

## Behavioural Self-Soothing as a Mediator of Romantic Attachment and Non-Suicidal Self-Injury

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Romantic attachment is experienced differently by individuals because of variations in their attachment relationship histories. Compared to attachment security, insecurity best predicts the use of maladaptive emotion regulation strategies such as engaging in risky or problem behaviours to cope with distress (Cooper, Shaver, & Collins, 1998). However, few empirical works have been conducted on the relation between romantic attachment and risky behaviours such as non-suicidal self-injury (NSSI; Kimball & Diddams, 2007). The aim of the current study is to assess the mediational role of behavioural self-soothing, an emotion regulating strategy, on romantic attachment and NSSI in young adults. Participants consisted of 1055 university students in a romantic relationship, ranging in age from 17-25 years old. Results showed that insecure romantic attachment was linked to fewer behavioural self-soothing skills, which in turn resulted in more NSSI behaviours, confirming our mediational model. Differences among men and women are discussed.

*Keywords:* attachment anxiety, attachment avoidance, behavioural self-soothing, non-suicidal self-injury, romantic attachment

L'attachement romantique est vécu différemment pour chacun en raison des variations dans leur historique de relations d'attachement. En comparaison à un attachement sécurisant, l'insécurité prédit mieux l'utilisation de stratégies de régulations émotionnelles inadaptées comme l'utilisation de comportements risqués pour gérer le stress (Cooper, Shaver, & Collins, 1998). Toutefois, peu d'études empiriques ont analysé le lien entre l'attachement romantique et les comportements risqués, tel l'automutilation (Kimball & Diddams, 2007). Le but de cette étude est d'évaluer le rôle médiateur du comportement d'auto-apaisement, une stratégie de régulation émotionnelle, sur l'attachement romantique et l'automutilation chez les jeunes adultes. Les participants étaient constitués de 1055 étudiants universitaires engagés dans une relation amoureuse et âgés de 17 à 25 ans. Les résultats ont démontré que l'attachement romantique insécurité était lié à moins de comportements d'auto-apaisement qui eux, menaient à plus de comportements d'automutilation, confirmant ainsi notre modèle. Les différences hommes-femmes sont également discutées.

*Mots-clés :* anxiété d'attachement, évitement d'attachement, comportement d'auto-apaisement, automutilation non-suicidaire, attachement romantique

Non-suicidal self-injury (NSSI) refers to the direct and deliberate destruction of one's own body tissue in the absence of suicidal intent, a behaviour that is not socially sanctioned within one's culture (Favazza, 1998; Nock & Favazza, 2009). This behaviour consists of cutting, pin-scratching, carving, burning and self-hitting, but can also include other forms of self-injury (Nixon & Heath, 2009). The present study will focus uniquely on NSSI behaviour, which subsists within the range of deliberate self-harm (DSH; Nixon & Heath, 2009), a broader category including multiple

types of self-harm behaviour with or without the presence of suicidal intent (Nixon & Heath, 2009).

Prevalence of NSSI varies considerably within the literature due to the lack of nationally representative studies conducted on NSSI thoughts and behaviours (Rodham & Hawton, 2009), lack of definitional consensus, and variability in the sample (Nixon & Heath, 2009). According to international data, approximately 15-20% of adolescents from community samples (Heath, Schaub, Holly, & Nixon, 2009) and 20-38% of American college and university students (Gratz, Conrad, & Roemer, 2002; Polk & Liss, 2007) stated that they had engaged in self-injury behaviours at least

once in their lives. These elevated rates have spurred interest in the study of explanatory risk factors and contributing variables to better understand NSSI behaviours. The goal of the present study is to expand existing knowledge by measuring the mediating effect of behavioural self-soothing on romantic attachment and NSSI behaviours. We will specifically assess the instances of NSSI behaviour taking place at least once in the past six months.

