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The Mediating Role of Self-Criticism in the Relationship between Parental Expressed Emotion and NSSI

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Abstract

Nonsuicidal self-injury (NSSI) is found at high rates among adolescents and young adults and is associated with many negative consequences, warranting additional research. Two factors that may contribute to NSSI during this time period are one's levels of self-criticism and perceptions of their parental relationships; however, these relationships have received limited attention. The purpose of this current study was to address this gap in the literature. Adolescents and young adults ($n=294$) completed measures of perceived parental expressed emotion, self-criticism, and NSSI. Participants with a history of NSSI reported perceiving their parents as providing less emotional support, inducing more irritation, being more intrusive, and expressing more criticism compared to those without a history of NSSI. These individuals also endorsed greater self-criticism. Further, self-criticism mediated the relationship between perceived parental expressed emotion and NSSI occurrence, such that those with higher reported self-criticism and greater perceived parental expressed emotion were more likely to engage in NSSI.

Nonsuicidal self-injury (NSSI; the direct, intentional destruction of one's own body tissue without the intent to die) appears at high levels among community samples of adolescents and young adults (Favazza, DeRosear, & Conterio, 1989; Jacobson & Gould, 2007; Ross & Heath, 2002; Whitlock, Eckenrode, & Silverman, 2006); as many as 46 percent of ninth and tenth grade students reported engaging in at least one act of NSSI within the past year (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007). In addition to the high prevalence, the negative consequences associated with NSSI (e.g., destruction of body tissue, adverse reactions among others, negative emotions; Clarke & Whittaker, 1998; Schwartz, Cohen, Hoffmann, & Meeks, 1989; Nock, 2009), including the relationship with increased suicide

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Ethical Approval: All procedures performed in the current study were in accordance with the ethical standards of the Institutional Review Board of the data collection university and with the 1964 Helsinki declaration and its later amendments and comparable ethical standards.

Informed Consent: Informed consent was obtained from all individual participants included in the study 18 years or older. Informed consent was obtained from all individual participant's legal guardians and informed assent was obtain from all individual participants included in the study 17 years or younger.

attempts (Hilt, Nock, Lloyd-Richardson, & Prinstein, 2008; Muehlenkamp & Gutierrez, 2007; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006), make the risk factors associated with NSSI during this developmental period of specific interest.

During this period, the family may have a unique impact on the presence of NSSI behavior; at this age, individuals are still likely to live at home, have frequent contact with family, and remain dependent on them (Kerr, 1981). One particular way the family may play a role is through the presence of high expressed emotion (EE; Wedig & Nock, 2007). EE refers to the extent to which family members express critical/hostile and/or emotionally over-involved attitudes and comments (Hooley, 1985; 2007). EE is related to presence of several forms of psychopathology, including depression (Asarnow, Tompson, Woo, & Cantawell, 2001; McCleary & Sanford, 2002), externalizing problems (McCarty & Weisz, 2002; Peris & Baker, 2000), and behavioral disinhibition (Hirshfeld, Biederman, Brody, Faraone, & Rosenbaum, 1997). Despite this, the research examining EE and NSSI has been limited. Few studies are, however, suggestive of a relationship between EE and NSSI occurrence. For example, an adolescent's perceptions of their parents' criticism was associated with an increased probability of engaging in NSSI (Yates et al., 2008). Similarly, parents' speech about their child revealed that high parental criticism was associated with increased NSSI and more severe self-harm (e.g., suicide attempts; Wedig & Nock, 2007). Taken together, these findings suggest that adolescents who engage in NSSI may have more critical family environments; however, it is unclear if other factors may be influencing this relationship.

