

# The Mediating Effects of Emotion Regulation and Dyadic Coping on the Relationship Between Romantic Attachment and Non-suicidal Self-injury

Christine Levesque<sup>1</sup>  · Marie-France Lafontaine<sup>1</sup> · Jean-François Bureau<sup>1</sup>

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**Abstract** Insecure attachment is believed to play a fundamental role in non-suicidal self-injury (NSSI). In fact, the quality of parent–child attachment relationships has become an emerging topic attracting a growing number of theoretical and research contributions in the field of NSSI. However, despite these considerable advances in the scientific study of NSSI, progress pertaining to investigating the quality of romantic attachment relationship is lacking. In an effort to expand current knowledge, the present study aims to not only explore the relationships between romantic attachment and NSSI, but also to explore the mechanisms by which these two variables relate by examining the mediating role that emotion regulation and dyadic coping might play in this relationship. Participants consisted of 797 (81.9 % female) university students, all of whom were involved in a romantic relationship for at least 6 months and between the ages of 17 and 25. Results revealed that although difficulties in emotion regulation mediated the relationships between romantic attachment insecurity (i.e., attachment anxiety and avoidance) and NSSI, dyadic coping was not found to be a significant

mediator. These results highlight the importance of attachment security and internal processes to manage stress in the prevention of NSSI.

**Keywords** Dyadic coping · Emotion regulation · Non-suicidal self-injury · Romantic attachment

## Introduction

Having a secure attachment is regarded as one of the most important characteristics attributed to psychological well-being. In fact, both positive and negative outcomes have been linked with the level of one's own attachment security and insecurity, respectively (Cassidy and Shaver 2008). Among the negative outcomes, insecure attachment is believed to play a fundamental role in non-suicidal self-injury (NSSI) (e.g., Yates 2004). NSSI is defined as the direct, purposeful self-infliction of injury, which results in tissue damage, performed without conscious suicidal intent and through methods that are not socially sanctioned (Nixon and Heath 2009). Lifetime prevalence of NSSI in university populations is estimated between 12 and 37 % (for a review, see Muehlenkamp 2014). The quality of parent–child attachment relationships has become a hot topic of interest, attracting a growing number of theoretical and research contributions in the field of NSSI. However, questions remain as to whether and how the quality of romantic attachment relationships influences NSSI behavior. In an effort to expand current knowledge, the goal of the current study is to explore the relationship between romantic attachment and NSSI behavior over the past 6 months in a sample of university students. Beyond this direct link, the adult attachment theory also allows us to include both intrapersonal (i.e., emotion regulation

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✉ Christine Levesque  
cleve045@uottawa.ca

Marie-France Lafontaine  
mlafonta@uottawa.ca

Jean-François Bureau  
jean-francois.bureau@uottawa.ca

<sup>1</sup> School of Psychology, University of Ottawa, 136 Jean-Jacques Lussier, Ottawa, ON K1N 6N5, Canada

strategies) and interpersonal (i.e., dyadic coping strategies) explanatory variables to explain this connection.

### Brief Overview of Adult Attachment Theory

Attachment is conceptualized as an *attachment behavioral system*, which organizes behaviors within the individual in an effort to increase the likelihood of adaptation and survival (Bowlby 1969/1982). Drawing on etiological theories, Bowlby (1969/1982) proposed that the organization of attachment behaviors involves a control system perspective that is subject to activation by diverse circumstances. The purpose of the activated attachment system is to protect the individual from threats, alleviate distress, as well as elicit the inherent motivation for proximity with attachment figures (Bowlby, 1969/1982). The well-being of the attachment system plays a critical role in individuals' global, interpersonal, and mental well-being (Hazan and Shaver 1987).

Repeated attachment-related experiences with primary caregivers are internalized within the individual and become the foundation for broader mental representations (Bretherton 1991; Vaughn et al. 2006), which Bowlby referred to as *internal working models*. These internal working models persist throughout the lifespan and guide expectations, perceptions, and behaviors in future relationships (Collins and Read 1994). Although attachment representations with primary caregivers can be stable in time, a growing body of research shows that subsequent important relationships and experiences can alter them (e.g., Baldwin et al. 1996). Indeed, individuals can simultaneously hold multiple mental representations (Baldwin et al. 1996; Caron et al. 2012; Collins and Read 1994). For instance, an individual's general attachment style, or attachment with one parent, may not necessarily predict their attachment with romantic partners (Baldwin et al. 1996), which highlights the importance of assessing specific attachment relationships. Given that romantic relationship often becomes one of the most important dyadic relationships in young adulthood, the current study will focus exclusively on romantic attachment.