### **Romantic Attachment, Behavioural Self-Soothing and NSSI: Theoretical Relationships**

Bowlby (1969, 1982) suggested that in childhood, attachment is an innate behavioural system that promotes safety and survival by encouraging proximity, a 'felt security' between the infant and their primary caregiver when the latter is perceived as accessible and responsive under conditions of danger or threat. The child can then learn to adopt secure patterns of attachment. However, if the child fails to receive a sense of security, there is a resulting lack of distress relief, and the child then learns that distressing emotions cannot be successfully regulated. As a result, insecure patterns of attachment are adopted (Cooper et al., 1998). Internal working models are developed in childhood and operate as cognitive filters that allow the regulating and understanding of attachment-related behaviours of others and the self (Collins & Read, 1994). They may be considered as guiding all relationships in one similar way, or, as most evidence suggests, as guiding specific relationships in unique and different ways (Caron, Lafontaine, Bureau, Levesque, & Johnson, 2012).

There are many types of attachment figures in adulthood (i.e., parents, friends and romantic partners). Some theorists conceptualize attachment in terms of one general overarching style of relating to and bonding with the significant others in our lives. This generalist approach can be referred to as general adult attachment (Caron et al., 2012). Many researchers categorize current general adult attachment styles in adulthood either as secure, avoidant or anxious (Feeney, Noller, & Hanrahan, 1994). In contrast, many theorists contend that attachment bonds develop in a context-specific manner, and that we develop attachment orientations unique to the relationship experiences we share with others (Caron et al., 2012). Theorists and researchers began to specifically focus on the study of adult romantic attachment, as it was proposed that individuals' romantic partners become each other's primary attachment figure and, consequently,

the romantic relationship becomes the most important relationship in adulthood (Hazan & Shaver, 1987). Most researchers currently agree to conceptualize romantic attachment as a two-dimensional model: *attachment anxiety* and *attachment avoidance* (Mikulincer & Goodman, 2006). While romantic attachment anxiety is characterized by worries about the relationship, a great need for closeness, and fear of being rejected, attachment avoidance can be defined by an inclination to emotionally distance themselves from others and be compulsively self-reliant (Mikulincer, Shaver, & Pereg, 2003). People who have secure romantic patterns of attachment (i.e., low on attachment anxiety and attachment avoidance) are defined by a positive sense of security, comfort with closeness, an ability to rely on support seeking, and constructive means of coping with stress (Brennan, Clark, & Shaver, 1998).

Individuals associated with romantic attachment security are thought to use constructive and adaptive emotion regulation strategies (e.g., managing the experience, beneficial support-seeking and constructive problem-solving strategies) (Mikulincer et al., 2003). Emotion or affect regulation strategies are known as the processes by which we influence the emotions we have, when we have them, and how we experience and express them (Gross, 1998). There exist many behavioural strategies to regulate emotion, such as self-soothing, social referencing, withdrawal, and self-distraction with objects (Diener, Mangelsdorf, McHale, & Frosch, 2002). Although there are a number of strategies to regulate emotion, the present research focuses on the study of behavioural self-soothing since previous research demonstrates the importance of the relation between attachment insecurity and the lack of self-soothing capabilities (Shaver & Mikulincer, 2002). When it comes to individuals associated with romantic attachment insecurity (both attachment anxiety and attachment avoidance) they fail to learn how to cope and self-soothe in effective or beneficial ways, and thus each employ distinct secondary affect regulation strategies that are maladaptive and unreliable (Shaver & Mikulincer, 2002).

The first set of strategies consists of energetic, insistent attempts to attain proximity, support, and love when one believes that the assessment of proximity seeking is a worthwhile option. These are referred to as *hyperactivating strategies* (Cassidy & Kobak, 1988). These strategies are characteristic of people who are associated with romantic attachment anxiety and who, consequently, have intense negative

emotional responses, ruminate on possible threats, and seek more support than partners are willing or able to give (Lopez & Brennan, 2000). Thus, there is a real lack of capacity or a belief of inability to self-soothe (Lopez & Brennan, 2000; Mallinckrodt & Wei, 2005; Mikulincer et al., 2003). The lack of self-soothing skills may therefore be an imperative explanatory variable (i.e., mediator) between romantic attachment anxiety and the use of NSSI behaviours, given that individuals associated with the attachment anxiety dimension are more likely to report lower self-soothing capabilities and more negative emotional reactions, which in turn may lead to the use of NSSI behaviours.