Individuals who engage in NSSI may not only perceive their parents as critical, but also themselves in a critical manner. NSSI is associated with greater amounts of self-denigration, lower self-esteem, and greater feelings of worthlessness (Chapman, Gratz, & Brown, 2006; Herpertz, Sass, & Favazza, 1997; Klonsky, Oltmanns, & Turkheimer, 2003). Individuals engaging in NSSI also describe themselves as less intelligent, less emotionally stable, and less physically attractive than others (Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010). Direct examination of self-criticism among those who engage in NSSI suggests that in addition to general self-criticism, different facets of self-criticism may uniquely relate to NSSI. Among those who reported a history of NSSI, individuals who endorsed stronger levels of self-dislike also reported feeling inadequate compared to others; however, those who reported stronger levels of feeling inadequate did not necessarily experience self-dislike (Gilbert et al., 2010). This suggests that having a strong self-dislike may be influential for those who engage in NSSI. It is also possible that the presence of this self-criticism is related to EE among adolescents who engage in NSSI (Crowell et al., 2008; Wedig & Nock, 2007; Yates et al., 2008). Although there is a dearth of literature examining this relationship, one study examining teenagers from a community and outpatient sample found high levels of perceived parental criticism to be related to NSSI, and, further, that high levels of both self-criticism and perceived parental criticism were associated with greater severity of NSSI (Wedig & Nock, 2007). Given these findings, it is possible that adolescents and young adults may develop negative representations of themselves if their parents are highly critical, which may, in-turn, increase the probability of engaging in NSSI to help regulate these experiences (Nock & Prinstein 2004; 2005).

The most commonly reported reason for engaging in NSSI is to reduce or escape negative emotional or cognitive experiences, (i.e., “to stop bad feelings”) (Klonsky, 2007; Nock & Prinstein, 2004; 2005). The urge to engage in NSSI typically occurs within the context of negative thoughts or feelings (Nock, 2009, Muehlenkamp, Williams, Gutierrez & Claes, 2009) and individuals commonly report feeling angry, frustrated or overwhelmed prior to an actual act of NSSI (Briere & Gil, 1998; Laye-Gindhu & Schonert-Reichl, 2005; Klonsky, 2009; Nock, 2009). It is likely that perceiving ones’ parents as highly critical, in combination with high levels of self-criticism, would generate strong negative emotions, and NSSI may serve as behavior to alleviate such emotion. Further, this reduction in negative affect may serve to reinforce the behavior as those who report the greatest affective benefits from NSSI also tend to engage in NSSI most often (Klonsky, 2009). As such, identifying contextual factors that may facilitate the occurrence of NSSI (e.g., negative parental and self perceptions) is greatly needed.

Current Study

Despite current literature suggesting that parental EE and self-criticism are related to the presence of NSSI, the examination of these relationships and their interaction has been limited both by scope (e.g., primarily including clinical populations) and methodology (e.g., single-item measures of self-criticism). The purpose of the current study is to expand upon previous research by assessing perceived parental EE and the multiple facets of self-criticism in a non-clinical population. We hypothesized those who engage in NSSI will report higher levels of perceived parental EE and self-criticism than those without a history of NSSI. Further, we expected that self-criticism would mediate the relationship between perceived parental EE and NSSI history, and that the facet of self-criticism characterized by self-dislike (e.g., Hated Self form) would be unique as a mediator when considering other facets in the model.

Method

Participants

Adolescent sample—Ninety-four high school students (45 girls, 49 boys) participated in the study. Participants were recruited through a school-wide invitation (approximately 400 students). One participant was excluded from the sample due to missing values on an entire measure, which resulted in a final sample of $n = 93$. Participants ranged in age from 14–18 years ($M=15.97$, $SD= 1.22$). The present sample was 93.00% Caucasian, 2.00% Asian or Pacific Islander, 1.00% African American, and 4.00% “other”. From the overall sample, 17 participants (18.30%) reported a history of NSSI.

Young adult sample—Two hundred and one college students (162 females, 39 males) participated in the study. They were recruited through the university participant pool. Three participants were excluded from the sample due to missing values on an entire measure, resulting in a final sample of $n = 198$. Participants ranged in age from 18–20 ($M=18.47$, $SD= .67$). Participation was limited to 18–20 year old, unmarried individuals because they were more likely to still be in close contact with their parent/guardian, have less time passed since living with their parent/guardian, and have their support system involve their parent/

guardian (versus spouse). The present sample was 88.50% Caucasian, 3.50% African American, 2.50% Asian or Pacific Islander, 2.00% multiracial, and 3.50% other. From the overall sample, 23 individuals (11.60%) reported a history of NSSI.

