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Functions of nonsuicidal self-injury in Singapore adolescents: Implications for intervention

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ABSTRACT

The functions of nonsuicidal self-injury (NSSI) and DSM-IV-TR diagnoses were examined in a sample of thirty ethnic adolescents followed up in a local child and adolescent psychiatric clinic in Singapore. The most commonly endorsed function of NSSI on the Functional Assessment of Self-Mutilation scale was Automatic Negative Reinforcement (A-NR) and the least being Social Negative Reinforcement (S-NR). Participants were more likely to be diagnosed as having Major Depression Disorder. Depressed adolescents did not differ from non-depressed counterparts in their endorsement of social reinforcement functions. The results suggest that specific psychosocial interventions may help address both automatic and social functions of NSSI in Singapore adolescents.

1. Introduction

Nonsuicidal self-injury (NSSI) represents a set of maladaptive coping behaviors carried out by individuals in response to intense emotional distress, often leading to multiple emergency room attendances. It affects a significant number of adolescents and evidence suggests that the phenomenon is increasing over time (Giletta et al., 2012; Olfson et al., 2005; Whitlock et al., 2006; Wilkinson, 2013). Despite its extensive prevalence, little clinical significance has been given to NSSI, while it continues to impair and remain under-detected among adolescents (Hawton and James, 2005).

Garrison et al. (1993) examined the prevalence of existing differential diagnoses associated with NSSI and found that Major Depressive Disorder (MDD) or a presence of depressive symptoms within various psychiatric diagnoses predicted NSSI. Among clinical samples of adolescents, approximately 90% of participants who engaged in NSSI have some form of depressive disorder (e.g. Jacobson et al., 2008; Kumar et al., 2004). Elevated anxiety (Hawton et al., 2002; Winchel and Stanley, 1991), poor emotional regulation and higher levels of emotional reactivity (Linehan, 1993) were also identified as a precursor to self-injury. A separate investigation by Nock et al. (2006) found that out of 89 adolescent inpatients who engaged in NSSI in the past 12 months, 87.6% met criteria for a DSM-IV Axis I diagnosis, including externalizing (62.9%), internalizing (51.7%), and substance use (59.6%) disorders. Most adolescents assessed also met the criteria for a DSM-IV Axis II personality disorder (67.3%), a frequent and significant comorbidity of individuals who engage in NSSI (Brickman et al., 2014; Sadeh et al., 2014). However, some studies (Glenn and Klonsky, 2011; Odelius and Ramklint, 2014) posited that NSSI could also occur independently of personality disorders including Borderline Personality Disorder (BPD).

A review of 18 studies on deliberate self-injury by Klonsky (2007) posited that self-injury served the functions of anti-dissociation, interpersonal-influence, anti-suicide, sensation-seeking, and setting interpersonal boundaries. Earlier research has identified two main functions – automatic and social – with each function serving as either a positive or negative reinforcement (Nock and Prinstein, 2004). Findings have suggested that each specific type of emotional or psychological distress has its own corresponding behavioral function of NSSI. Using a four-factor model, the authors postulated that social perfectionism was associated with social reinforcement functions while depressive symptoms were associated with both automatic and social reinforcement functions. Individuals who experienced a numbing of feelings or a lack of emotional reactivity might engage in NSSI in order to feel something, even if it was pain (automatic positive

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reinforcement), while those who could not tolerate or regulate intense negative emotions might engage in NSSI to remove or reduce such feelings (automatic negative reinforcement) (Brown et al., 2002; Penn et al., 2003; Rodham et al., 2004).

Nock and Prinstein (2004) previously examined 108 adolescents aged 12 to17 years old who had engaged in NSSI behavior and found that 53% of participants endorsed automatic reinforcement functions to achieve emotional regulation. In contrast, only 24% of the sample endorsed social reinforcement functions, which serve to modify and manipulate one's social environment. Few studies have examined the difference in the endorsement rates of automatic and social reinforcement functions between clinically depressed and non-depressed adolescents. Assessing the various functions that NSSI serve among adolescents could guide intervention planning as well as the formulation of specific strategies for treating members of this population. As NSSI in community samples has not been systematically explored in Singapore, the present study used a clinical sample to examine NSSI and its functions in local ethnic adolescents. It is hypothesized that adolescents who engaged in NSSI were more likely to have Major Depressive Disorder (MDD) as a primary psychiatric diagnosis and that depressed adolescents would have a higher propensity to endorse automatic reinforcement than social reinforcement functions. It is also hypothesized that depressed adolescents would not differ from non-depressed counterparts in their endorsement of social reinforcement functions.

