

Is non-suicidal self-injury associated with parenting and family factors?

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Imke Baetens¹, Laurence Claes¹, Graham Martin², Patrick Onghena¹, Hans Grietens³, Karla Van Leeuwen¹, Ciska Pieters¹, Jan R. Wiersema⁴, & James W. Griffith⁵

¹ KU Leuven, Belgium

² The University of Queensland, Australia

³ University of Groningen, The Netherlands

⁴ Ghent University, Belgium

⁵ Northwestern University Feinberg School of Medicine, USA

KU Leuven, Faculty of Psychology and Educational Sciences,

Tiensestraat 102, 3000 Leuven (Belgium)

E-mail: Imke.Baetens@ppw.kuleuven.be

Phone: + 32 (0)16.32.57.24

Fax: +32 (0)16.32.59.16

Author Note

Correspondence concerning this article should be addressed to Imke Baetens, KU Leuven, Faculty of Psychology and Educational Sciences, Research Unit Clinical Psychology, Tiensestraat 102, 3000 Leuven, Belgium; Phone +32.16.32.57.24, fax +32.16.32.59.16; Email: Imke.Baetens@ppw.kuleuven.be

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Abstract

The present study investigates the association of parenting and family factors with non-suicidal self-injury (NSSI) in pre-adolescents. A sample of 1439 pre-adolescents and their parents were assessed by means of (a) adolescent-reported parenting behaviors (support and behavioral/psychological control), (b) parent-reported parenting behaviors (support and behavioral/psychological control) and parenting stress, and (c) parent-reported family structure, socioeconomic status (SES) of the family, family functioning, and family stressful life-events. The prevalence of NSSI was 4.82%. Pre-adolescents engaging in NSSI perceived more psychological and behavioral control from their parents. Logistic regression using parent-reported parenting behaviors as covariates showed a significant interaction between parent-reported support and behavioral control in relation to NSSI behaviors. No significant differences in parent-reported parenting stress and family structure emerged. Significant differences in parent-reported SES of families with and without self-injurious pre-adolescents were found. Finally, no significant associations appeared between the presence of NSSI and parent-reported family functioning and stressful life-events.

Keywords: Non-suicidal self-injury (NSSI), prevalence, parenting, family functioning, life-events.

Introduction

Non-suicidal self-injury (NSSI) refers to socially unacceptable, intentional, and direct injuring of one's own body tissue *without* suicidal intent (e.g., Nock & Favazza, 2009). The risk for engaging in NSSI seems to be particularly high in the adolescent years (Hooley, 2008). The estimated lifetime prevalence rates for NSSI in adolescents range from 13% to 24% (Jacobson & Gould, 2007; Muehlenkamp, Williams, Gutierrez, & Claes, 2009). International research has reported an average age-of-onset of NSSI between 12–14 years (Heath, Toste, Nedecheva, & Charlebois, 2008), with a peak in prevalence from age 15 onwards (Martin, Swannell, Hazell, Harrison, & Taylor, 2010). Several retrospective self-report studies examining NSSI in adolescents and young adults (e.g., Muehlenkamp & Gutierrez; Whitlock, Eckenrode, & Silverman, 2006) report that a minority of self-injurers start NSSI in early to middle childhood. Only two studies have examined NSSI in a non-clinical sample of children and pre-adolescents using a prospective design. Hilt, Nock, Lloyd-Richardson, and Prinstein (2008) examined NSSI in a non-clinical sample of pre-adolescents (age 10-14) and found a one-year prevalence of NSSI of 7.5%. In a longitudinal study with pre-adolescents between the ages 11 and 14, Hankin and Abela (2011) found a NSSI prevalence rate of 8% at baseline. In the follow-up over 2.5 years, 18% of the participants engaged in NSSI, with 14% reported initiating NSSI for the first time during the 2.5 years follow-up.

