

A Comparison of Invalidating Family Environment Characteristics Between University Students Engaging in Self-Injurious Thoughts & Actions and Non-Self-Injuring University Students

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Abstract Individuals experiencing non-suicidal self-injurious (NSSI) thoughts only are greatly overlooked by current research. This investigation aimed at determining how three groups of university students differed in their reported quality of childhood relationships with parents, and histories of physical and sexual abuses. These groups included students experiencing only NSSI thoughts ($n = 126$), students engaging in NSSI actions ($n = 90$), and students exhibiting neither ($n = 1,080$). Results showed that individuals experiencing NSSI thoughts only, and those engaging in NSSI actions reported poorer relationships with parents and more physical abuse than the No NSSI group; however, NSSI thoughts and NSSI action groups had similar outcomes to one another for most variables. These findings suggest that individuals experiencing only NSSI thoughts share similar negative childhood environments associated with engagement in NSSI action and that they should be included in future research, particularly investigations aimed at identifying protective factors that could prevent them from engaging in NSSI.

Keywords Non-suicidal self-injury · Self-injurious thoughts · Parent–child relationships · Child maltreatment

Introduction

Non-suicidal self-injury (NSSI) is defined as the purposeful destruction or alteration of body tissue severe enough for tissue damage to occur, performed without suicidal intent, using methods that are not sanctioned by society (Nixon and Heath 2009). Research has shown NSSI to be prevalent in both clinical (rates ranging from 38 to 67%) and community populations (rates spanning from 4 to 38%) of college/university aged students (see Heath et al. 2009 for a review of both populations). NSSI behaviors not only have a significant negative impact on the physical health (e.g., risk of accidental death, infection; Muehlenkamp 2006) and social well-being (e.g., social isolation, interpersonal difficulties; Adrian et al. 2010; Whitlock et al. 2007) of individuals engaging in them but also involve high costs to the healthcare system (e.g., Cloutier et al. 2010). Due to both individual and societal risks facing youth who engage in NSSI, these behaviors have been the focus of various research investigations over the past decade, including those focused on identifying risk factors for the development of the behavior (see Klonsky and Glenn 2009), and on examining the associations between important relationships and NSSI in normative samples (e.g., Bureau et al. 2010; Levesque et al. 2010).

Surprisingly, despite the abundance of NSSI literature, little research attention has been dedicated to individuals who experience the thoughts or ideations underlying NSSI but ultimately refrain from acting on them. These individuals are of particular interest as they may be at an increased risk for ultimately engaging in NSSI action. Of

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particular note, there is a lack of research regarding the potential for shared risk factors between NSSI thoughts and NSSI actions, which, logically, should be related.

Although this lack of research could be due to the distinction between thought and action inherent in the definition of NSSI itself, there are discrepancies in recent literature suggesting that NSSI thoughts are becoming increasingly important for understanding NSSI. Writings regarding NSSI treatments readily acknowledge the concept of ideations or thoughts underlying the behavior (Lynch and Cozza 2009; Nixon et al. 2009), and still other investigations have examined how some individuals resist acting on their self-injurious thoughts (Klonsky and Glenn 2008). Moreover, several assessment instruments recently have been developed to include the measurement of both NSSI thoughts and NSSI actions (e.g., *The Ottawa Self-injury Inventory*, Cloutier and Nixon 2003; *The Self-injurious Thoughts and Behaviors Interview*, Nock et al. 2007; *The Alexian Brothers Urge to Self-injure Scale*, Washburn et al. 2010). Lastly, recent research also has compared participants engaging in NSSI thoughts with or without NSSI actions, showing that the NSSI thoughts with action group reported NSSI thoughts that were more severe and of briefer duration compared to NSSI thoughts that occurred without actions (Nock et al. 2009). Emotional contexts of the two variations of behavior also differed, with the emotions reported most often with NSSI thoughts (specifically feeling worthless or sad) decreasing the odds of engaging in NSSI action. Other emotions felt during NSSI thoughts (fear/anxiety, feeling overwhelmed) were not predictive of NSSI action. These results suggest that NSSI thoughts occurring with and without NSSI action may be inherently different and justify further research regarding the relations between these constructs.

The current manuscript endeavours to extend Nock and his colleagues' investigation by addressing additional comparisons of NSSI thoughts occurring with and without NSSI actions. Specifically, this study compares NSSI thoughts with or without actions based on their relative associations with established risk factors for NSSI. Linehan's theory (1993), regarding the role of invalidating family environments in the development of NSSI, will be used as a theoretical framework for this investigation. Overall, this study strives to determine how NSSI thoughts occurring with or without NSSI action may differ based on characteristics of invalidating family environments.

Invalidating Family Environments and NSSI Behaviors

Linehan (1993) posited one of the most well known theories for the development of NSSI behaviors, arguing that invalidating relationships with caregivers during childhood may influence the likelihood of engaging in NSSI

behaviors in adolescence. Specifically, invalidating relationships with caregivers can lead to deficits in emotion regulating and social skills. These deficits, in turn, may increase the likelihood of the adolescent adopting negative coping strategies, including NSSI behaviors, to deal with distress throughout adolescence. More recently, Yates (2004) has built upon Linehan's theory to posit a developmental psychopathology model of NSSI in which NSSI behaviors develop as an adaptation to trauma experienced in childhood. Common to both theories is the notion that NSSI behaviors develop in response to emotion regulation deficits resulting from negative childhood interactions and child maltreatment.

Relational Characteristics of Invalidating Family Environments

Intuitively, relationships with invalidating caregivers are likely to be marked by some degree of emotional and/or physical neglect, poor overall relationship quality, and disrupted or problematic attachment relationships. A series of studies by Gratz and colleagues have linked NSSI actions with lack of parental care and parental control in undergraduate university student samples (Gratz 2006; Gratz et al. 2002; Gratz and Chapman 2007). Similarly, Bureau and colleagues demonstrated that university students who had engaged in NSSI action reported less parental care and more parental control than a comparison group of non-self-injurers (Bureau et al. 2010). These findings, particularly those concerning lack of parental care, are in line with other research regarding the influences of emotional unavailability and physical neglect on the development of NSSI actions (e.g., Lyons-Ruth et al. 2009; van der Kolk et al. 1991). Research also has indicated that overall poor quality of parent-child relationships, especially parental relationships characterized by lack of trust, poor communication, and feeling alienated from parents, are linked with NSSI behaviors during adolescence (Hilt et al. 2008). These findings have been replicated in both high school (Yates et al. 2008) and university aged samples (Bureau et al. 2010). Of note, a feeling of alienation was the sole significant predictor of NSSI action after accounting for shared variance of other parent-child relationship variables (Bureau et al. 2010), and was related to higher frequency of NSSI actions in a male subset of self-injurers (Yates et al. 2008). Thus, alienation is perhaps a better indicator of invalidating family environments than either lack of trust or poor communication.