2. Method

Participants were involved in an earlier study on NSSI among Singaporean adolescents (Tan, 2010). However, because the current study examines a unique set of hypotheses pertaining to the relationship between functions of NSSI and various psychiatric diagnoses, results were thus reported separately.

A cross-sectional approach was adopted to identify 30 adolescent participants who sought treatment at a tertiary child and adolescent psychiatric clinic within the Institute of Mental Health, and have previously engaged in NSSI behavior regardless of their presenting conditions. Participants were screened for childhood psychopathology using Child Behavior Checklist (CBCL; Achenbach and Rescorla, 2001), and interviewed by attending child psychiatrists who made the clinical diagnoses based on the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000). For the purpose of this study, any form of self-harm or self-mutilation without suicide intent and was not socially sanctioned, would be regarded as NSSI (Klonsky, 2007). NSSI behavior and mechanisms of actions were elicited using the Functional Assessment of Self-Mutilation (FASM; Lloyd-Richardson et al., 1997). The FASM is a self-report instrument that evaluates the behavioral functions and characteristics of NSSI including frequency of NSSI behavior, age of onset and degree of pain experienced on a Likert scale ranging from 1 (no pain) to 4 (severe pain). It has been used in psychiatric samples and has demonstrated adequate levels of internal consistency in assessing both moderate and severe forms of NSSI (r = .65 to .66) (Guertin et al., 2001). The study was approved by the hospital's ethics review board. Assent and consent were obtained from the adolescents and parents respectively.

3. Results

The mean age of participants was 16.30 years (SD = 1.70), 60% of participants were females, 76% were from intact families, and 83% were from secondary schools (middle to high school equivalent). Most of the participants were Chinese (80%), followed by Malays (10%), Indians (3%) and other ethnicities (7%). This ethnic distribution approximates the national demographics of Singapore (Singapore Department of Statistics, 2009) with a slight over-representation of Chinese participants. The demographic characteristics of participants are summarized in Table 1. A complete list of frequency of methods employed, degree of fore-planning and amount of pain experienced are included in Tan (2010).

Fifty percent of the participants were clinically depressed while the other half had DSM-IV-TR psychiatric diagnoses that included Acute Stress Disorder (13.3%), Conduct Disorder (13.3%), Obsessive Compulsive Disorder (10%), other Anxiety Disorders (10%), and Attention Deficit Hyperactivity Disorder (3.3%). None of the participants received a diagnosis of BPD. Majority of participants (83.3%) did not use alcohol or illicit drugs prior to NSSI.

Table 2 indicates that the most commonly endorsed reasons for NSSI were “To stop bad feelings” (86.7%) and “To relieve feeling numb or empty” (83.3%), both serving the Automatic Negative Reinforcement (A-NR) function to reduce bad feelings. Reasons that constitute the Automatic Positive Reinforcement (A-PR) function of NSSI to produce good feelings, were also heavily validated with 80.0% of participants attesting both “To feel relaxed” and “To feel something even if it was pain”, and 73.3% of participants selecting “To punish yourself”. In contrast, the social reinforcement functions were relatively less supported. For participants who endorsed social reinforcement functions, 60% indicated “to avoid school, work, or other activities” thus indicating a Social Negative Reinforcement (S-NR) function. Seventy percent of participants chose “To get control of a situation” and “To give yourself something to do when alone” as reasons for NSSI, hence constituting a Social Positive Reinforcement (S-PR) function.

A multivariate analysis of variance (MANOVA) was run with Group (depressed vs. non-depressed) as the factor, and automatic and social reinforcement scores as the measures. The type 1 error rate for this analysis was controlled at .05. Analyses revealed that depressed participants had significantly higher automatic

Table 1
Demographic characteristics of participants.

Demographic characteristic	F (N = 30)	%
Ethnicity		
Chinese	24	80.0
Malay	3	10.0
Indian	1	3.3
Other	2	6.6
Education		
Primary	2	6.6
Secondary	25	83.3
Junior college	3	10.0
Polytechnic	0	.0
Living with		
Mother & father	21	70.0
Mother only	4	13.3
Father only	1	3.3
Mother and stepfather	2	6.6
Other	2	6.6
Mother's Education		
Primary	6	20.0
Secondary	17	56.7
Junior college	3	10.0
Polytechnic	2	6.6
University	2	6.6
Father's Education		
Primary	5	16.7
Secondary	14	46.7
Junior college	3	10.0
Polytechnic	5	16.7
University	3	10.0