Materials

Self-injury—NSSI was assessed with the Deliberate Self Harm Inventory (Gratz, 2001) which queries about the number of times a participant engaged in 17 self-harming behaviors (e.g., “*Cut your wrist, arm, or other area(s) of your body*”). The scale has high internal validity and has adequate test-retest reliability (Gratz, 2001). Individuals were classified as having a history of NSSI if they reported engaging in any NSSI behaviors one or more times.

Self-criticism—Self-criticism was measured using the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004). There are a total of 22 items and consists of three subscales: Inadequate Self scale (e.g., “*There is a part of me that feels I am not good enough*”), Reassured Self scale (e.g., “*I encourage myself for the future*”), and Hated Self scale (e.g., “*I have a sense of disgust with myself*”; Gilbert et al., 2004; Gilbert et al., 2010). Items were answered on a 5-point Likert scale (0 = *not at all like me*, 5 = *extremely like me*). Items of each subscale were summed to create the subscale total; higher values represent greater levels of each self-criticism subtype. The reliability of the subscales in the current study ($\alpha = .85$ to $.89$) was consistent with previous research.

Perceived expressed emotion—The Levels of Expressed Emotion Scale (LEE; Cole & Kazarian, 1988; 1993; Gerlsma, 1998) assessed perceived parental expressed emotion. It consists of 38 items asking about parent behaviors (e.g., “*My parents try to reassure me when I’m not feeling well*”) and is comprised of four subscales: lack of support, intrusiveness, irritation, and criticism (Hale III, Raaijmakers, Gerlsma, & Meeus, 2007). Items were answered on a 4-point Likert scale (1 = *untrue*, 2 = *somewhat untrue*, 3 = *somewhat true*, 4 = *true*). Items of each subscale were summed to create the subscale total. All items were summed to create overall composite of perceived EE. The four subscales in addition to the overall composite were used in the current study. The composite score demonstrates good test-retest reliability (Cole & Kazarian, 1988). In this study, good reliability was maintained on the subscales ($\alpha = .75$ – $.93$), except the irritation subscale, which demonstrated low reliability ($\alpha = .60$). Reliability of overall perceived EE was excellent ($\alpha = .94$).

Procedures

For data collection in the high school setting, teachers of selected classrooms read a description of the study via a script provided by the researchers and disseminated parental consent forms. Classrooms were selected based on expected class make-up (i.e., required courses for each grade, ninth through twelfth). Researchers visited each classroom a few days later and provided additional information about the study. Parental consent and adolescent student assent forms were collected from all students, regardless of completion, to protect student confidentiality. If both parental consent and student assent forms were complete, students received an envelope containing a packet of questionnaires, whereas if

either form was incomplete, students received an envelope of alternative activities (e.g., word puzzles). For data collection in the university setting, students voluntarily signed-up to participate in the study through the University's online system to receive course credit. Students entered the lab and, after providing informed consent, were given a packet of questionnaires to complete. A protocol was in place if participants were judged to be at risk of future harm (e.g., high NSSI frequency) and all procedures were approved by the Institutional Review Board (IRB).