Finally, research has shown that insecurity of parent-child attachment relationships, which are more likely in invalidating family environments, is associated with engaging in NSSI actions (Gratz et al. 2002; van der Kolk

et al. 1991). Past research has revealed that NSSI also is associated with characteristics of more traumatic attachment relationships (Bureau et al. 2010). In this study, researchers found that a sense of failed protection from parents, fear of abandonment by parents, and anger towards parents were associated with having engaged in NSSI; in particular, fear of abandonment by parents was a significant predictor of NSSI action in this investigation. Collectively, these features are believed to underlie unresolved attachment relationships, which are marked by “relational trauma” experienced in childhood relationships with parents (see Schuder and Lyons-Ruth 2004; West et al. 2000), and would be expected within highly negative or invalidating family contexts.

Childhood Abuse and NSSI

Theories of the association between sexual abuse and NSSI are long-standing (e.g., Noll et al. 2003; Yates 2004), and have been supported by a number of empirical investigations (e.g., Paivio and McCulloch 2004; van der Kolk et al. 1991). A recent study by Whitlock et al. (2006) showed that individuals who engaged in NSSI were more likely to report a history of childhood sexual abuse compared to non-self-injuring participants. A recent meta-analysis (Klonsky and Moyer 2008) also demonstrated a moderate significant relationship between childhood sexual abuse and NSSI across 45 samples; however this association was stronger for clinical samples than for normative samples. Additional evidence has supported the link between physical abuse and NSSI behaviors. Green (1978) showed that children who experienced physical abuse were at an elevated risk for engaging in self-injurious behaviors compared to those experiencing neglect or with no history of child maltreatment. Similarly, Gratz et al. (2002) identified a significant influence of child maltreatment in a sample of college-aged participants, though the association was only significant for females. Several other studies have identified similar links between a history of physical abuse and occurrence of NSSI (e.g., Carroll et al. 1980; van der Kolk et al. 1991). As such, having experienced sexual or physical abuse during childhood is considered a notable risk factor for engaging in NSSI behavior later in life.

Gender Differences in NSSI

Although the bulk of NSSI research originally focused on females in clinical samples (Gratz 2003), this has changed in recent years with the inclusion of normative samples, and samples comprised of both sexes. Several recent investigations have identified different patterns of associations with risk factors between the sexes (Bureau et al. 2010; Gratz 2006; Gratz and Chapman 2007). These results

justify additional research to determine the varying risk factors of a variety of NSSI behaviors for both males and females.

The Current Study

Objectives and Hypotheses

The present investigation aimed to extend the limited understanding of the nature of NSSI thoughts, and their relationships with NSSI actions. This study’s main objective was to identify the relative associations between characteristics of invalidating family environments and NSSI thoughts occurring without NSSI actions (NSSI-thoughts only group) or with NSSI actions (NSSI-action group), and those who had experienced neither NSSI thoughts nor NSSI actions (No NSSI group). Characteristics of invalidating family environments included in comparisons were lack of parental care, parental control, feeling alienated from parents, unresolved attachment relationships with parents, and physical and sexual abuse histories. Specifically, it was predicted that individuals in the NSSI-action group would demonstrate the highest levels for all characteristics. Further, it was hypothesized that participants in the NSSI-thoughts only group would report lower levels of characteristics than the NSSI-action group, but higher levels than the No-NSSI group. These predictions were based on past research by Nock et al. (2009), and on the logical assumption that the severity of risk factors should increase with the severity of NSSI behaviors. The secondary objective of this study was to determine if the identified pattern of group differences would vary between the sexes. Based on previous research findings (e.g., Bureau et al. 2010), it was predicted that the pattern of associations would be different for males and females, with females yielding a pattern similar to the findings from the overall sample.

Potential Confounding Factors

Past research has shown that age (e.g., Nixon et al. 2008; Nock 2010) and socioeconomic status (Nixon et al. 2008) may influence the likelihood of engaging in NSSI behaviors. Specifically, adolescents in the middle of their adolescence, and those from lower socioeconomic backgrounds are the majorities in samples of self-injurers. Similarly, socioeconomic status (e.g., Conger et al. 2010) and current living arrangements (e.g., at home with parents or living independently; Bureau et al. 2010) may both influence the reported quality of parent–child relationships. Finally the amount of influence parental relationships hold over subsequent well-being has been shown to vary

between cultures (e.g., Melendez and Melendez 2010). As such, the current study will include analyses to determine if any of these potential confounds should be included as covariates in the main analyses.

Method

Participants

Undergraduate students enrolled in both English and French *Introduction to Experimental Psychology* courses at a university in Eastern Ontario volunteered for participation in the study between September 2008 and December 2009. A total sample of 1,296 students (967 females) between the ages of 17 and 25 ($m = 19.29$, $SD = 1.40$) was recruited. The majority of participants identified themselves as of Caucasian background (79%), followed by Asian (6.8%), Middle-Eastern (4.6%), and Black (4.4%); 84% of the sample had lived in Canada their entire lives. Within this bilingual sample, 76.5% indicated their first language as English, and the remaining 23.5% were primarily French speaking. Most of the participants (78.5%) reported having been raised in the same household as both biological parents, 12.7% had lived primarily with one parent but with regular access to the other parent, and 7.1% grew up with one parent and limited or no access to the other. The remaining participants (1.7%) were raised by adoptive parents, relatives or in foster homes. At the time of participation, 45.6% of the sample was still living at home with parents, while 54.4% were living in rented accommodations or university residences.

The sample was split into three groups based on the endorsement of having engaged in NSSI actions or having experienced NSSI thoughts during the 6 months prior to participation (see below, *Instruments: Ottawa Self-Injury Inventory*). The No NSSI control group ($n = 1,080$; 797 females) was comprised of individuals who had neither thought about nor engaged in NSSI; the NSSI-thoughts only group ($n = 126$; 101 females) consisted of people who had only thought about engaging in self-injury, but who had not acted upon these thoughts; lastly, the NSSI-action group ($n = 90$; 69 females) was made up of those participants who had endorsed both NSSI thoughts and NSSI action in the past 6 months.

Procedure

Students registered in the relevant introductory psychology classes were instructed by their professors to select from a list of studies in which they could participate at any time throughout the duration of their course. By selecting the current project, students were provided with a secure

Internet link at which they could complete a series of online questionnaires hosted on *Survey Monkey*. Questionnaires could be completed at a time and location of participants' choosing. All participants were assigned an anonymous 5-digit identification code by the computerized system, which was used to label their data; no other identifying information was collected. At the end of the questionnaires, a two-page resource sheet describing the city's mental health resources was provided on screen, instructing participants to contact these resources should they require support following the study; this list was accompanied by an electronic alert to print these pages for the participants' own records. Contact information for the second and fourth authors, both of whom are trained in clinical psychology, were also provided to participants. Participating students were awarded two credits toward their final course grade in exchange for completing the requirements of the study. All procedures for this study were approved by the institution's Research Ethics Board, and participants were treated in accordance with the national and institutional ethical standards for human experimentation.