When one believes that the assessment of proximity seeking is not a viable option, a second set of affect regulation strategies is used to deactivate proximity seeking, to inhibit needs for others, and to support oneself (Mikulincer et al., 2003). These are known as *deactivating strategies* (Cassidy & Kobak, 1988) and are characteristic of people who are associated with romantic attachment avoidance. They include diverted attention to events that are viewed as threatening, and suppression of unwanted aversive memories from attachment-related thoughts and emotions (Mallinckrodt & Wei, 2005). Therefore, behavioural self-soothing may be an explanatory variable (i.e., mediator) between romantic attachment avoidance and NSSI behaviours, given that NSSI may be used as a way to remove one's self from an emotional or cognitive experience (Prinstein, Guerry, Browne, & Rancourt, 2009). Thus, NSSI would be a behavioural manifestation of their deactivating strategies.

This being said, attachment theory provides a good explanatory framework for NSSI behaviours: Individuals with insecure attachment (e.g., romantic partners) are more likely to engage in NSSI because both insecure attachment (Mikulincer et al., 2003) and NSSI (Suyemoto, 1998) are associated with the failure to use adaptive self-regulation strategies, such as self-soothing. As such, researchers hypothesise that individuals engage in NSSI as an approach for reducing negative stimulus such as negative emotional states (Briere & Gil, 1998; Chapman, Gratz, & Brown, 2006; Klonsky, 2007, 2009; Nock & Prinstein, 2004, 2005) and can be used in order to escape from a disturbing affective or cognitive experience (Prinstein et al., 2009).

### **Romantic Attachment, Behavioural Self-Soothing and NSSI: Empirical Relationships**

The above-mentioned theoretical relations have formed the backdrop for emerging research examining links between romantic attachment, affect regulation, and NSSI. Mikulincer and Shaver (2007) made an extensive compilation of research demonstrating the link between romantic attachment and emotion regulation. Results showed that individuals associated with romantic attachment security are more likely than those associated with romantic attachment anxiety or avoidance to have developed a vast repertoire of self-soothing skills to calm themselves. These skills are developed either by using strategies learned from security-providing attachment figures or by turning to constructive alternatives rather than ruminating or catastrophizing (Mikulincer & Shaver, 2007).

Second, until now, only two studies have tested the relation between romantic attachment and self-injury behaviours. Fung (2008) specifically studied deliberate self-harm (DSH) in relation to adult romantic attachment, caregiver experience, and anger expression of 40 adult DSH patients and 52 matched non-DSH control subjects. Results demonstrated that the majority ( $n = 35$ ) of self-harming patients had higher levels of romantic attachment anxiety. Also, analyses of the difference in attachment anxiety and attachment avoidance subscales demonstrated that DSH patients differed statistically significantly from non-DSH patients solely for the measure of attachment anxiety. Similar results were obtained in a second study that used a non-clinical sample. Researchers studied the influence of romantic attachment and victimization of intimate partner violence on reports of NSSI behaviours in a sample of 537 young adults from a university setting (Levesque, Lafontaine, Bureau, Cloutier, & Dandurand, 2010). These researchers demonstrated that romantic attachment anxiety was linked to greater amounts of NSSI thoughts in men and women, and NSSI behaviours in women. However, romantic attachment avoidance was not associated with NSSI thoughts or behaviours in men or women, which, similarly to Fung's (2008) study, demonstrates to be inconsistent with the theoretical underpinnings of NSSI.

Third, many studies have demonstrated a strong link between maladaptive or dysfunctional emotion regulation skills and NSSI behaviours. Klonsky (2007) demonstrated, in an elaborate review of the existing evidence, that affect regulation is the primary function of NSSI behaviours for adolescents, young adults, and

adults. The results from eighteen studies using a variety of methods provide considerable evidence suggesting that negative affect precedes NSSI and a relief of this negative affect is present after NSSI behaviour.

Finally, Kimball and Diddams (2007) conducted a study demonstrating that affect regulation is a significant mediator of the relation between general adult attachment insecurity (i.e., avoidant and anxious styles of attachment) and deliberate self-harm from a university sample composed of 216 individuals. This study is, to our knowledge, the first to suggest the existence of a link between attachment insecurity and NSSI behaviours through emotion regulation strategies, specifically behavioural self-soothing.