Prior research on NSSI has focused on describing NSSI and examining prevalence rates and associated adolescent risk factors in late adolescents and young adults (for a review see Nock, 2009). Little research exists on NSSI rates in early adolescents, precluding a deeper understanding of the phenomenology and onset of NSSI in younger populations. In addition, not much is known about distal (e.g., socio-economic status) and proximal (e.g., parenting) family risk factors in association with NSSI (Nixon & Heath, 2009). Both Nock (2009) and Prinstein (2008) have pointed out the importance of examining distal and proximal family risk

factors for the further understanding of possible pathways to NSSI. Linehan (1993) posited that invalidating relationships with caregivers during childhood may influence the likelihood of engaging in NSSI behaviors in adolescence. Invalidation relationships with caregivers are conceptualized as unsupportive with high levels of negativity and control from parents. She also hypothesized that invalidating relationships with caregivers, characterized by both inadequate parenting and family functioning, can lead to more deficits in emotion regulation and social skills. These deficits may, in turn, increase the likelihood of adopting negative coping skills, including NSSI. Yates (2004) elaborated on Linehan's model and hypothesized a developmental model in which NSSI behaviors develop as an adaptation to trauma (e.g., sexual abuse, neglect) experienced in childhood.

Despite hypotheses about familial factors in NSSI, few studies have examined the association between NSSI and parenting. Moreover, existing studies have used retrospective, adolescent-report measures of potential familial risk factors. The current study is – as far as we know - the first study of pre-adolescents (aged 12) that examines the association between NSSI and parenting, as well as family variables and stressful life-events, using both adolescent-report and parent-report.

In line with Linehan's model of the effects of an invalidating environment, the present study focuses on both parent-child relationships (parenting) and the broader environment (i.e., overall family functioning). Based on the hypotheses of Yates (2004), we also examine the role of negative life-events.

Parenting behavior associated with NSSI

Parenting behavior is considered the observable behavior of a parent in interaction with his/her child (Rollins & Thomas, 1979). As reviewed by Rollins and Thomas (1979), parenting behaviors can be placed upon a continuum of *support* (behavior wherein a parent shows warmth, acceptance and understanding to the child) and a continuum of *control*

(behavior wherein a parent wishes to influence the behavior of the child). On this latter dimension, behaviors are further subdivided into *psychological* (parental control of the child's psychological world) and *behavioral* control (control of child's behavior). Research (e.g., Barber, Stolz, & Olsen, 2005) has shown that parental support and behavioral control are related to higher levels of adaptive psychosocial functioning (e.g., competence, self-regulation, and academic achievement) and to lower levels of maladaptation (e.g., psychological dysfunction and externalizing problem behavior). Insufficient parental care and inappropriate overprotection and control have been suggested to be parenting variables that may contribute to child/adolescent psychopathology (e.g., Parker, 1983; Parker, Hadzi-Pavlovic, Greenwald, & Weissman, 1995; Parker, Tupling, & Brown, 1979). The interaction between lack of support and behavioral control, conceptualized as affectionless control, is a significant predictor in adolescent depression and suicide (Martin & Waite, 1994; Parker, 1983b; Patton, Coffey, Posterino, Carlin, & Wolfe, 2001).

Gratz (2006) found that low positive affect and parental overprotection were related to the frequency of NSSI in a sample of female college students. Bureau, Martin, Freynet, Poirier, Lafontaine, and Cloutier (2010) found a positive association between NSSI and perceived parental control, and a negative association between NSSI and perceived care. In contrast, Health et al. (2008) reported that the dimensions of availability and responsiveness of the parent fail to differentiate between undergraduate students who endorsed NSSI and those who did not engage in NSSI. Martin and Waite (1994) found that particularly the combination of high control and low support (affectionless control) is a significant parenting risk factor for adolescent depression and suicide. The interaction, however, between low support and high control has never been examined in relation to NSSI. Furthermore, all studies have examined adolescent-reported differences in parenting behaviors, whereas differences in parent-reported parenting behaviors remain unclear.