Data Analyses

Of the adolescent sample, 51% of participants in the adolescent sample reported engaging in NSSI within the last year; in the young adult sample, 65% of participants with a NSSI history reported it being at least one year since they last engaged in NSSI. There were only modest differences between groups on age they last engaged in NSSI, $t(37) = -2.30, p = .03$, with those in college being 1.3 years older at the time of their last NSSI act. There were significant gender differences between the samples, $\chi^2(1, 290) = 31.95, p < .001$, where the young adult sample had a greater proportion of females as compared to males than the adolescent sample. There were no differences between the samples on NSSI history, $\chi^2(1, 290) = 2.37, p = .12$. To gain more information about the samples as a whole (history of NSSI, $n = 40$), the data were combined. All analyses were also conducted on the two samples independently (adolescent and young adult sample). Any differences between the samples are noted. Less than 2% of data was missing; missing data was missing completely at random as suggested by non-significant results on Little's MCAR test and imputed using expectation maximization (EM), based on recommendations by Tabachnick and Fidell (2013). Importantly, given potential biases of EM procedures, all analyses were conducted with both imputed and complete cases; results did not differ. Two MANOVAs were conducted to examine group differences on perceived parental EE and self-criticism between those with and without a history of NSSI. MANOVAs were utilized, as opposed to separate ANOVAs, due to correlations between measure subscales (ranging from $r = .34$ to $.80$), in addition to protect against inflating Type I errors (Tabachnick & Fidell, 2013).

Mediational analyses were conducted using Mplus Version 7.0 (Muthen & Muthen, 1998–2013) with weighted least squares estimation as the outcome variable was binary (all predictors were normally distributed). Model fit was based on a root mean square error of approximation (RMSEA) below 0.06 and a comparative fit index (CFI) greater than 0.90 (Hu & Bentler, 1999; Steiger, 2007). Indirect effects were examined using bias corrected bootstrapping with 1,000 bootstrapped samples. Four mediation models were conducted; for all models overall perceived parental EE was entered as the independent variable, the binary outcome of NSSI history was entered as the dependent variable, and self-criticism (subscales) were entered as the mediators. Mediators were allowed to co-vary in the final, combined model. All direct paths to NSSI history and indirect effects presented are standardized based on x (e.g., independent variable) allowing for the interpretation of one unit of change on y (e.g., dependent variable) to be no history of NSSI vs. history of NSSI. Direct paths from mediators to independent variables are fully standardized.

Results

Participant Characteristics

Participants reported engaging in one or more NSSI acts consisted of 13.7% ($n = 40$; 32 females, 8 males) of the overall sample. Of the individuals with a history of NSSI, the mean number of times participants hurt themselves was 14.94 ($SD = 51.70$, Median = 3, Range = 1–301). Cutting was the most common form of NSSI (55%), followed by scratching (40%), punching self (17.50%), preventing wounds from healing (15%), carving words into skin (12.50%), sticking skin with sharp object (12.50%), burning skin with lighter/matches (10%), and carving pictures/designs into skin (10%). Less than 10% of participants endorsed other NSSI forms (e.g., biting skin, burning skin with cigarette). Those with and without a history of NSSI were compared on demographic variables. No differences were found on gender, [$\chi^2(1, 290) = 2.03, p = .15$], age [$t(289) = 1.43, p = .15$], or race, [$\chi^2(1, 288) = .02, p = .88$].

Preliminary Analyses

Correlational analyses of predictor variables showed a pattern of strong relationships across most of the subscales, and were weakly related to each other. See Table 1. Levels of perceived parental EE were compared between those with and without a history of NSSI. Results from the MANOVA demonstrated a significant effect of history of NSSI, Hotelling's $T(5, 285) = .13, p < .001$, partial $\eta^2 = .12$. Univariate results showed that those with a history of NSSI reported higher levels of perceived lack of support ($p < .001$, partial $\eta^2 = .10$), irritation ($p < .001$, partial $\eta^2 = .06$), intrusion ($p = .003$, partial $\eta^2 = .03$), criticism ($p < .001$, partial $\eta^2 = .10$), and overall EE ($p < .001$, partial $\eta^2 = .11$). See Table 2. When the samples were examined independently, there was no significant difference found on intrusion in the adolescent sample ($p = .07$). The three forms of self-criticism were examined between those with and without a history of NSSI using a MANOVA due to high correlations between the subscales. Results revealed a significant main effect of history of NSSI, Hotelling's $T(3, 286) = .43, p < .001$, partial $\eta^2 = .30$. Univariate results indicated those with a history of NSSI report significantly higher level of the Inadequate Self ($p < .001$, partial $\eta^2 = .16$) and Hated Self ($p < .001$, partial $\eta^2 = .18$). They also reported significantly lower levels of the Reassured Self ($p < .001$, partial $\eta^2 = .29$). See Table 2.