Instruments

Demographic Variables

All participants completed a standard sociodemographic questionnaire. Several items from this questionnaire were selected for exploration as potential covariates: (1) participant age; (2) language (Francophone vs. Anglophone); (3) socioeconomic risk (e.g., "did your family have problems paying for basic necessities (like food, clothing or rent)?"); and (4) current living arrangements (e.g., "are you currently living with your parents?").

Non-Suicidal Self-Injury

The *Ottawa Self-Injury Inventory* (OSI; Cloutier and Nixon 2003) was used to determine the occurrence of recent NSSI thoughts and actions. The OSI is a 27-item self-report measure designed to identify the frequency of NSSI thoughts and actions occurring in the past 6 months. The occurrence of NSSI thoughts or NSSI actions was determined by answers to the following questions: "how often in the past 6 months have you thought about injuring yourself without the intention to kill yourself?" and "how often in the past 6 months have you actually injured yourself without the intention to kill yourself?" Responses were rated on a 5-point scale (*not at all, 1–5 times, monthly, weekly, daily*) and were further collapsed to create two dichotomous variables representing NSSI thought and NSSI action, with *not at all* ratings reflecting a "no"

category, and all other responses indicating a “yes” response for both questions. These dichotomous variables were then combined to create the groups of No NSSI, NSSI-thoughts only, and NSSI-action. In this step, the NSSI-thoughts only and NSSI-action groups remained mutually exclusive, such that the NSSI-thoughts only group included individuals who endorsed experiencing NSSI thoughts without NSSI actions in the past 6 months, and the NSSI-action group was made up of participants who endorsed either NSSI actions but no NSSI thoughts, or NSSI actions and NSSI thoughts in the previous 6 months. Test–retest reliability for the OSI has been previously demonstrated (r_s between .52 and .74; Cloutier and Nixon 2003).

Invalidating Family Environment: Maternal and Paternal Care and Control

The *Parental Bonding Index* (PBI; Parker et al. 1979) measures the degree to which the childhood relationship with parents is perceived as being characterized by maternal and paternal care and maternal and paternal control. The PBI consists of two 25-item scales (12 care items, 13 control items each), asking about mother and father separately. Response options range from *very like* to *very unlike* on a 4-point scale; scores range from 12 to 48 for the maternal and paternal care dimensions, and from 13 to 52 for the maternal and paternal control subscales. Adequate validity and reliability for the PBI have been demonstrated by several studies (Gotlib et al. 1988; Wilhelm et al. 2005). In the current study, the PBI showed excellent internal consistency for the maternal care ($\alpha = .93$), and paternal care ($\alpha = .93$) dimensions, and good internal consistency for the maternal control ($\alpha = .85$) and paternal control ($\alpha = .85$) scales.

Invalidating Family Environment: Unresolved Attachment

The *Adolescent Unresolved Attachment Questionnaire* (AUAQ; West et al. 2000) assesses the dimensions of failed protection, anger, and fear of abandonment stemming from the parent–child relationship. These dimensions are thought to reflect a lack of resolution concerning the childhood relationship with parents, and were developed by West and colleagues based on characteristics of the unresolved state of mind classification of the *Adult Attachment Interview* (George et al. 1986). The AUAQ is a 10-item self-report scale measuring one’s current perceptions regarding the childhood relationship with parents, particularly focusing on the degree of resolution achieved in experiences where the parent(s) renounced their caregiving role(s). The *failed protection* dimension indicates the degree to which the parent was perceived as having been

unavailable during times of need, the *anger* dimension demonstrates the degree of dysfunctional anger experienced in response to caregivers’ failure(s) to respond to child’s needs, and the *fear of abandonment* dimension targets the degree to which the child feared being abandoned by the parent(s). Ratings are given on a 5-point Likert scale, with higher scores indicating higher unresolved attachment ratings for each subscale. Due to high inter-correlations between the subscales (r_s ranging from .62 to .71) a composite AUAQ score, calculated by summing subscale totals, was used in the current study to represent overall unresolved attachment issues within the parent–child relationship. Total scores range from 10 to 50, with higher scores indicating more unresolved attachment. Good test–retest reliability, internal consistency, and discriminant and convergent validities have been previously demonstrated for the AUAQ (Bureau et al. 2010; West et al. 2000). Internal consistency for the current study was excellent for the scale total ($\alpha = .92$), and good for all subscales separately, with Cronbach alphas of .90 for failed protection, .83 for anger, and .81 for fear.

Invalidating Family Environment: Alienation

The *Inventory of Parent and Peer Attachment* (IPPA; Armsden and Greenberg 1987) measures the quality of participants’ relationships with parents and peers based on the degree to which the relationship is characterized by trust, communication, and alienation. For the current investigation, only those items pertaining to feelings of alienation from parents were of interest, following Linehan’s theory (1993). The IPPA-parent is a 28-item self-report measure using a 5-point Likert scale from “*almost never or never true*” to “*almost always or always true*.” Eight of these items (e.g., “I don’t get much attention at home”) are summed to yield the alienation subscale. Scores for this dimension range from 8 to 40, with higher scores indicating greater feelings of alienation from parents. The IPPA has shown strong test–retest reliability and convergent validity (Armsden and Greenberg 1987; Lopez and Gover 1993). For the present study the IPPA showed good internal consistency for the alienation dimension ($\alpha = .86$).

Physical Abuse

A sociodemographic questionnaire item, “*how often have you been hit or beaten by one or both of your parents?*” was used to assess a history of physical abuse. Response options included *never*, *sometimes*, *often*, *very often*, and *I don’t know*. These answers were transformed to create a dichotomous variable, with answer of *never* comprising the “no” category, and *sometimes*, *often*, and *very often*

making up the “yes” category; cases with an *I don't know* response were omitted from this process and from all analyses ($n = 9$). In the current sample 22.9% of participants reported having experienced physical abuse at the hands of their parent(s).

Sexual Abuse

The *Sexual Abuse History* (SAH) subscale of the *Personal Relationships Profile* (PRP; Straus et al. 1999) was used to assess the occurrence of sexual abuse in childhood, experienced at the hands of parents or others. The SAH subscale is calculated based on responses to 8 self-report items assessing the occurrence of sexual abuse during childhood and adolescence (e.g., “before I was 18, an adult in my family made me look at or touch their private parts (sex organs), or looked at or touched mine”). Items are responded to on a 4-point scale ranging from *strongly disagree* to *strongly agree*. Scores range between 8 and 32, with higher scores indicating a greater severity of sexual abuse history. Internal consistency for the SAH subscale for the current study was moderate ($\alpha = .75$); similar internal consistency has been previously indicated for the SAH subscale (Straus and Mouradian 1999). Based on the guidelines laid out by Straus et al. (1999), z -scores were calculated for SAH scores, showing that 10.5% of the current sample reported sexual abuse histories that could be considered severe, being one or more standard deviations above the mean (5.5% with $z \geq 2.0$).