The amount of parenting stress is another important factor because it impacts the quality of parental behaviors on a daily basis (Abidin, 1990). *Parenting stress* is defined as a stress that results from the demands of being a parent (Abidin, 1990). The amount of parenting stress is the result of the equilibrium between burden in the family and coping resources for dealing with the burdens (Abidin, 1990). Until now, parenting stress has never been examined as a factor associated with NSSI in adolescence.

Family variables associated with NSSI

Previous research has suggested that the family context, in addition to the child-caregiver relationship, may be associated with the development of NSSI in adolescence (e.g., Bureau et al., 2010). When examining the link between family context and NSSI, several components of the family context could be considered. First, a family is characterized by a specific *structure* (e.g., traditional two-parent family, single-parent family, stepfamily). Research has shown that a relationship exists between the family structure and NSSI, with adolescents engaging in NSSI more commonly living in one-parent families or families with divorce relative to two-parent families (Nixon, Cloutier, & Jansson, 2008; Whitlock et al., 2006). Moreover, living in a divorced family at age 12 independently predicted future acts of deliberate self-harm (suicide, attempted suicide, NSSI and risk-taking behaviors) (Sourander, Aromaa, Pihlakoski, Haavisto, Rautava, Helenius, & Sillanpää, 2006). Secondly, socioeconomic status of the family is strongly related to family and adolescent well-being (Brown, 2004). Research (e.g., Bureau et al., 2010; Nixon et al., 2008) has shown an association between NSSI and *socio-economic status* of the family: adolescents who reported that their family had problems affording the basic necessities were more likely to report NSSI.

The existing research has consistently demonstrated that poor *family functioning* is associated with NSSI (e.g., Nixon & Heath, 2009). The overall quality of relationships between family members, disruptions in family bonds, and separation and loss may contribute

to NSSI (Walsh, 2006). Hilt et al. (2008) reported an association between NSSI and poor trust and communication, and high levels of alienation in a pre-adolescent normative sample. Research on deliberate self-harm (direct and indirect self-injury and suicide attempts) and suicide (e.g., Martin, Rozanes, Pearce, & Allison, 1995) has demonstrated that poor family functioning is associated with deliberate self-harm and suicide attempts. Martin et al. (1995) reported an association between dysfunctional affective involvement (either enmeshment or lack of interest) and affective responsiveness and deliberate self-harm (conceptualized as hurting oneself, irrespective of suicidal intent).

Family distress in the form of negative life events can also impact adolescent well-being. Sourander et al. (2006) found that acts of deliberate self-harm (suicide, attempted suicide, NSSI and risk-taking behaviors) are due to an accumulation of earlier *distress* in the form of negative events. Divorce and loss within the family have been found to be antecedents of NSSI (Nixon & Heath, 2009; Suyemoto, 1998). Experiencing death in the family (Portzky, De Wilde, & Van Heeringen, 2008), health problems of a family member, or relational problems with family members are identified as potential risk factors for NSSI in adolescents (Muehlenkamp, Hoff, Licht, Azure, & Hasenzahl, 2008). Furthermore, recent studies (Baetens, Claes, Muehlenkamp, Grietens, & Onghena, 2011; Horesh, Nachshoni, Wolmer, & Toren, 2009) suggest that the quantity of negative life-events, rather than the specific type of life-event, is significantly related to NSSI.

Aims of the study

The aim of the present study was to elucidate which parenting and family factors are associated with NSSI based on both adolescent-report and parent-report in a general population sample of pre-adolescents (age 12). Linking parenting and family factors to NSSI help to identify high-risk groups, and also yield clues about the etiology of NSSI. This work, in turn, can provide a foundation for effective prevention and intervention.

The aim of this study was to investigate how NSSI was associated with family and parenting factors in a large cohort of Flemish pre-adolescents. This study examined the relationship between NSSI and (a) parenting behavior (support and behavioral/psychological control) and parenting stress, and (b) family context (family structure, SES, family functioning, and family distress).