Mediation Analyses

The potential mediating of self-criticism in the relationship between overall perceived parental EE and history of NSSI was then examined in three separate models. See Figure 1. In the first model, the Inadequate Self form of self-criticism was tested as the mediator. The model demonstrated good fit, $\chi^2 = 155.34, p < .001$, CFI = .96, RMSEA = .05. All direct paths were all significant at $p < .01$. Examination of the indirect effects (see Table 3) showed that the relationship between perceived parental EE and history of NSSI was mediated by the Inadequate Self form of self-criticism. The Hated Self form of self-criticism was tested as the mediator in the second model. The model demonstrated good fit, $\chi^2 = 72.28, p < .001$, CFI = .97, RMSEA = .04. All direct paths were significant at the $p < .01$. Examination of the indirect effects (see Table 3) showed that the relationship between perceived parental EE and history of NSSI was mediated by the Hated Self form of self-criticism. In the third model,

the Reassured Self form of self-criticism was tested as the mediator in the relationship between perceived parental EE and history of NSSI. The model demonstrated adequate fit, $\chi^2 = 168.65$, $p < .001$, CFI = .94, RMSEA = .06. All direct paths were significant at $p < .01$. Examination of the indirect effects (see Table 3) showed that the relationship between perceived parental EE and history of NSSI was mediated by the Reassured Self form of self-criticism.

To examine the impact of each mediator while accounting for all other mediators, all three forms of self-criticism were tested in one mediation model. The model demonstrated acceptable fit, $\chi^2 = 789.75$, $p < .001$, CFI = .89, RMSEA = .06. See Figure 2. All paths from the mediators to perceived parental EE were significant at $p < .001$. Only the path from NSSI history to Hated Self was significant ($p < .001$). Examination of the indirect effects (see Table 3) showed that when all forms of self-criticism were considered in the model, only Hated Self form of self-criticism and the total model mediated the relationship between perceived parental EE and history of NSSI.

Discussion

The goal of the current study was to expand upon the current literature by examining the relationship of perceived parental expressed emotion and self-criticism with NSSI. We hypothesized that individuals with a history of NSSI would report higher levels of perceived parental expressed emotion and self-criticism, and that self-criticism would mediate the relationship between perceived parental expressed emotion and NSSI.

Those who reported of history of NSSI perceived higher levels of: (1) lack of emotional support, (2) irritation, (3) criticism, (4) intrusiveness and (5) overall expressed emotion from their parents/caregivers. These results are not consistent with previous research suggesting parental emotional over-involvement may not play as important of a role as parental criticism in the impact of expressed emotion (Crowell et al., 2008; Wedig & Nock, 2007; Yates et al., 2008). However, as previous research has primarily focused on clinical populations, it is possible that in a community sample, both emotional over-involvement and criticism are influential in the engagement of NSSI due to the potential increased impact of the family system (Kerr, 1981). It is possible these perceptions of negative interactions with parents/caregivers may cause emotional distress, leading to NSSI being used as an emotion regulation strategy, consistent with the extant literature on the functions of NSSI, citing the alleviation of negative cognitive or emotional experiences as most commonly endorsed (Klonsky, 2007; Nock & Prinstein, 2004; 2005). Additionally, individuals who had a history of NSSI reported higher levels of the Inadequate Self and Hated Self forms of self-criticism, and significantly lower levels of the Reassured Self form of self-criticism. This is consistent with previous research by Gilbert and colleagues (2010), and, although typically less cited, the reported NSSI function of self-punishment, or to alleviate self-directed anger (Klonsky, 2007; Nock & Prinstein, 2004; 2005). Such results highlight the importance of previous findings (e.g., Irons, Gilbert, Baldwin, Bacuss, & Palmer, 2006) that self-criticism and self-disliking play a role in the risk for psychopathology, and extend this to include self-harming behaviors, such as NSSI.