Results

Preliminary Analyses

Covariates

Language (Francophone vs. Anglophone), age, current living arrangements (with or not with parents) and socioeconomic risk were investigated as potential covariates. Chi-square analyses showed that none of the variables differed between the NSSI groups (χ^2 s: 3.08–4.79, ps : .09–.22). Similarly, an ANOVA showed that age did not differ significantly between the three groups ($F(2,1508) = .27$, $p = .77$). Potential covariates were then related to the dependent variables in the study. A series of MANOVAs for each assessed covariate showed multivariate differences for language (Pillai's trace: $F(7,1305) = 7.04$, $p < .001$), current living arrangements (Pillai's trace: $F(7,1305) = 5.10$, $p < .001$), and socioeconomic risk (Pillai's trace: $F(7,1305) = 11.30$, $p < .001$). Specifically, French participants reported higher paternal control ($F(1,1311) = 6.55$, $p < .05$) and lower alienation

($F(1,1311) = 17.64$, $p < .001$), than English participants; participants who currently lived with their parents reported greater maternal control ($F(1,1311) = 20.00$, $p < .001$) and paternal control ($F(1,1311) = 5.41$, $p < .05$), and greater unresolved attachment ($F(1,1311) = 10.11$, $p < .01$) than those living away from home; and participants from families with socioeconomic difficulties reported less maternal and paternal care, more maternal and paternal control, greater unresolved attachment, greater sexual abuse history, and greater alienation from parents than participants who were not at socioeconomic risk (F s(1,1311): between 9.60 and 56.14, $ps < .001$). Finally, Pearson product-moment correlations were calculated between age and each of the dependent variables. Age was only weakly related to parental care ($r = -.12$, $p < .01$) and to sexual abuse history ($r = .06$, $p < .05$), so was not included as a covariate. In sum, language, current living arrangements and socioeconomic risk were all included as covariates where possible in subsequent analyses.

Frequencies of NSSI Thoughts and NSSI Actions

Descriptive analyses were run separately for both NSSI-thoughts only and NSSI-action groups to determine the frequency of NSSI behaviors. The majority of participants in the NSSI-thoughts only group (83.6%) reported experiencing NSSI thoughts 1–5 times in the past 6 months, 7.5% experienced these thoughts monthly, and 8.9% experienced NSSI thoughts on a weekly basis. Within the NSSI-action group, 74.8% reported engaging in NSSI action 1–5 times in the past 6 months, 12.1% reported NSSI action occurring monthly, 6.5% engaged in NSSI action on a weekly basis, and 6.5% reported daily NSSI actions throughout the previous 6 month time period. Further, 63.6% of the NSSI-action group reported experiencing 1–5 NSSI thoughts in the past 6 months, 15% reported monthly NSSI thoughts, 12.1% indicated these thoughts occurred weekly, and 9.3% had experienced NSSI thoughts on a daily basis.

Group Differences in Invalidating Family Environments

Relational Characteristics of Invalidating Family Environments, Sexual Abuse History

A MANCOVA including the covariates discussed above was used to determine group differences for maternal and paternal care, maternal and paternal control, alienation, unresolved attachment, and sexual abuse histories (see Table 1 for correlations between dependent variables). Multivariate results indicate significant group differences (Pillai's trace, $F(14,2570) = 9.45$, $p < .001$, partial $\eta^2 = .05$). Even after accounting for influences of

Table 1 Correlations between dependent variables^a included in the MANCOVA

	1. Maternal care	2. Paternal care	3. Maternal control	4. Paternal control	5. Alienation	6. Unresolved attachment	7. Sexual abuse history
1.	–	.48***	–.42***	–.28***	–.56***	–.46***	–.30***
2.		–	–.26***	–.39***	–.49***	–.33***	–.19***
3.			–	.47***	.40***	.23***	.14***
4.				–	.32***	.29***	.16***
5.					–	.45***	.24***
6.						–	.20***
7.							–

n = 1,296. All correlations were calculated using Pearson’s *r* with pairwise deletion of missing data

*** *p* < .001

^a Maternal care and control, paternal care and control measured by the PBI; alienation measured by the IPPA-parent; unresolved attachment measured by the AUAQ; sexual abuse history measured by the PRP-SAH

language, current living arrangement, and socioeconomic risk, all univariate tests from the MANCOVA were significant, except for paternal control (see Table 2). Finally, as shown in Table 2, Tukey’s LSD tests demonstrate that the No NSSI group presented the best outcomes compared to both the NSSI-thoughts only and the NSSI-action groups on the majority of variables, except for paternal control and sexual abuse history (absolute value of significant mean differences ranging between .79, *p* < .05 and 5.31, *p* < .001). Specifically, the No NSSI group demonstrated significantly more maternal and paternal care, less unresolved attachment, and less alienation from parents compared to both NSSI-thoughts only and NSSI-action groups. No other significant differences were found for these variables. In contrast, the NSSI-action group reported significantly higher severity of sexual abuse history than participants in the other two groups, with no other group

differences for sexual abuse history. Additional details are included in Table 2.

Physical Abuse History

A chi-square analysis was used to determine group differences in experiencing physical abuse during childhood. Significant differences between the three groups were found, $\chi^2(2) = 29.45, p < .001$. To determine the specific differences in reports of experiencing physical abuse, adjusted residuals associated with the expected counts of a “yes” response were assessed. The No NSSI group was significantly less likely than expected to have experienced physical abuse (*z* = –5.3). Moreover, both the NSSI-thoughts only and NSSI-action groups were significantly more likely than expected to have experienced physical abuse (NSSI-thoughts only: *z* = 3.0; NSSI-action: *z* = 4.3).