Based on previous studies, we hypothesized that parenting factors (both adolescent and parent reported) would be associated with: (a) a lower level of support in parenting behavior, (b) a higher level of psychological and behavioral control, (c) an interaction-effect between low parental support and high control, and (d) a higher level of parent-reported parenting stress. Secondly, for the associations between NSSI and parent-reported family context, we hypothesized: (a) an association with family structure, with living in a divorced family increasing the chance for NSSI, (b) poor SES in families being associated with NSSI, (c) poor family functioning to be associated with self-injurious behavior in pre-adolescents, and (d) a higher quantity of stressful life-events among families of pre-adolescents engaging in NSSI compared to non-NSSI families.

Method

Participants

The sample for this study consisted of 1439 twelve-year olds and their parents (88.70% mothers, 4.30% fathers, 1.2% step, adoptive or foster parent). The pre-adolescent sample consisted of 789 female (54.8%) and 650 male (45.2%) 12-year old adolescents. The ethnic composition of the sample was 86.00% Caucasian (with both parents born in Belgium), 9.70% had at least one parent who was born in another country (4.30% ethnic information missing).

Procedure

The present study was performed as part of the JOnG! Project (Grietens, Hoppenbrouwers, Desoete, Wiersema, & Van Leeuwen, 2010). The study's target sample consists of twelve-year olds and their parents living in nine different regions in Belgium, including both urban and rural areas. The key objective of JOnG! is to chart and follow the development of mental health, family, and health care use from pre-adolescence until adolescence.

All participants, both children and parents, gave an active informed consent for the study. In addition, a parent or legal guardian provided informed consent for the adolescent-report data. The study procedures were approved by the Ethics Committee of the university affiliated with the first author.

In March 2009, all parents of twelve-year old adolescents living in 9 regions of Flanders ($N = 9861$) were invited to participate in the study. This is 14% of the complete cohort of twelve-year olds in Flanders. All families received an information brochure, informed consent form, a questionnaire, and stamped envelope for the return of study materials. In total, 14.59% (1439/9861) of all parents of twelve-year olds and their sons/daughters (age 12) living in the 9 selected regions answered the complete questionnaire.

Measures

Adolescent-report measures

Engagement in *NSSI* was determined by an affirmative response to the item 'Have you ever intentionally hurt yourself (e.g., cut, burn, scratch), without the intent to die?'. Using a single-item measure of *NSSI* is common in *NSSI* research. For example, Muehlenkamp et al. (2012) and Claes et al. (2012) found consistent prevalence estimates of *NSSI* using a single-item measure.

Perceived parenting behavior, support, and negative behavioral control, were measured using a shortened version of the Parental Behavior Scale (PBS; Van Leeuwen & Vermulst, 2004). Pre-adolescents were asked to answer the PBS with regard to parenting behavior of their mother/stepmother. In total, 2.36% (34/1439) of all pre-adolescents preferred to answer the PBS questions with regard to parenting behaviors of a different caretaker (e.g., father/stepfather, both parents, or grandparents). The Cronbach's alpha values for the two dimensions Support (.87) and Behavioral Control (.68) indicate good to medium internal consistency. Perceived Psychological control was measured using the Psychological Control Scale (PCS; Barber, 1996), with a Cronbach's alpha of .82.

Parent-report measures

Parenting behavior was measured using the parent report "Parental Behavior Scale", shortened version (PBS; Van Leeuwen & Vermulst, 2004). The PBS contains support items (autonomy, positive parenting, (material) reward, rules) ($\alpha = .83$), as well as behavioral control items (punishing, harsh punishing and neglect) ($\alpha = .76$). Psychological control was measured using the "Psychological Control Scale" (PCS; Barber, 1996), with a Cronbach's alpha of .73. Furthermore, we used the "Nijmeegse Vragenlijst voor Opvoedingssituaties" (NVOS; Wels & Robbroeckx, 1996) to measure *parental stress*. We used only the stress load subscale ($\alpha = .64$).