### The Current Study

Given that previous literature suggests theoretical and empirical links between romantic attachment, behavioural self-soothing and NSSI, the current study sought to replicate and broaden existing findings—including the examination of both direct and indirect associations among these variables—in a considerably large community sample of young adults.

The above literature review brings to light a number of limitations of current NSSI research. First, the study of deliberate self-harm behaviours limits our understanding of the motivation behind the behaviour, due to the fact that deliberate self-harm does not specify if there is or isn't presence of suicidal intent. Thus, studying NSSI offers additional information on the act itself by narrowing the studied construct. Second, given the lack of literature and NSSI's alarming prevalence in community and university samples, the present study aims to explore NSSI in a non-clinical sam-

ple to obtain results that are representative of the general population of young adults. Third, previous researchers focused their investigation on general adult attachment in relation to NSSI, even though romantic attachment has been shown to be the most important attachment model in young adulthood (Mikulincer & Goodman, 2006). Fourth, given the multitude of emotion regulation strategies, the focus on the study of behavioural self-soothing permits a better definition of the studied construct. As mentioned above, the existing literature indicates an important link between attachment insecurity and the lack of self-soothing capabilities, thus meriting further research (Shaver & Mikulincer, 2002). Finally, there is currently no study that sets out how the relation between romantic attachment and the development of NSSI may be explained by behavioural self-soothing, which seems to be a robust theoretical underpinning of this association. The current study will address these limitations by examining the following direct and indirect links.

We hypothesise that romantic attachment insecurity, i.e., both attachment anxiety and attachment avoidance, will predict fewer behavioural self-soothing skills. Additionally, we hypothesise that romantic attachment insecurity will positively predict the presence of NSSI behaviour taking place at least once in the past six months in our sample. Also, we hypothesise that fewer behavioural self-soothing skills will predict the presence of NSSI behaviours in young adults. Moreover, early theoretical models lead us to hypothesise that behavioural self-soothing will mediate the relationship between romantic attachment insecurity and the presence of NSSI behaviours. Finally, although no specific hypotheses were postulated, the effect of gender on this mediation model is also examined with an exploratory purpose.

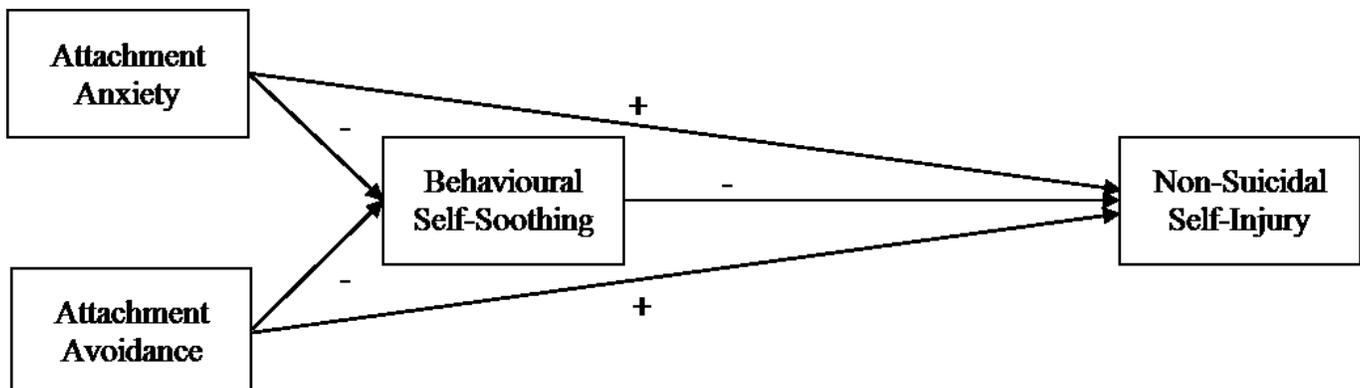


Figure 1. Hypothesised mediation model relating Romantic Attachment Insecurity (Attachment Anxiety and Attachment Avoidance), Behavioural Self-Soothing and Non-Suicidal Self-Injury (NSSI)

## Method

### Participants

The total sample was composed of 1055 students enrolled in an introductory experimental psychology course, including 855 females and 200 males between the ages of 17 and 25 years old ( $M = 19.54$ ;  $SD = 1.64$ ). All participants were involved in a romantic relationship. The sample included Anglophone (70.8%) and Francophone (29.2%) participants who reported a mean age of 19.54 years ( $SD = 1.64$ ). The average duration of the romantic relationship was 1.42 years ( $SD = 1.47$ ) and participants self-identified as: Caucasian (81.8%), Black (4.2%), Asian (5.6%), Hispanic (1.2%) and other racial background (7.2%). The majority of respondents were not cohabiting with their partner (87.3%), were heterosexual (94.9%), and did not have children (79.9%).