Self-criticism was also examined as a mediator in the relationship between perceived parental expressed emotion and NSSI history. When examined individually, all three forms of self-criticism mediated the relationship between perceived parental expressed emotion and history of NSSI. Further, when all three forms were entered into one model, the Hated Self form was the only significant mediator, aside from the overall model. This suggests that an individual's level of Hated Self form of self-criticism may be a particularly influential factor in NSSI engagement, such that those with a higher level of the Hated Self form of self-criticism and greater perceived parental expressed emotion are more likely to engage in NSSI. This is also supported by the Hated Self independent mediation model demonstrating the best model fit. Although the current study analyses suggest that self-criticism is influential in the relationship between perceived parental expressed emotion and NSSI, it is possible that both the child and parent's emotional state contribute to one another, increasing both levels of perceived parental expressed emotion and self-criticism (Kerr, 1981). These findings generally support the integrated theoretical model of the development and maintenance of NSSI, which proposes that NSSI is maintained because it is an effective means of regulating negative affective experiences and social situations (Nock, 2009). From this framework, current findings suggest that those who engage in NSSI may have certain vulnerabilities (e.g., difficulties managing negative emotion) that lead them to respond ineffectively to stressful life events (e.g., parental interactions), thus increasing NSSI-specific vulnerabilities (e.g., high levels of self-criticism) and ultimately leading to NSSI engagement. Given the importance of such development and maintenance factors, longitudinal studies are needed to better understand the mediating of the Hated Self form of self-criticism, including the temporal precedence of self-criticism, the perception of parents/caregivers, and NSSI onset; to date, most of this research has been cross-sectional (e.g., McCrae & Bass, 1984; Sachs-Ericsson, Verona, Joiner, Preacher, 2006).

Limitations and Implications

The current study should be interpreted within the limitations of the method and analysis. Due to the limited number of individuals who reported a history of NSSI, the sample may not be representative of the overall population and lack adequate power. This limitation may be due to several factors, such as the explicit nature of the informed consent process, which may have inhibited individuals from reporting the full extent of their behavior. The highly interactive process of collecting data (i.e., face-to-face interactions with researchers, having peers around) may have also prevented individuals from reporting NSSI, which may be considered socially undesirable. All data collected was self-report, which introduces caution in interpretation as some relationships between variables may have been inflated. The perceived parental expressed emotion subscale of irritation demonstrated low reliability, and as such, findings utilizing this variable should be interpreted with caution until replicated. Finally, the data collected were cross-sectional in nature and do not allow a full test of mediation, but only allow us to infer mediation.

Despite these limitations, results of the current study have several implications for the treatment of individuals who engage in NSSI. Self-criticism, specifically the Hated Self form, may play an influential role in the likelihood of NSSI engagement. These findings advocate for the assessment of self-criticism in identifying individuals who may be engaging

in, or at risk for, NSSI. Further, this may be important in the development of preventative programs for NSSI. To date, preventative programs have largely focused on broad awareness (Muhlenkamp, Walsch, & McDade, 2010) and not specific individual risk-factors for the behavior, which may be beneficial. Interventions for NSSI may also place a larger emphasis on reconstructing an individual's negative self-view, such as those related to the Inadequate Self and Hated Self forms of self-criticism, and building upon beliefs aligning with the Reassured Self form, which could serve as a protective factor. Further, the enhancement of the parent/child dyad could prove to be a beneficial therapeutic focus.