Distal family risk factors assessed were *family structure* (e.g., traditional family structure, one-parent family, other) and *socio-economic status* (indicated by highest educational level of parents (low, average, high), family income (low, average, high) and occupation status (both parents, one parent, none)). *Family functioning* was measured using the "Vragenlijst Gezinsproblemen" (VGP; Koot, 1997), which is based on the Family Assessment Measure (FAM; Skinner, Steinhauer, & Santa-Barbara, 1983). The questionnaire contains

four subscales of the VGP, namely (1) support and communication ($\alpha = .95$), (2) commitment ($\alpha = .84$), (3) security ($\alpha = .86$), and (4) couple relationship ($\alpha = .79$).

Finally, 19 *life-events in the family (VMG)* were assessed (e.g., financial problems, divorce, decease in family) (Veerman, Janssen, ten Brink, van der Horst, & Koedoot, 2003). The amount of negatively experienced stressful life-events was compared between the group of pre-adolescents who engage in NSSI and those without NSSI. The Cronbach's alpha of the total life-events scale was .68.

Analyses

We checked the distributions for all variables as well as assumptions for analyses, but no significant problems were detected (e.g., the assumption of homoscedasticity was not violated and data were normally distributed). The internal consistency of each of the subscales was assessed by means of the Cronbach's alpha coefficient. Cronbach's alphas above .70 are considered as indicators of good internal consistency (de Vaus, 2002). To examine whether categorical variables were significantly associated with the presence of NSSI, the Pearson Chi Square statistic was used (e.g., family structure and SES). To investigate possible between-group differences in parenting and family variables, a Multivariate Analysis of Variance (MANOVA) was employed. Specifically, three separate MANOVAs were conducted to test for significant differences¹ between the NSSI group and the control group on (1) adolescent-reported parenting behaviors (PBS and PCS), (2) parent-reported parenting behaviors (PBS and PCS), and finally (3) parent-report of parental stress, family functioning and family distress (life-events). A Bonferroni-Holm correction for multiple comparisons was used to control for family wise error rate (Holm, 1979). Furthermore, a hierarchical binary logistic regression analysis was performed to investigate the interaction between parent-reported

¹ To account for differences in group sizes, the analyses were also performed with a matched control group with equal size as the case group, as well as 5 random samples. All analyses gave the same results, which adds to the robustness of the presented results.

support and control parenting behaviors. Gender was entered in step 1 (as a control variable), the relevant predictors in step 2, and the interaction between the predictors in step 3.

Results

NSSI

From the total sample of 1439 twelve year olds, 72 pre-adolescents indicated that they ‘hurt themselves on purpose, without suicidal intent’, giving a prevalence of NSSI of 4.82%. No significant gender difference was found: 55.6% of the NSSI group were girls, and 44.4% were boys, $\chi^2(2), N = 1385) = .40; p = .94$.

Overall, 42 pre-adolescents indicated that they did not want to answer the screening question regarding NSSI behavior (2.92% of the total sample), and were therefore excluded from further analyses. Analyses used only participants who answered the screening question ($N = 1397$).

Parenting factors

Adolescent-reported parenting behavior

Results of a MANOVA comparing the NSSI group and the no-NSSI group showed a significant difference in adolescent-reported parenting behaviors (Wilks' $\lambda = .992, F(3, 1334) = 3.67, p = .01$) (Table 1). Pre-adolescents who engaged in NSSI reported more behavioral and psychological control than their non-self-injuring counterparts, although they did not differ in the level of perceived parental support.

Parent-reported parenting behavior

No significant differences in a MANOVA were revealed in parent-reports of parental behaviors (Wilks' $\lambda = .997, F(3, 1297) = 1.19, p = .31$). Parents of pre-adolescents who engaged in NSSI did not significantly differ in their perception from other parents regarding

parental support (PBS), behavioral control (PBS) and psychological control (PCS) (see Table 2).

A binary logistic regression revealed that NSSI behavior was associated with an interaction effect between parent-reported parental support and behavioral control (see Table 4). The combination of high control and low support increases the change for NSSI significantly.