Table 2 Between-subjects effects for group differences in invalidating family environment variables and sexual abuse history

Measures ^a	No-NSSI (C) <i>n</i> = 1,080 Adj. mean (SE) ^b	NSSI-thought (T) <i>n</i> = 126 Adj. mean (SE) ^b	NSSI-action (A) <i>n</i> = 90 Adj. mean (SE) ^b	Between-subjects effects (<i>F</i>)	Significant group differences ^c
Maternal care	41.46 (.21)	38.82 (.63)	38.33 (.74)	14.84***	T, A < C***
Paternal care	38.16 (.25)	36.04 (.72)	35.10 (.85)	9.07***	T, A < C**
Maternal control	27.42 (.21)	27.60 (.63)	31.02 (.74)	10.78***	C < T, A***
Paternal control	25.53 (.22)	25.08 (.63)	27.20 (.75)	2.71	N/A
Alienation	17.19 (.18)	21.53 (.54)	22.50 (.64)	55.79***	C < T, A***
Unresolved attachment	18.88 (.26)	21.68 (.75)	22.30 (.89)	12.00***	C < T, A***
Sexual abuse history	9.25 (.09)	9.55 (.25)	10.35 (.29)	6.83**	C***, T* < A

* *p* < .05; ** *p* < .01; *** *p* < .001

^a Maternal care and control, paternal care and control measured by the PBI; Alienation measured by the IPPA-parent; Unresolved attachment measured by the AUAQ; Sexual abuse history measured by the PRP-SAH

^b Means were adjusted based on the inclusion of language, current living arrangement, and socioeconomic risk as covariates

^c As indicated by post-hoc Tukey’s LSD tests

Gender Differences

Relational Characteristics of Invalidating Family Environments, Sexual Abuse History

A MANOVA was calculated separately for males and females, to determine if the identified patterns of differences between the three groups varied between the sexes. Results for females were similar to the overall findings, with multivariate differences between groups (Pillai's trace: $F(14,1910) = 8.04$, $p < .001$, partial $\eta^2 = .06$), and all univariate differences significant (F s: 7.30–45.45, ps : .001–.01), except for paternal control ($F(2,961) = 2.89$, $p = .06$). Simple effects followed the same pattern of group differences as found in the overall analyses (absolute significant mean differences: 1.28–5.71, ps : .001–.05). Multivariate results for males were also significant (Pillai's trace: $F(14,628) = 2.78$, $p < .01$, partial $\eta^2 = .06$), with only maternal care, maternal control, unresolved attachment, and alienation significant at the univariate level (F s between 3.06 and 11.15, ps between .001 and .05). Males in the No NSSI group reported less unresolved attachment and alienation than those in both NSSI-thoughts only (respective mean differences = -5.10 , -4.76 , $p < .01$, .001) and NSSI-action groups (respective mean differences = -3.78 , -3.95 , $p < .05$, .01). Moreover, males in the No NSSI group reported more maternal care and less maternal control than those in the NSSI-thoughts only group (respective mean differences = 3.27, -3.84 , $p < .05$, .05); no other simple effects were found. Paternal care, paternal control, and sexual abuse history did not differ significantly between the groups for males (F s between .32 and .53, ps between .59 and .73).

Physical Abuse

Two separate chi-squares, one for each sex, were used to determine differences in reports of physical abuse between the three groups. Both chi-squares were significant (females: $\chi^2(2) = 15.55$, $p < .001$; males: $\chi^2(2) = 8.35$, $p < .05$). Examination of adjusted residuals indicated that both males ($z = -2.9$) and females ($z = -3.5$) in the No NSSI group were less likely than expected to report physical abuse. For males, the NSSI-thought only group was more likely than expected to have experienced physical abuse ($z = 2.3$), while for females the NSSI-action group was more likely to report childhood physical abuse ($z = 3.6$).

Discussion

NSSI behaviors are a serious mental health concern primarily affecting adolescents (see Nock 2010), and occur in 4–38% of college/university aged populations (see Heath

et al. 2009). Engaging in NSSI behaviors places adolescents at increased risk for both social difficulties and physical injuries, and frequently co-occurs with other mental health problems, such as depression and anxiety (Ross and Heath 2003). Many of these co-occurring problems can endure through adulthood, even after NSSI behaviors have ceased. Traditionally, the role of NSSI thoughts has been overlooked in the literature, despite their logical association to NSSI actions, but researchers recently have demonstrated an increased interest in studying these thoughts (e.g., Cloutier and Nixon 2003; Klonsky and Glenn 2008; Nock et al. 2007; Washburn et al. 2010). Most notably, Nock et al. (2009) suggested the possibility for NSSI thoughts occurring with or without NSSI actions to be characteristically distinct based on the intensity of the thoughts and the emotions experienced with them. Despite the important implications of Nock and colleagues' findings (2009), and the general increase in empirical interest regarding NSSI thoughts, a great deal remains unknown regarding the developmental trajectory of these thoughts. The current study compared features of invalidating family environments between individuals endorsing NSSI thoughts with actions, those experiencing NSSI thoughts without actions, and those who had experienced neither NSSI thoughts nor NSSI actions. Specifically, maternal and paternal care, maternal and paternal control, unresolved attachment, feeling alienated from parents, and physical and sexual abuses were compared between these three groups. Overall, the findings from this study have important implications for the study of NSSI thoughts and actions, and offer a great contribution to the limited existing literature concerning NSSI thoughts.

Frequencies of NSSI Thoughts and NSSI Actions

Preliminary results showed that the majority of individuals in both the NSSI-thoughts only and NSSI-action groups had experienced NSSI thoughts 1–5 times in the past 6 months. Moreover, most participants in the NSSI-action group also reported having engaged in NSSI actions 1–5 times during the previous 6 months, but more participants in this group endorsed frequent NSSI thoughts (e.g., weekly or daily) than reported frequent NSSI actions. Although there is no past literature with which to compare the frequency of NSSI thoughts in the NSSI-thoughts only group, previous research has similarly found that self-injuring participants reported more daily NSSI thoughts than daily NSSI actions (Nixon et al. 2002).

Group Differences for Invalidating Family Environment Characteristics

Results from this set of analyses demonstrated that the NSSI-thoughts only and NSSI-action groups did not differ from

one another for maternal and paternal care, maternal control, unresolved attachment, and feeling alienated from parents. Further, both of these groups demonstrated poorer outcomes than the No NSSI group for these variables. Similarly, both the NSSI-thoughts only and NSSI-action groups were more likely than expected to have experienced physical abuse. Although these findings do not support the specific hypothesis of the current study, which predicted that the NSSI-action group would report worse outcomes than the NSSI-thoughts only group, they are perhaps not surprising. Given Linehan's theory regarding the development of negative coping strategies (1993), such as NSSI in response to invalidating family environments, it is likely that an individual who thinks about engaging in NSSI as a coping strategy, whether or not they ultimately engage in the act, would have experienced a negative family environment similar to individuals who engage in NSSI actions. However, there likely remain some other features inherent in individuals who experience NSSI thoughts but refrain from acting upon them, which may provide further differentiation. One possibility comes from research regarding the *pain analgesia hypothesis*, which posits that at least some individuals who engage in repetitive NSSI action report a limited pain response to the injury (Nock and Prinstein 2005), and in response to painful stimuli in general (Russ et al. 1992). Thus, individuals experiencing only NSSI thoughts may resist acting upon these thoughts based on a heightened worry of experiencing pain compared to those engaging in NSSI action, despite their shared childhood family environments.