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Figure 1. The forms of self-criticism in independent mediators

Note: * $p < .05$, ** $p < .01$, *** $p < .001$; indirect effects (based using bias corrected bootstrapping with 1,000 bootstrapped samples) appear in parentheses; FCSRS = Forms of Self-Criticizing/Attacking and Self-Reassuring Scale; LEE = Levels of Expressed Emotion Scale; PLe = perceived lack of support; PIr = perceived irritation; Pin = perceived intrusion; Pc = perceived criticism; EE = expressed emotion; NSSI = non-suicidal self-injury; paths to NSSI history and indirect effects presented are standardized based on x ; paths from mediators to independent variables are fully standardized

Figure 2. The forms of self-criticism as concurrent mediators

Note: * $p < .05$, ** $p < .01$, *** $p < .001$; indirect effects (based using bias corrected bootstrapping with 1,000 bootstrapped samples) appear in parentheses; effects (based using bias corrected bootstrapping with 1,000 bootstrapped samples) appear in parentheses; FCSRS = Forms of Self-Criticizing/Attacking and Self-Reassuring Scale; LEE = Levels of Expressed Emotion Scale; PLe = perceived lack of support; PIr = perceived irritation; PIn = perceived intrusion; Pc = perceived criticism; EE = expressed emotion; NSSI = non-suicidal self-injury; paths to NSSI history and indirect effects presented are standardized based on x ; paths from mediators to independent variables are fully standardized

Table 1

Correlation matrix of study variables

	1	2	3	4	5	6	7
1. Lack of Emotional Support							
2. Irritation	.68 ***						
3. Intrusion	.34 ***	.51 ***					
4. Criticism	.80 ***	.65 ***	.39 ***				
5. Expressed Emotion	.92 ***	.83 ***	.63 ***	.85 ***			
6. Inadequate Self	.40 ***	.42 ***	.14 *	.37 ***	.41 ***		
7. Reassured Self	-.47 ***	-.31 ***	-.16 **	-.39 ***	-.46 ***	-.54 ***	
8. Hated Self	.51 ***	.39 ***	.16 **	.48 ***	.49 ***	.67 ***	-.61 ***

Note:

* p .05,

** p .01,

*** p .001

Table 2

Perceived parental expressed emotion and self-criticism as a function of NSSI history

	History of NSSI (<i>n</i> =40)	No History of NSSI (<i>n</i> =251)	<i>F</i> Statistic (<i>df</i> = 289)
Lack of Emotional Support	37.67 (<i>SD</i> = 11.43)	28.81 (<i>SD</i> = 8.67)	33.60 ***
Irritation	17.04 (<i>SD</i> = 4.19)	14.65 (<i>SD</i> = 3.14)	18.15 ***
Intrusion	18.55 (<i>SD</i> = 4.77)	16.19 (<i>SD</i> = 4.54)	9.19 **
Criticism	10.46 (<i>SD</i> = 2.99)	8.01 (<i>SD</i> = 2.50)	31.46 ***
Overall Expressed Emotion	83.13 (<i>SD</i> = 19.29)	67.51 (<i>SD</i> = 14.97)	34.47 ***
Inadequate Self	22.28 (<i>SD</i> = 8.47)	12.95 (<i>SD</i> = 7.19)	54.77 ***
Reassured Self	19.82 (<i>SD</i> = 5.91)	25.81 (<i>SD</i> = 4.20)	61.66 ***
Hated Self	6.11 (<i>SD</i> = 4.70)	1.31 (<i>SD</i> = 2.10)	116.62 ***

*Note:**
p < .05,**
p < .01,***
p < .001;

NSSI = non-suicidal self-injury

Table 3

Summary of indirect effects for mediational models

Model	Estimate (SE)	95% CI (LL, UL)
<i>Model 1</i>		
EE → Inadequate Self self-criticism → NSSI history	.10 (.001)***	.09, .46
<i>Model 2</i>		
EE → Hated Self self-criticism → NSSI history	.11 (.02)***	.07, .14
<i>Model 3</i>		
EE → Reassured Self self-criticism → NSSI history	.07 (.01)***	.04, .09
<i>Model 4</i>		
Total	.14 (.02)***	.09, .18
EE → Inadequate Self self-criticism → NSSI history	.01 (.01)	-.02, .03
EE → Reassured Self self-criticism → NSSI history	.02 (.02)	-.01, .05
EE → Hated Self self-criticism → NSSI history	.11 (.02)***	.07, .15

Note: EE = expressed emotion;

 $p < .001$; all presented results on are standardized on x