### Procedure

This study was approved by the University of Ottawa's (Ontario, Canada) institutional review board. Participants were advised of the voluntary nature of the study, and all those who completed the online questionnaire were assumed to have given informed consent. The respondents were informed that they may choose to withdraw at any point without consequence and were provided all the needed information to access the secure encrypted Internet link (Survey Monkey). Each participant received two additional percentage points towards their respective final grade for the course and their anonymity was ensured with the allocation of a coded five-digit number. The questionnaires were offered in either English or French and included a list of psychological resources<sup>1</sup>.

### Measures

**Romantic Attachment.** The *Experience in Close Relationships questionnaire* (ECR; Brennan et al., 1998) is a 36-item measure of adult romantic attachment which is comprised of an 18-item attachment anxiety scale and an 18-item attachment avoidance scale. Participants attributed to each item a score that best represented their feelings in close relationships on a Likert scale ranging from (1) *strongly disagree* to (7) *strongly agree*. An elevated mean score on each respective dimension suggested either higher anxiety or avoidance, and the total mean score ranged between 1 and 7 on each subscale. In the current sample,

Cronbach's alpha was .93 for both the anxiety and avoidance dimensions as compared to Brennan et al. (1998) results which he reported as .91 and .94, respectively. Attachment dimensions have shown to be reliable in both internal consistency and temporal stability (Alonso-Arbiol, Balluerka, & Shaver, 2007; Lafontaine & Lussier, 2003).

**Behavioural Self-Soothing.** The *Personal and Relationships Profile* (PRP; Straus, Hamby, Boney-McCoy, & Sugarman, 2007/1999; Straus & Mouradian, 1999) is a measure designed for research on partner violence. It was developed to assess both individual-level personal characteristics and relationship-level variables. The respondents were assessed on a 4-point Likert scale ranging from (1) *strongly agree* to (4) *strongly disagree*. Behavioural self-soothing was evaluated with the item "*There is nothing I can do to control my feelings when my partner hassles me*". Thus, measuring the ability of one to regulate and control his or her feelings when placed in a distressed situation with their romantic partner.

**Non-Suicidal Self-Injury.** Finally, the *Ottawa Self-Injury Inventory* (OSI; Cloutier & Nixon, 2003) was used to assess NSSI thoughts and behaviours. The OSI is a self-report instrument that measures past and present NSSI behaviours, the underlying objective of engaging in this behaviour, and NSSI thoughts. In the current study, only NSSI behaviours that took place in the last six months were evaluated. The presence of this behaviour taking place at least once in the past six months was assessed with the question "*How often in the past 6 months have you actually injured yourself without the intention to kill yourself?*"

## Results

### Preliminary Analyses

An evaluation of missing data using Little's MCAR test revealed that the data may be assumed missing completely at random ( $\chi^2(3) = 4.43$ ,  $p > .05$ ) and that there were no variables with more than five percent missing data. We used the Expectation Maximization (EM) method in order to estimate missing values. Mahalanobis distance analysis was carried out, and no multivariate outliers were identified.

### Descriptive Statistics

From the sample of 1055 participants, 8.5% ( $n = 90$ ) reported having engaged in NSSI behaviours

ATTACHMENT, SELF-SOOTHING, NON-SUICIDAL SELF-INJURY

Table 1

*Descriptive Statistics and Intercorrelations between Non-Suicidal Self-Injury (NSSI), Romantic Attachment Insecurity (Anxiety and Avoidance), and Behavioural Self-Soothing*

	<i>M</i>	<i>SD</i>	1	2	3	4
1. The presence of NSSI behaviour at least once in the past 6 months	.09	.28	-	.17***	.14***	-.13***
2. Attachment anxiety	3.30	1.14		-	.31***	-.28***
3. Attachment avoidance	2.50	1.05			-	-.23***
4. Behavioural self-soothing	3.04	0.73				-

*Note.* Mean scores were computed on a dichotomous scale for NSSI behaviour, on a 7-point scale for romantic attachment, and on 4-point scale for behavioural self-soothing.