It is also possible that individuals experiencing NSSI thoughts without actions are able to create a mental representation of NSSI vivid enough to experience emotional relief, without needing to engage in NSSI action. Similar to therapies using *in vivo* techniques, in which individuals create mental representations vivid enough to change their affective states, it is possible that some individuals experiencing NSSI thoughts can create mental images of NSSI that are sufficient in altering their feelings of distress, without having to act on their thoughts of self-injury. Finally, individuals experiencing only NSSI thoughts may have access to a greater number of positive coping alternatives compared to those who endorse NSSI action. As such, although they experience thoughts about self-injury, they are able to implement alternative positive coping strategies in response to the triggering stimuli, rather than acting on their self-injurious thoughts. In terms of the relational components addressed in this study, perhaps these individuals have developed meaningful, validating relationships with peers or romantic partners, which increase their social support network and minimize the influence of negative parental relationships, thus allowing them to avoid engaging in NSSI actions. Additional research is necessary to investigate these possibilities.

Analyses for sexual abuse histories followed a different pattern, with the NSSI-action group reporting more severe sexual abuse histories than both the NSSI-thoughts only group and No NSSI group. The association between NSSI actions and sexual abuse has been well documented by past literature (e.g., Whitlock et al. 2006), and these findings suggest that the experience of sexual abuse may be a tipping point characteristic of invalidating environments, which may increase the likelihood of ultimately engaging in NSSI action. As postulated by Cross (1993), victims of sexual abuse, who have experienced severe bodily and psychological trauma from this abuse, may develop a sense of detachment from their bodies. In turn, this detachment, or body dissociation, could increase the risk of engaging in NSSI action. These individuals may use NSSI action as a means of changing their psychological pain into the more controllable experience of physical pain, thus reverting their attention back to their bodies. Alternatively, individuals who did not experience sexual abuse, would not develop body dissociation based on this theory, thus decreasing their likelihood of engaging in NSSI action, despite possibly experiencing thoughts of NSSI. The current findings regarding sexual abuse history suggest support for this conjecture, though additional research is required in order to confirm these ideas.

The general pattern of group differences also varied for analyses regarding paternal control, which were not significant. Although these results seem contradictory to past research (e.g., Bureau et al. 2010), which has found associations between NSSI behaviors and parental control, the current study assessed parental control separately for mothers and fathers, while past research has utilized composite scores. As such, the present findings suggest that control from fathers may not be as significant a factor in the development of NSSI behaviors as is maternal control, and other aspects of father care.

Gender Differences in Characteristics of Invalidating Environments

All main analyses were also conducted separately for males and females to determine if patterns of association differed between the sexes. Results for females followed the same pattern as those for the overall sample, but the pattern of results varied for male participants. For males, no group differences were found for paternal care and control, or for sexual abuse history. These findings are in line with past research that has shown that different associations are evident between males and females in NSSI research (e.g., Bureau et al. 2010; Gratz 2006; Gratz and Chapman 2007; Gratz et al. 2002; Laye-Gindhu and Schonert-Reichl 2005), and may indicate distinct developmental trajectories for NSSI behaviors in males and females. Moreover, existing

literature has shown that sexual abuse occurs (or is reported) at lower frequencies for males than females (e.g., Moore et al. 2010; Rojas and Kinder 2009), which may account for the failure to differentiate between male NSSI groups based on reported sexual abuse histories. Although these findings may truly suggest that the influences of paternal care and control and sexual abuse history are not important factors in the etiology of NSSI behaviors in males, they should be interpreted cautiously based on the small samples sizes associated with males in both the NSSI-thoughts only and NSSI-action groups.

Limitations

Despite the important findings of this research, the present study was not without its limitations. First, a cross-sectional approach was utilized, rather than following participants longitudinally, creating challenges in determining the predictive nature of the variables assessed. Second, the use of retrospective questionnaires in the assessment of the quality of parent–child relationships, which are designed to assess the relationship during childhood, are subject to the risk that current relationship problems or intrapersonal troubles of the participant may taint their perspectives of the past. As such, reports of the quality of childhood relationships may not be truly accurate depictions of the past relationship. Third, the experience of physical abuse was assessed by responses to a sociodemographic question. This being said, the rate of physical abuse identified in this study is in line with what would be expected from a population of university aged students, especially where NSSI has been identified (Gratz and Roemer 2008; Higgins and McCabe 2001). Thus, assessing physical abuse via a validated, multi-item measure would likely only strengthen these results. A final limitation of the current study concerns the measurement of NSSI thoughts and NSSI action, as only thoughts and actions occurring in the previous 6 months were assessed in this study. Without a lifetime measure of NSSI thoughts or actions, it is not possible to know if the participants who indicated only NSSI thoughts would ultimately act upon their thoughts. However, recent research has shown the age of onset for NSSI action to be between 12 and 14 years (see Rodham and Hawton 2009 for a review), so it is less likely for individuals in this study, who were on average 19.37 years old, to initiate NSSI action at this point in their lives. Additional research is needed to expand upon the current findings.

Future Research Directions and Clinical Implications

Additional research should be conducted to better understand individuals who experience NSSI thoughts, and their association to individuals who endorse NSSI action. In

particular, longitudinal research designs should be implemented in order to identify factors, if any exist, that may escalate NSSI thoughts into NSSI actions. Moreover, longitudinal research would be able to more clearly define the groups of NSSI thoughts with or without NSSI action, after following participants over a period of time. Future endeavours should focus on the potential for individuals in these two groups to differ based on pain thresholds or level of pain responses, the success with which their emotions are altered by in vivo mental representations, or the availability of alternative positive coping strategies. Additional research concerning all these variables and more is needed to further understand the complexities and commonalities between NSSI thoughts and NSSI actions. In sum, further research exploring how individuals who experience NSSI thoughts with or without NSSI actions differ can offer additional insight into potential prevention or early intervention treatment strategies for NSSI behaviors.

Results from the current study also carry important clinical implications. Most importantly, the current study suggests that individuals who experience only NSSI thoughts are likely to have endured negative, damaging relational experiences during childhood, similar to those reported by individuals who have engaged in NSSI actions. Clinical assessment and treatment models should acknowledge the potential for the experience of NSSI thoughts in adolescents reporting these types of early experiences. Moreover, these individuals should be considered at risk for NSSI action or other psychopathology, even if only NSSI thoughts are reported at the time of assessment. Any treatment provided to these adolescents should not only address their maladaptive thought patterns, but should also focus on behavioral prevention of possible future NSSI action in these individuals.