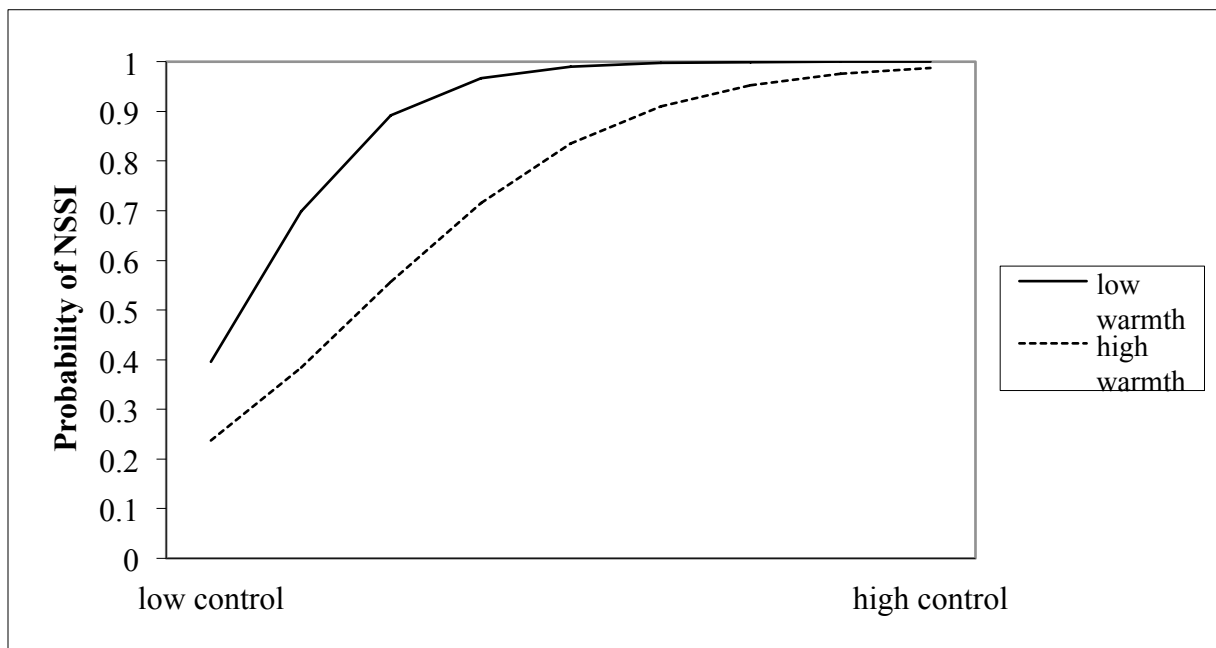


Figure 1. Interaction between parental support and parental behavioral control

The association of NSSI with parent-reported familial risk factors

Parents of pre-adolescents with or without NSSI did not significantly differ from each other on *parent-reported parental stress* (NVOS) (see Table 3). There was no significant difference in family structure between pre-adolescents who engaged in NSSI compared to non-NSSI pre-adolescents ($\chi^2 (2, N=1349) = 2.85, p = .24$).

Regarding SES, differences in three indicators were examined between the groups. A Chi Square test using parent-report data showed a significantly lower educational level (and less higher education) of parents whose children engage in NSSI compared to parents whose

children do not engage in NSSI ($\chi^2 (2, N = 1349) = 13.46, p = .004^{***}$). Furthermore, parents of children who engage in NSSI reported more often that both parents do not have a paid job ($\chi^2 (2, N = 1349) = 11.73, p = .003^{***}$). Moreover, a significant association between family income and NSSI was found: families of pre-adolescents who report NSSI have a lower family income ($\chi^2 (2, N=1349) = 8.75, p = .03^*$).²

No differences in parent-reported family functioning were found in the MANOVA. Parents of pre-adolescents who engaged in NSSI reported similar amounts of perceived support and communication in the family. Furthermore, the results showed no differences in perceived commitment, security in family and quality of couple relationship.