\*\*\*  $p < .001$ .

at least once in the past six months. Of this number, 22.2% ( $n = 20$ ) were male and 77.8% ( $n = 70$ ) were female. The sample of 1055 participants completed all of the above-mentioned questionnaires. Therefore the following analyses have taken into account the full sample. We examined means, standard deviations and Pearson correlations to evaluate and assess their mutual relationship (Table 1). The results indicated that the presence of NSSI was associated with attachment anxiety ( $r = .17, p < .001$ ) and with attachment avoidance ( $r = .14, p < .001$ ). The presence of NSSI was negatively associated with behavioural self-soothing ( $r = -.13, p < .001$ ). Attachment anxiety was positively correlated with attachment avoidance ( $r = .31, p < .001$ ).

The presence of NSSI was negatively associated with behavioural self-soothing ( $r = -.13, p < .001$ ). Attachment anxiety was positively correlated with attachment avoidance ( $r = .31, p < .001$ ), and was negatively correlated to behavioural self-soothing ( $r = -.28, p < .001$ ). Attachment avoidance was also negatively correlated to behavioural self-soothing ( $r = -.23, p < .001$ )<sup>2</sup>.

**Mediation Analysis**

A model examining the degree to which behavioural self-soothing mediates the relation of romantic attachment and NSSI behaviours was tested (Figure 1). As recommended by Preacher and Hayes (2008), a bias

Table 2

*Direct and Indirect Effects of Romantic Attachment Insecurity (i.e., Anxiety and Avoidance) on Non-Suicidal Self-Injury (i.e., NSSI) through Behavioural Self-Soothing for Overall Sample (N = 1055)*

	Estimate	<i>SE</i>	BC 95% CI	
			Lower	Upper
1. Direct effect of attachment anxiety on NSSI	0.20***	0.06	0.09	0.32
2. Direct effect of attachment avoidance on NSSI	0.14*	0.06	0.03	0.26
3. Direct effect of attachment anxiety on behavioural self-soothing	-0.15***	0.02	-0.19	-0.11
4. Direct effect of attachment avoidance on behavioural self-soothing	-0.11***	0.02	-0.17	-0.06
5. Direct effect of behavioural self-soothing on NSSI	-0.19*	0.08	-0.34	-0.02
6. Indirect effect of behavioural self-soothing on the link between attachment anxiety and NSSI	0.03*	0.01	0.00	0.05
7. Indirect effect of behavioural self-soothing on the link between attachment avoidance and NSSI	0.02*	0.01	0.00	0.05

*Note.* \* $p < .05$ . \*\*\* $p < .001$ .

corrected (BC) confidence interval was used with the bootstrapping (5000 samples) method in order to obtain more powerful confidence interval (CI) limits for indirect effects. This is a nonparametric resampling procedure that estimates properties of estimators based on samples drawn from the original observations, even when the underlying distribution is unknown and may not be normally distributed (Bollen & Stine, 1990). We used Mplus (Muthén & Muthén, 2011) to conduct the main mediation model analysis.

This method permits us to include multiple independent variables to predict dichotomous dependant variables. Results show that both attachment anxiety and attachment avoidance are linked to fewer behavioural self-soothing skills. Also, direct effects of romantic attachment on the presence of NSSI behaviours are statistically significant. Additionally, the presence of less behavioural self-soothing competencies predicts the presence of NSSI behaviours. Finally, behavioural self-soothing does partially mediate the effect of romantic attachment, for both attachment anxiety and attachment avoidance, on NSSI behaviours. As a supplementary analysis, the mediation model was tested for women and men separately. Results indicated that, for men, only attachment anxiety and attachment avoidance are linked to fewer behavioural self-

soothing skills. No other links proved to be statistically significant. For women, however, results proved to repeat identical patterns, all direct and indirect effects were the same, as demonstrated with our overall sample (see Table 3 for all direct and indirect effects).

