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Prospective Prediction of Nonsuicidal Self-Injury: A 1-Year Longitudinal Study in Young Adults

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Nonsuicidal self-injury (NSSI) has become a significant public health problem. Although numerous studies have examined cross-sectional psychological correlates of NSSI, there has been little research examining predictors of NSSI over time. The present study examined cross-sectional and longitudinal correlates of NSSI in 81 young adult self-injurers (*M* age = 19, 74.1% female, 51.9% Caucasian), 51 of whom were followed up 1 year later. At baseline, participants completed self-report measures of NSSI, Axis-I disorders, borderline personality disorder (BPD), and impulsivity, as well as an implicit measure of NSSI attitudes and identity. One year later, participants completed a Timeline Followback Method whereby they indicated their engagement in NSSI over the previous 12 months. Analyses replicated many known cross-sectional correlates of NSSI, including symptoms of several Axis-I disorders and BPD. However, many of these same variables failed to predict the course of NSSI over the 1-year follow-up. The only variables to prospectively predict NSSI were past NSSI (i.e., frequency, methods, and recency of NSSI), participants' behavioral forecast of their engagement in future NSSI, and BPD features. Findings suggest that many cross-sectional correlates of NSSI may not be useful for predicting subsequent NSSI. Instead, NSSI severity and BPD features appear to best predict continued engagement in NSSI.

Keywords: nonsuicidal self-injury; self-injurious behavior; deliberate self-harm; longitudinal

NONSUICIDAL SELF-INJURY (NSSI) REFERS to a class of behaviors defined by deliberate, direct, and self-inflicted tissue damage without suicidal intent and for purposes not socially sanctioned (e.g., skin cutting and burning; Favazza & Conterio, 1989; International Society for the Study of Self-Injury, n.d.; Nock & Prinstein, 2004; Whitlock, Eckenrode, & Silverman, 2006). Lifetime rates of NSSI are particularly high among adolescents (14–15% in high school samples; Laye-Gindhu & Schonert-Reichl, 2005; Ross & Heath, 2002) and young adults (17% or more in college samples; Gratz, 2001; Whitlock et al., 2006). These high rates are alarming because NSSI is associated with many psychological disorders and may increase risk for suicide (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Favazza & Conterio, 1989; Klonsky, Oltmanns, & Turkheimer, 2003; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006).

Understanding the psychological correlates of NSSI is the first step toward identifying factors that cause and maintain the behavior. To date, a large body of literature has addressed cross-sectional correlates of NSSI. Replicated findings include associations between NSSI and depression, anxiety, eating disorders, substance-related disorders, and a

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variety of personality disorders, especially borderline personality disorder (BPD; Andover et al., 2005; Favazza & Conterio, 1989; Klonsky et al., 2003). NSSI is also related to negative emotionality (Klonsky et al., 2003) and emotion dysregulation (Gratz & Roemer, 2008), which are traits common to many clinical disorders, and therefore may explain NSSI's relationship to these diagnostic variables. In addition, although evidence linking NSSI and impulsivity is mixed, recent studies have found that NSSI is related to self-reported measures of impulsivity (Janis & Nock, 2009), and specifically to certain impulsive traits, such as urgency (i.e., the tendency to commit rash action when faced with negative emotions) and lack of premeditation (i.e., the inability to delay action in order to deliberate and plan; Glenn & Klonsky, 2010).

This growing body of data has led many to highlight the roles of known psychological correlates of NSSI, such as depression, anxiety, BPD, and impulsivity, in the maintenance and treatment of NSSI (Favazza, DeRosear, & Conterio, 1989; Klonsky & Muehlenkamp, 2007; Nixon, Adulakh, Townsend, & Atherton, 2008; Nock, Temper, & Hollander, 2007). Implicit is the assumption that cross-sectional correlates of NSSI are likely to play important roles in the course of NSSI over time, and in predicting who is likely to continue or stop engaging in NSSI. However, this assumption has not been addressed empirically. Almost all of the literature on NSSI correlates is cross-sectional, and the field lacks knowledge about which psychological variables predict continuation or cessation of NSSI over time.

There are good theoretical reasons why some of these cross-sectional correlates may be important for predicting a longitudinal course of NSSI. For example, insofar as emotion regulation is the main motivation for engaging in NSSI (Klonsky, 2007), it stands to reason that disorders characterized by intense emotional distress such as depression, anxiety, and BPD could help maintain the behavior over time. In addition, greater impulsive urgency, which reflects a tendency to act rashly when experiencing negative emotions, could indicate a vulnerability to continued engagement in maladaptive emotion regulation methods such as NSSI. Further, substance use (Wills & Shiffman, 1985) and bulimia (Sim & Zeman, 2005), two behavioral disorders used in part for emotion regulation purposes, could indicate increased propensity to engage in other maladaptive behaviors to regulate emotion such as NSSI, and thus an increased likelihood of continued NSSI.

Unfortunately, there has been little data examining these aforementioned variables as potential predictors of NSSI. To our knowledge only three studies have examined predictors of an NSSI course over time.[1] Yates, Tracy, and Luthar (2008) demonstrated that, for female adolescents only, parental criticism predicted the onset of NSSI within the subsequent 6 years. Further analyses revealed that perceived parental alienation mediated this relationship. However, these variables did not prospectively predict the frequency of NSSI. A second study examined the role of temperament in predicting future NSSI in a sample of female patients with BPD enrolled in a clinical trial (Chapman, Derbidge, Cooney, Hong, & Linehan, 2009). Findings suggest that, after controlling for prestudy NSSI, none of the temperament variables significantly predicted NSSI engagement over the subsequent 12-month period. Finally, in a treatment-seeking sample of adolescents, Guerry and Prinstein (2010) found that depressive symptoms were inversely related to NSSI remission in the 6 months following hospital discharge. Further, negative attributional style and stressful life events interacted to predict more NSSI between 9 and 18 months posttreatment.

Taken together, these three studies provide important, albeit preliminary, evidence regarding prospective predictors of NSSI. Interestingly, neither Yates et al. (2008) nor Guerry and Prinstein (2010) identified a robust predictor of future NSSI. Yates et al. found that perceived criticism predicted initiation of NSSI for girls but not boys. Guerry and Prinstein found that depression and the interaction between negative attributional style and stressful life events predicted NSSI during some follow-up intervals but not others. Only Chapman et al. (2009) identified a strong predictor, finding that past NSSI was the best predictor of future NSSI, a result consistent with the literature on prediction of future suicide attempts (Lewinsohn, Rohde, & Seeley, 1994; Prinstein et al., 2008). Clearly, additional research on this topic is needed.

The current study sought to extend previous research on the prospective prediction of NSSI in a number of ways. First, this study examined the course of NSSI in a nonclinical sample, as compared

[1] Two additional studies that did not distinguish between nonsuicidal and suicidal self-injurious behaviors are not described here because it is not possible to determine whether their findings apply to NSSI, attempted suicide, or both (Brown, Comtois, Linehan, Murray, & Chapman, 2009; Janis & Nock, 2008). In addition, we did not include a longitudinal study conducted by Hilt, Nock, Lloyd-Richardson, and Prinstein (2008), which demonstrated that NSSI at Time 1 predicted increases in relationship quality with fathers at Time 2, because it did not include measurement of NSSI at Time 2, and thus the course of NSSI, and predictors of NSSI course, could not be examined.