Conclusions

The current study provides important findings regarding the nature of both NSSI thoughts and actions, and will aid in the development of preventative and early intervention strategies to treat both behaviors. Specifically, results from the current study indicate that NSSI thoughts occurring with or without NSSI actions share a number of risk factors associated with invalidating family experiences during childhood. These findings are especially noteworthy given the general lack of past literature concerning NSSI thoughts. Self-injurious thoughts, whether occurring with or without NSSI actions, are likely to be extremely distressing to the adolescent, and may be indicative of additional underlying problems (e.g., family problems, experiences of physical abuse, difficulties in emotion

regulation), which could lead to further distress or psychopathology throughout adolescence and beyond. Although this study suggests that NSSI thoughts and action do not differ based on family based risk factors, the assessment of experiencing only NSSI thoughts should not be overlooked. The experience of such thoughts may be a significant risk factor for future NSSI action, or for other negative psychological outcomes, and are likely extremely distressing to the individual. Just as a clinician should never overlook an adolescent experiencing suicidal thoughts, thoughts of engaging in NSSI should similarly be a cause for concern. Results from the current study and from future studies in this area will help promote the importance of NSSI thoughts in the study and treatment of NSSI in general, potentially helping to minimize the number of adolescents who ultimately engage in NSSI action.

References

- Adrian, M., Zeman, J., Erdley, C., Lisa, L., & Sim, L. (2010). Emotional dysregulation and interpersonal difficulties as risk factors for nonsuicidal self-injury in adolescent girls. *Journal of Abnormal Child Psychology*. doi:10.1007/s10802-010-9465-3.
- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, 16, 427–454.
- Bureau, J.-F., Martin, J., Freynet, N., Poirier, A. A., Lafontaine, M.-F., & Cloutier, P. (2010). Perceived dimensions of parenting and non-suicidal self-injury in young adults. *Journal of Youth and Adolescence*, 5, 484–494.
- Carroll, J., Schaffer, C., Spensley, J., & Abramowitz, S. I. (1980). Family experiences of self-mutilating patients. *American Journal of Psychiatry*, 137, 852–853.
- Cloutier, P., Martin, J., Kennedy, A., Nixon, M.-K., & Muehlenkamp, J. (2010). Characteristics and co-occurrence of adolescent nonsuicidal self-injury and suicidal behaviors in pediatric emergency crisis services. *Journal of Youth and Adolescence*, 39, 259–269.
- Cloutier, P., & Nixon, M.-K. (2003, September). The Ottawa self-injury inventory: A preliminary evaluation. Abstracts to the 12th International Congress European Society for Child and Adolescent Psychiatry. *European Child and Adolescent Psychiatry*, 12, I/94.
- Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family*, 72(3), 685–704.
- Cross, L. (1993). Body and self in feminine development: Implications for eating disorders and delicate self-mutilation. *Bulletin of the Menninger Clinic*, 57(1), 41–68.
- George, C., Kaplan, N., & Main, M. (1986). *Adult attachment interview protocol* (3rd ed.). Unpublished Manuscript, University of California at Berkeley.
- Gotlib, I. H., Mount, J. H., Cordy, N. I., & Whiffen, V. E. (1988). Depressed mood and perceptions of early parenting: A longitudinal investigation. *British Journal of Psychiatry*, 152, 24–27.
- Gratz, K. L. (2003). Risk factors for and functions of deliberate self-harm: An empirical and conceptual review. *Clinical Psychology Science & Practice*, 10, 192–305.
- Gratz, K. L. (2006). Risk factors for deliberate self-harm among female college students: The role and interaction of childhood maltreatment, emotional inexpressivity, and affect intensity/reactivity. *American Journal of Orthopsychiatry*, 76, 238–250.
- Gratz, K. L., & Chapman, A. L. (2007). The role of emotional responding and childhood maltreatment in the development and maintenance of deliberate self-harm among male undergraduates. *Psychology of Men and Masculinity*, 8(1), 1–14.
- Gratz, K., Conrad, S. D., & Roemer, L. (2002). Risk factors for deliberate self-harm among college students. *American Journal of Orthopsychiatry*, 72(1), 128–140.
- Gratz, K. L., & Roemer, L. (2008). The relationship between emotion and dysregulation and deliberate self-harm among female undergraduate students at an urban commuter university. *Cognitive Behavior Therapy*, 37(1), 14–25.
- Green, A. H. (1978). Self-destructive behavior in battered children. *American Journal of Psychiatry*, 135(5), 579–582.
- Heath, N., Schaub, K., Holly, S., & Nixon, M.-K. (2009). Self-injury today: Review of population and clinical studies in adolescence. In M.-K. Nixon & N. Heath (Eds.), *Self-injury in youth: The essential guide to assessment and intervention* (pp. 9–27). New York, NY: Routledge Press.
- Higgins, D. J., & McCabe, M. P. (2001). Multiple forms of child abuse and neglect: Adult retrospective reports. *Aggression and Violent Behavior*, 6, 547–578.
- Hilt, L. M., Nock, M. K., Lloyd-Richardson, E. E., & Prinstein, M. J. (2008). Longitudinal study of nonsuicidal self-injury among young adolescents: Rates, correlates, and preliminary test of an interpersonal model. *Journal of Early Adolescence*, 28(3), 455–469.
- Klonsky, E. D., & Glenn, C. R. (2008). Resisting urges to self-injure. *Behavioral and Cognitive Psychotherapy*, 36, 211–220.
- Klonsky, E. D., & Glenn, C. R. (2009). Psychosocial risk and protective factors. In M. K. Nock (Ed.), *Understanding nonsuicidal self-injury: Origins, assessment, and treatment* (pp. 45–57). Washington, DC: American Psychological Association.
- Klonsky, E. D., & Moyer, A. (2008). Childhood sexual abuse and non-suicidal self-injury: A meta-analysis. *British Journal of Psychiatry*, 192, 166–170.
- Laye-Gindhu, A., & Schonert-Reichl, K. A. (2005). Nonsuicidal self-harm among community adolescents: Understanding the “whats” and “whys” of self-harm. *Journal of Youth and Adolescence*, 34(5), 447–457.
- Levesque, C., Lafontaine, M.-F., Bureau, J.-F., Cloutier, P., & Dandurand, C. (2010). The influence of romantic attachment and intimate partner violence on non-suicidal self-injury in young adults. *Journal of Youth and Adolescence*, 39(5), 474–483.
- Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York, NY: Guilford Press.
- Lopez, F. G., & Gover, M. R. (1993). Self-report measures of parent-adolescent attachment and separation-individuation: A selective review. *Journal of Counseling & Development*, 71, 560–569.
- Lynch, T. R., & Cozza, C. (2009). Behavior therapy for nonsuicidal self-injury. In M. K. Nock (Ed.), *Understanding nonsuicidal self-injury: Origins, assessment, and treatment* (pp. 221–249). Washington, DC: American Psychological Association.
- Lyons-Ruth, K., Bureau, J.-F., Henninghausen, K., Holmes, B. M., & Easterbrooks, A. (2009, April). Parental helplessness and adolescent role-reversal as correlates of borderline features and self-injury. Paper presented in J.-F. Bureau, & K. Lyons-Ruth (Chairs), *Relational predictors of self-damaging behavior in adolescence: Multiwave longitudinal analyses*. Presented at the biennial meeting of the Society for Research on Child Development (SRCD), Denver, CO, USA.
- Melendez, M. C., & Melendez, N. B. (2010). The influence of parental attachment on the college adjustment of White, Black,