Finally, no significant differences were revealed in the amount of stressful life-events in the child's life as reported by the parent.³

Discussion

Our results indicate that the prevalence of NSSI in pre-adolescents age 12 is almost 5%, which merits more investigation of NSSI in children and pre-adolescents. Prevalence rates found in the present study are consistent with results of Hilt et al. (2008) and Hankin et al. (2011). Likewise, Martin et al. (2011) found, in a large population study with estimates weighted on demographic factors, a similar prevalence rate of NSSI in the youngest age group (10-12 year olds): 8.70% for boys and 7.00% for girls. These results, combined with results of the present study, indicate the importance of continuing to examine samples of children and pre-adolescents with a goal of identifying risk factors that can be countered for prevention and treatment.

Consistent with Linehan's theory (1993), previous research has identified that various dimensions of an invalidating environment (both parenting and family functioning) are related

² χ^2 -analyses using a Bonferroni-Holm correction: $^{***}.05/4 \leq .01$; $^{**}.05/3 \leq 0.02$; $^*.05/2 \leq .03$

³ MANOVA parental stress, family functioning and life-events: Wilks' $\lambda=.098, F(6, 1027) = .22, p = .99$

to the development of NSSI. The present study investigated the relative contribution of these dimensions in relation to NSSI by examining the association with multiple parenting and family variables. Furthermore, the present study is to our knowledge the first study assessing with both, adolescent- and parent-reports the association between NSSI and family variables in a pre-adolescent normative sample. Most studies used retrospective assessment of the family environment, which is helpful as a first step, but subject to recall biases.

The present study shows that pre-adolescents who report NSSI perceive their parents' behavior as more psychologically and behaviorally controlling. These results are consistent with previous research (e.g., Bureau et al., 2010). Parent-reported parenting behaviors did not significantly differ in terms of support and control separately, but there was a significant interaction effect between parental warmth and behavioral support in their relation to NSSI. Consistent with Martin et al. (1994), affectionless controlling parenting behavior (conceptualized as the combination of both low support and high behavioral control) was a significant risk factor for NSSI.

There were no significant differences in parental stress, family structure, family functioning and family life-events. Consistent with previous findings regarding SES (Bureau et al., 2010; Nixon et al., 2008), our results showed a negative association between NSSI and parental educational level, job employment and family income.

The present study adds to the currently limited body of research on NSSI in pre-adolescents, but some limitations are noteworthy. The study only assesses the presence/absence of NSSI. We did not assess frequency, method or severity of NSSI. Additional information about methods, frequency and severity of NSSI would be of interest to assess in future research. Another limitation is the lack of data concerning parental awareness of the child's NSSI, which should be examined in future research because parents are often a valuable source of mental health information. Another limitation of the study is the cross-

sectional design, which obviates the opportunity to make firm conclusions about causality. Although the present study provides evidence for some potential differences in family environment, it does not address the mechanisms that may underlie these relationships. Thus, some important questions remain. For example, NSSI is often secretive, and NSSI is mostly hidden from peers and family members (Baetens et al., 2011; Martin et al., 2011). It might be that because pre-adolescents try to conceal their NSSI behaviors, the subjective perception of control by their parents raises. Or the reverse, it might be that because a pre-adolescent is behaving more secretly, a parent increases behavioral and psychological control to get a grip on the pre-adolescents' behaviors. Additional qualitative and longitudinal research is needed, to examine a possible circular causality between NSSI behavior and parenting behaviors. Finally, the reliability of the NVOS stress subscale ($\alpha = .64$) is low, so future research should attempt to replicate these findings using a questionnaire with a higher level of reliability, perhaps using a questionnaire with more items.