**Discussion**

The primary objective of the current study was to demonstrate that behavioural self-soothing serves a mediating role in the relation between romantic attachment and NSSI behaviours in young adults. Despite important theoretical implications, no research has yet examined these contributing factors in one comprehensive model. Hence, this study helps advance knowledge about the role NSSI behaviours play in young adults’ romantic relationships.

Results showed that individuals that are anxiously or avoidantly attached were significantly more likely to use NSSI behaviours in the current overall sample. As in previous research, romantic attachment anxiety has been consistently linked to NSSI in both clinical (Fung, 2008) and community samples (Levesque et al., 2010). Although contradicting past findings (Fung, 2008; Levesque et al., 2010), theoretical evidence

Table 3

*Direct and Indirect Effects of Romantic Attachment Insecurity (i.e., Anxiety and Avoidance) on Non-Suicidal Self-Injury (i.e., NSSI) through Behavioural Self-Soothing for Men and Women*

	Men (n = 200)				Women (n = 855)			
	Estimate	SE	BC 95% CI		Estimate	SE	BC 95% CI	
			Lower	Upper			Lower	Upper
1. Direct effect of attachment anxiety on NSSI	0.04	0.12	-0.19	0.28	0.26***	0.07	0.11	0.39
2. Direct effect of attachment avoidance on NSSI	0.07	0.15	-0.21	0.36	0.15*	0.07	0.01	0.27
3. Direct effect of attachment anxiety on behavioural self-soothing	-0.11***	0.05	-0.2	-0.02	-0.15***	0.02	-0.19	-0.10
4. Direct effect of attachment avoidance on behavioural self-soothing	-0.20*	0.06	-0.31	-0.09	-0.10***	0.03	-0.15	-0.04
5. Direct effect of behavioural self-soothing on NSSI	-0.25	0.17	-0.56	0.12	-0.19*	0.09	-0.37	0.00
6. Indirect effect of behavioural self-soothing on the link between attachment anxiety and NSSI	0.03	0.03	-0.01	0.09	0.03*	0.01	0.00	0.06
7. Indirect effect of behavioural self-soothing on the link between attachment avoidance and NSSI	0.05	0.04	-0.02	0.14	0.02*	0.01	0.00	0.04

Note. \*p < .05. \*\*\*p < .001.

supports the relation between romantic attachment avoidance and NSSI, and there is some empirical evidence that may help explain this significant link. Cooper et al. (1998) demonstrated that adolescents characterised by general attachment avoidance, lacking adaptive emotion regulation skills, were more motivated to engage in problem behaviour (e.g., substance abuse, sexual behaviour, and delinquency) to cope with distress, but lacked the necessary social skills to do so in these types of highly peer-involved behaviours (Cooper et al., 1998). Given that NSSI behaviours are most commonly described assolitary activities that few adolescents report disclosing to anyone (Lofthouse & Katz, 2009), NSSI behaviours may be used by avoidant adolescents in order to regulate emotional distress. Further research is needed to understand the motivations to use NSSI in individuals associated with romantic attachment avoidance.

Our results also confirm that romantic attachment insecurity, characterized in our study by attachment anxiety and attachment avoidance, does predict the use of fewer self-soothing skills in young adults. Therefore, insecurely attached participants were less able to control their feelings when their partner hassled them. As mentioned in the introduction, there is ample support for these results in existing theoretical (Suyemoto, 1998) and empirical evidence (Mikulincer & Shaver, 2007). Moreover, fewer behavioural self-soothing skills predicted the use of NSSI behaviour at least once in the previous six months. An individual lacking behavioural self-soothing skills, an important emotion regulation skill, will consequently lack the ability to regulate their emotions in an adaptive way (Suyemoto, 1998). Consequently, they are more likely to turn to maladaptive behaviours such as NSSI to regulate their distress. Therefore, it is primarily used as a maladaptive affect regulation strategy (Linehan, 1993).