- and Latina/Hispanic women: A cross-cultural investigation. *Journal of College Student Development*, 51(4), 419–435.
- Moore, E. E., Romaniuk, H., Olsson, C. A., Jayasinghe, Y., Carlin, J. B., & Patton, G. C. (2010). The prevalence of childhood sexual abuse and adolescent unwanted sexual contact among boys and girls living in Victoria, Australia. *Child Abuse and Neglect*, 34(5), 379–385.
- Muehlenkamp, J. J. (2006). Empirically supported treatments and general therapy guidelines for non-suicidal self-injury. *Journal of Mental Health Counseling*, 28, 166–185.
- Nixon, M.-K., Aulakh, H., Townsend, L., & Atherton, M. (2009). Psychosocial interventions for adolescents. In M.-K. Nixon & N. Heath (Eds.), *Self-injury in youth: The essential guide to assessment and intervention* (pp. 217–236). New York, NY: Routledge Press.
- Nixon, M.-K., Cloutier, P., & Aggarwal, S. (2002). Affect regulation and addictive aspects of repetitive self-injury in hospitalized adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41(11), 1333–1341.
- Nixon, M.-K., Cloutier, P., & Jansson, M. (2008). Non-suicidal self-harm in youth. *Canadian Medical Association Journal*, 178(3), 306–312.
- Nixon, M.-K., & Heath, N. (2009). Introduction to non-suicidal self-injury in adolescents. In M.-K. Nixon, & N. Heath (Eds.), *Self-injury in youth: The essential guide to assessment and intervention* (pp. 1–6).
- Nock, M. K. (2010). Self-injury. *Annuals Reviews in Clinical Psychology*, 6, 339–363.
- Nock, M. K., Holmberg, E. B., Photos, V. I., & Michel, B. D. (2007). Self-injurious thoughts and behaviors interview: Development, reliability, and validity in an adolescent sample. *Psychological Assessment*, 19, 309–317.
- Nock, M. K., & Prinstein, M. J. (2005). Contextual features and behavioral functions of self-mutilation among adolescents. *Journal of Abnormal Psychology*, 114(1), 140–146.
- Nock, M. K., Prinstein, M. J., & Sterba, S. K. (2009). Revealing the form and function of self-injurious thoughts and behaviors: A real-time ecological assessment study among adolescents and young adults. *Journal of Abnormal Psychology*, 118, 816–827.
- Noll, J. G., Horowitz, L. A., Bonanno, G. A., Trickett, P. K., & Putnam, F. W. (2003). Revictimization and self-harm in females who experienced childhood sexual abuse. *Journal of Interpersonal Violence*, 18, 1452–1471.
- Paivio, S. C., & McCulloch, C. R. (2004). Alexithymia as a mediator between childhood trauma and self-injurious behaviors. *Child Abuse and Neglect*, 28, 339–354.
- Parker, G., Tupling, H., & Brown, L. B. (1979). A parental bonding instrument. *British Journal of Psychiatry*, 52, 1–10.
- Rodham, K., & Hawton, K. (2009). Epidemiology and phenomenology of nonsuicidal self-injury. In M. K. Nock (Ed.), *Understanding Nonsuicidal self-injury: Origins, assessment and treatment* (pp. 37–62). Washington, DC: American Psychological Association.
- Rojas, A., & Kinder, B. N. (2009). Are males and females sexually abused as children socially anxious adults? *Journal of Child Sexual Abuse: Research, Treatment & Program Innovations for Victims, Survivors & Offenders*, 18(4), 355–366.
- Ross, S., & Heath, N. L. (2003). Two models of adolescent self-mutilation. *Suicide and Life Threatening Behavior*, 33(3), 277–287.
- Russ, M. J., Roth, S. D., Lerman, A., Kakuma, T., Harrison, K., Shindedecker, R. D., et al. (1992). Pain perception in self-injurious patients with borderline personality disorder. *Biological Psychiatry*, 32(6), 501–511.
- Schuder, M., & Lyons-Ruth, K. (2004). “Hidden Trauma” in infancy: Attachment, fearful arousal, and early dysfunction of the stress response system. In J. Osofsky (Ed.), *Young children and trauma: Intervention and treatment* (pp. 69–104). New York: Guilford Press.
- Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. (1999). *The personal and relationships profile*. Unpublished manuscript.
- Straus, M. A., & Mouradian, V. E. (1999, November). *Preliminary psychometric data for the Personal and Relationships Profile (PRP): A multi-scale tool for clinical screening and research on partner violence*. Paper presented at the annual meeting of the American Society of Criminology, Toronto, ON, Canada.
- van der Kolk, B. A., Perry, C., & Herman, J. L. (1991). Childhood origins of self-destructive behavior. *The American Journal of Psychiatry*, 148(12), 1665–1671.
- Washburn, J. J., Juzwin, K. R., Styer, D. M., & Aldridge, D. (2010). Measuring the urge to self-injure: Preliminary data from a clinical sample. *Psychiatry Research*, 178(3), 540–544.
- West, M., Rose, S., Spreng, S., & Adam, K. (2000). The adolescent unresolved attachment questionnaire: The assessment of perceptions of parental abdication of caregiving behavior. *The Journal of Genetic Psychology*, 161, 493–503.
- Whitlock, J., Eckenrode, J., & Silverman, D. (2006). Self-injurious behaviors in a college. *Pediatrics*, 117, 1939–1948.
- Whitlock, J., Lader, W., & Conterio, K. (2007). The internet and self-injury: What psychotherapists should know. *Journal of Clinical Psychology: In Session*, 63(11), 1135–1143.
- Wilhelm, K., Niven, H., Parker, G., & Hadzi-Pavlovic, D. (2005). The stability of the Parental Bonding Instrument over a 20-year period. *Psychological Medicine*, 35(3), 387–393.
- Yates, M. T. (2004). The developmental psychopathology of self-injurious behavior: Compensatory regulation in posttraumatic adaptation. *Clinical Psychology Review*, 24, 35–74.
- Yates, T. M., Tracy, A. J., & Luthar, S. S. (2008). Nonsuicidal self-injury among “privileged” youths: Longitudinal and cross-sectional approaches to developmental process. *Journal of Consulting and Clinical Psychology*, 76(1), 52–62.

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