Our study, combined with previous research on the association between NSSI and family variables, emphasizes the importance of prevention targeting pre-adolescents. Prevention programs in schools targeting general well-being, for instance Aussie Optimism (Roberts, Kane, Bishop, Matthews, & Thomson, 2004), or specific NSSI related risk factors (e.g. SOSI; Jacobs, Walsh, McDade, & Pigeon, 2009) are imperative. Aussie Optimism is a program that has been proven effective in the prevention of depression. It provides teachers, practitioners and parents with practical strategies for developing children's social competence, self-management, and positive thinking. Another program, Signs of Self-injury (SOSI) is an educational approach specifically designed to reduce self-injury in high schools by increasing knowledge about NSSI behaviors (including warning signs and risk factors) and improving attitudes towards help-seeking. With regard to intervention, family therapy focusing on improving the quality of relationship between adolescents and parents may be particularly

useful in the treatment of NSSI, as well as early parent training focusing on how to cope with NSSI in families.

The present study demonstrates differences in adolescent-reported and parent-reported parental behavior between pre-adolescents who engage in NSSI and non-self-injurious pre-adolescents. Future research should examine whether this difference in perception is linked to a negative cognitive bias (e.g., having a negative perception of the environment), or whether parents tend to answer more socially-desirably to questions concerning parenting behaviors (e.g., harsh punishment). Longitudinal research should examine the temporal link between NSSI and more controlling/less supportive parenting behaviors; namely is parenting a proximal risk factor for NSSI, or do parents tend to react to NSSI behaviors in a more controlling and less supportive manner (as means to get a grip at their son/daughter who is engaging in NSSI)?

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Tables

Table 1

Means, standard deviations, and MANOVA results for adolescent-reported parenting behaviors (PBS and PCS).

	No NSSI		NSSI		<i>F</i> (3, 1334)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Support	3.68	0.58	3.56	0.62	2.92
Behavioral control	1.99	0.54	2.17	0.59	6.84***
Psychological control	13.84	4.78	15.37	5.52	6.50**

Bonferroni-Holm correction: * $p < .05/1 = .05$; ** $0.05/2 < .025$; *** $.05/3 < .016$.

Table 2

Means, standard deviations, MANOVA results for parent-report parenting behaviors (PBS and PCS).

	No NSSI		NSSI		<i>F</i> (3, 1334)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Support	3.94	0.36	3.99	0.39	1.15
Behavioral control	1.96	0.39	1.88	0.45	2.36
Psychological control	13.32	3.27	12.92	3.40	0.90

Bonferroni-Holm correction: $*p < .05/3 = .016$

Table 3

Means, standard deviations, MANOVA results for parent-reported parenting stress, family factors and stressful life-events.

	No NSSI		NSSI		F(8, 1004)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Parenting stress					
- Stress load	19.04	3.02	18.88	3.54	0.12
Family Functioning					
- Support& communication	7.11	6.94	7.54	7.72	0.18
- Security	1.84	2.32	1.88	2.60	0.02
- Commitment	2.11	2.22	2.02	3.03	0.05
- Couple relationship	1.46	1.91	1.44	1.76	0.01
Stressful life-events	0.97	1.46	0.92	1.40	0.07

Bonferroni-Holm correction: $*p < .05/6 = .008$

Table 4

Binary logistic regression analyses predicting NSSI by parent-reported parenting behaviors (support, behavioral control, psychological control) and their interaction effects.

		NSSI		
		<i>B</i>	<i>SE B</i>	<i>B</i>
Step 1	Gender	-.03	.25	.97
<i>Nagelkerke R² = .00</i>				
Step 2	Gender	-.03	.26	.97
	Support	.14	.13	1.14**
	Behavior Control	-.19	.15	.83**
	Psychological Control	-.03	.15	.97
<i>Nagelkerke R² = .01</i>				
Step 3	Support*Behavior	-.41	.15	.66***
	Support*Psychological	-.15	.15	1.16
	Behavior*Psychological	.10	.11	1.10
<i>Nagelkerke R² = .03</i>				

Note: ^a PBS and PCS Parenting behavior subscales are entered as standardized variables.

** $p < .01$, *** $p < .001$