More importantly the results confirm our main hypothesis that behavioural self-soothing mediates insecure romantic attachment and NSSI behaviours in our overall sample. These findings are consistent with results from Kimball and Diddams' (2007) study showing that affect regulation mediates the relation between general adult attachment insecurity and deliberate self-harm in college students. Even though it was not hypothesized, no such mediation was found in men from our study. Therefore, the explanatory path leading to the development of NSSI behaviours seems to be different in men and women. Results may be attributable to the fact that men who use NSSI behav-

viours may use different types of maladaptive emotion regulation skills, instead of self-soothing. In fact, men have been shown to use different types of emotion regulation strategies than women. Barrett, Lane, Sechrest, & Schwartz (2000) suggest that men are more likely to engage in automatic non-conscious emotion regulation. This may be defined as a tendency to automatically correct both positive and negative moods towards a neutral baseline (Larsen & Prizmic, 2008). Thus, we may postulate that a deficiency in automatic non-conscious emotion regulation skills may be an explanatory variable linking attachment insecurity to NSSI behaviours in men rather than behavioural self-soothing. Further research is needed to better understand which emotion regulation strategies mediate the relationship between attachment and NSSI behaviours for men.

These results may have clinical implications in the sense that attachment insecurity seems to be linked to deficiencies in self-soothing skills. In this case, deficiencies in emotion regulation, specifically behavioural self-soothing, are possible risk factors, and thus, indicators of NSSI behaviours, especially in women. These facets should be considered as important targets in the prevention and treatment of NSSI behaviours in young adults. Understanding the roles that attachment anxiety and attachment avoidance play in the prediction of self-soothing capabilities and NSSI helps enrich our comprehension of treatment strategies that apply to self-harm. Although this study demonstrates an important contribution to the field, continued research evaluating properties of NSSI as well as other important risk factors are necessary in the development of additional intervention strategies for young adults.

### Limitations

Despite these important findings, we would like to acknowledge this study's limitations. First, the sample consisted solely of undergraduate students, and thus may not be representative of the general population of young adults. Second, the use of questionnaires may lead to error related to memory or social desirability reasons. Third, the allocation of a course credit for the completion of the study may have led to a selection bias. However, the size of the sample recruited for this study should ensure that, to a large degree, sample variance should be relatively similar to population variance, thus strengthening the generalization of findings. The fact that this study's results also fit well within the scientific literature also

serves to strengthen external validity. Fourth, the current study measures a number of constructs at a given moment and does not offer either retrospective or longitudinal data points, which would allow for the verification of causal effects. Finally, the use of a single item to measure behavioural self-soothing likely represents the biggest threat to internal validity. That being said, the strong association between the item and the other variables indicates a clear relationship that merits further attention.

### Conclusion

In conclusion, the current research demonstrates the importance of understanding the underlying mechanisms of the relation between romantic attachment and NSSI. This study is the first to demonstrate that not only romantic attachment anxiety but also attachment avoidance does predict the presence of NSSI behaviours in young adults, and that behavioural self-soothing mediates these relationships for women. Imperative theoretical evidence supports these explanatory links, and thus this study is an innovative addition to the comprehension of NSSI. New findings suggesting that endogenous opioids have an important role in NSSI may be particularly useful for conceptualizing integrative models. Although the present study demonstrates the importance of behavioural self-soothing for young adults living with NSSI, a new literature review on the subject (Bresin & Gordon, 2013) hypothesises that the endogenous opioid system mediates the affect regulation effects of NSSI. Future studies could extend existing research by studying behavioural self-soothing as a possible mediator of the association between neurofunctioning and NSSI. Thus far, most research focuses on the effects of social influences on NSSI. However, the growing importance of such neurobiological models of NSSI (Sher & Stanley, 2009) brings to light the need for more comprehensive models integrating brain and endocrinal functioning, diverse social relationships, as well as self-regulation functions.

<sup>1</sup> This study is a continuation of Levesque et al. (2010) study. We have used the same methodology, and added a considerable amount of new participants (i.e., 512 participants) to their sample and testing a new comprehensive model.

<sup>2</sup> It is worth noting that the attachment anxiety dimension and the attachment avoidance dimension have been demonstrated to be slightly correlated in previous research (Cameron, Finnegan, & Morry, 2012).

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Received August 8<sup>th</sup>, 2012

Revision received December 18<sup>th</sup>, 2012

Accepted January 24<sup>th</sup>, 2013 ■