assessment of BPD symptoms in many NSSI studies, or because many other studies used samples composed entirely by BPD patients (for an exception, see Vega et al., 2017, 2015). In this scenario, it is difficult to determine which findings are relevant for NSSI, for BPD, or for both (Selby et al., 2015).

Studies that directly compare BPD patients with NSSI to those patients without suggest that greater severity and a large number of different NSSI methods are associated with BPD symptoms (e.g., Jacobson et al., 2008; Sadeh et al., 2014; Sansone et al., 2002; Turner et al., 2015). For instance, Cerutti et al. (2011) found that the presence and frequency of NSSI were associated with BPD symptoms in a community sample of adolescents. Among college students, those meeting an established cutoff score of significant BPD symptoms exhibited higher rates of self-cutting and burning than those who scored below that threshold (Bracken-Minor and McDevitt-Murphy, 2014). Furthermore, in a broad nonclinical sample of adults, NSSI appeared to be associated with a larger number of BPD symptoms (and with symptoms of other personality disorders) (Klonsky et al., 2003).

A functional point of view (which emphasizes variables that may be conceptualized as motivating or reinforcing the behavior) is also important in understanding this association (Chapman et al., 2006; Klonsky, 2007; Nock and Prinstein, 2004). The primary functions of NSSI are automatic (*i.e.*, intrapersonal) or social (*i.e.*, interpersonal) (Bentley et al., 2014; Klonsky, 2007; Klonsky et al., 2015). Intrapersonal functions include motivations associated with changes in one's internal state, such as in emotional state or thoughts (*i.e.* emotion relief, self-punishment, feeling generation, to avoid suicide thoughts or marking distress). Interpersonal functions involve changes in the external environment (*i.e.* interpersonal influence, interpersonal boundaries, peer-bonding, self-care, revenge, sensation seeking, and toughness) (Klonsky, 2007; Klonsky and Glenn, 2009; Klonsky and Olino, 2008).

NSSI shows similar functions in clinical and nonclinical samples (Klonsky, 2007; Lindholm et al., 2011; Sadeh et al., 2014), with intrapersonal functions being more common than interpersonal functions in adolescents (Zetterqvist et al., 2013) and adults (Andover, 2014). Converging evidence suggests that the most common function is affect regulation, which is showed by more than 90% of individuals (Chapman et al., 2006; Klonsky and Glenn, 2009), although most self-injurers endorse multiple NSSI functions. For instance, in a high school sample, self-injurers endorsed an average of 4.76 functions for NSSI (Lloyd-Richardson et al., 2007). In this vein, endorsing a higher number of NSSI functions appears to be associated with increased risk of psychopathology, particularly BPD (Brausch et al., 2016; Victor and Klonsky, 2014).

Current evidence indicates that desire to reduce tension, alleviate aversive emotions, and punish oneself are commonly endorsed functions by BPD individuals (Kleindienst et al., 2008). Since emotional dysregulation is a core feature of BPD (Crowell et al., 2009; Glenn and Klonsky, 2009; Kuo et al., 2015; Leichsenring et al., 2011), self-injury in these patients can be understood as a recurrent strategy to alleviate acute negative affect (Brown et al., 2002; Chapman et al., 2006; Linehan, 1993; Selby and Joiner, 2009). In this sense, a follow-up study of BPD patients found that those with more lifetime episodes of NSSI had more internal reasons for NSSI after 16 years than those with fewer episodes, suggesting that intrapersonal NSSI functions may promote this behavior in individuals with BPD (Zanarini et al., 2013). In non-clinical settings, self-injurers with BPD (based on a screening) reported higher self-punishment, anti-suicide, and anti-dissociation NSSI functions than participants who scored below the screening cut-off

(Bracken-Minor and McDevitt-Murphy, 2014). Thus, self-harm functions appear to be important for the clinical presentation of NSSI in the context of BPD.

Nonetheless, to our knowledge, only one study has investigated how NSSI functions are related to particular BPD symptoms (Sadeh et al., 2014). In this study of treatment-seeking adolescents and young adults, the authors considered BPD as a multidimensional disorder and found that affective dysregulation symptoms were positively related to intrapersonal functions, while BPD disturbed relatedness symptoms were positively related to interpersonal functions. These findings indicate that intrapersonal and interpersonal NSSI functions are related to different clusters of BPD symptoms. However, no previous studies have examined whether NSSI functions are correlated with specific BPD symptoms in a nonclinical setting.

While community-based studies include participants with a limited range of BPD symptoms, analyzing this relationship in young non-clinical samples would help us better understand the complex and yet unclear translational processes that contribute to BPD (Beauchaine et al., 2009). The DSM-IV BPD criteria include diverse symptoms that differ in terms of their implications for an individual's level of borderline personality pathology and level of functioning (Ellison et al., 2016; Skodol et al., 2002a, 2002b). In this regard, there thought to be a heterotypical continuum between NSSI and BPD in which NSSI emerges prior to BPD in some individuals (Crowell et al., 2009). Furthermore, understanding which NSSI functions are associated with certain BPD features may be important for early detection and intervention in self-injurers with a high-risk trajectory. In this sense, identifying and assessing NSSI may be easier in academic contexts than BPD, which is a very heterogeneous and misdiagnosed disorder (Biskin, 2013). This information could be helpful for clinicians when planning treatment for BPD patients. Also, examining how NSSI functions are associated with specific BPD symptoms in nonclinical samples could also help to better understand the diagnosis independence of NSSI proposed in the current version of DSM (American Psychiatric Association, 2013; Selby et al., 2015).

The purpose of this study is threefold. First, we aimed to determine the incidence of NSSI in a sample of young adults and its relationship with the presence of psychopathology. Second, we explore the relationship between self-reported BPD symptoms and NSSI functions in a nonclinical community sample of college students. To that end, we used a dimensional approach proposed as more appropriate for assessing BPD than a categorical approach (Fonagy et al., 2015; Stepp et al., 2010). In this line, previous research defined a 3-factor model of BPD symptom dimensions (Andión et al., 2013; Sanislow et al., 2002): affect dysregulation (involving affective instability, inappropriate anger and fear of abandonment), disturber relatedness (involving unstable relationships, identity disturbances, feelings of emptiness and stress-related quasi psychotic states), and behavioral dysregulation (associated with a tendency to engage in impulsive and suicidal behavior). This model has been used in previous studies testing the relationship between NSSI and BPD in clinical (Sadeh et al., 2014) and nonclinical samples (Brickman et al., 2014). Our third aim was to compare NSSI functions and methods endorsed by college students and an age-matched group of BPD patients. Given the lack of studies comparing NSSI in nonclinical populations and samples of young adults with BPD (see exception: Turner et al., 2015), this comparison will help us to better understand the presentation of NSSI with and without BPD.

Based on previous findings we predicted that nonclinical sample of college students performing NSSI will present high scores on symptom dimensions of BPD, more BPD symptoms based on DSM-IV criteria, and more anxious and depressive state-symptoms (e.g., Gratz et al., 2009; Klonsky et al., 2003; Zanarini et al., 2008). We also hypothesized that intrapersonal NSSI functions are more relevant for NSSI in college students who report higher scores for traits associated with affect dysregulation, and conversely that interpersonal functions are more relevant in young adults with high scores in traits associated with

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