Romantic attachment is currently conceptualized in terms of two dimensions: *attachment anxiety* and *attachment avoidance* (Brennan et al. 1998). Attachment anxiety is defined as an extreme preoccupation, a fear of rejection and abandonment, as well as a need for extreme closeness with a romantic partner. Attachment avoidance refers to an excessive need for self-reliance, as well as a discomfort with intimacy and interdependence with a romantic partner. Individuals with low attachment anxiety and low attachment avoidance are considered to be securely attached while individuals with high attachment anxiety

and/or low attachment avoidance are considered insecurely attached.

### Romantic Attachment and NSSI

#### *Theoretical Evidence*

Nock and Prinstein (2004, 2005) developed a four-function model of NSSI emerging from two dichotomous underlying dimensions: *reinforcement*, that can be either *positive* (i.e., when NSSI is followed by a favorable stimulus) or *negative* (i.e., when NSSI is followed by the removal of an aversive stimulus); and *contingencies*, that can be either *automatic* (i.e., influence of intrapersonal dynamics on NSSI) or *social* (i.e., influence of interpersonal dynamics on NSSI). Two of those functions may provide a reason as to why insecurely attached individuals engage in NSSI. First, individuals with high attachment anxiety might endorse NSSI behavior in order to receive attention from their romantic partner, which corresponds to the *social positive reinforcement* function. Furthermore, individuals with high attachment avoidance might use NSSI to facilitate an escape from undesired situations with their romantic partner, which represents the *social negative reinforcement* function of the model. Suyemoto (1998) also suggested that insecurely attached individuals are more likely to engage in NSSI because both insecure attachment and NSSI are associated with the inability to manage anger and social interactions, as well as the failure to self-regulate emotions. According to Yates (2004), NSSI may also reflect a physical manifestation of an individual's negative representations of the self and others. As a result, these individuals are more likely to isolate themselves from the social world and its support in times of stress, which increases the likelihood of engaging in NSSI behavior.

#### *Empirical Evidence*

Although empirical research on romantic attachment and NSSI yielded significant results, inconsistencies are present regarding which dimensions of insecure romantic attachment is linked to NSSI. While some studies using university students samples found that only attachment anxiety was associated with NSSI (Levesque et al. 2010) or deliberate self-harm (DSH; might include suicidal intent; Fung 2006), others demonstrated that both dimensions (attachment anxiety and avoidance) were linked to NSSI (Braga and Gonçalves 2014; Fitzpatrick et al. 2013). More research is necessary in order to validate the relationship between dimensions of insecure romantic attachment and NSSI. In order to have a better understanding of this relation, it is also essential to explore the mechanisms by which these two dimensions relate together.

## The Mediational Roles of Emotion Regulation and Dyadic Coping

### *Theoretical Evidence*

It is well known that romantic attachment security has a positive impact on affect regulation strategies (Mikulincer and Shaver 2007), in which affect regulation is a broader construct including, but not limited to, emotion regulation and coping (Gross and Thompson 2007). As defined by Gratz and Roemer (2004), emotion regulation is conceptualized as the awareness, understanding, and acceptance of emotions, paired with the ability to control impulsive behaviors and to engage in adequate emotion management skills flexibly to modulate emotional responses when experiencing negative emotions. Lack of any of these abilities is an indicator of difficulties with emotion regulation (Gratz and Roemer 2004). In contrast, dyadic coping is viewed as a stress communication process that triggers both partners' reactions in order to relieve each other's or shared stresses (Bodenmann 2005). On the one hand, healthy dyadic coping strategies involve aiding the romantic partner in their coping efforts to alleviate their or shared stresses. On the other hand, poor dyadic coping strategies include a display of insincere demeanor and reluctance when helping the romantic partner (Bodenmann 2005).

Bowlby (1979) considered emotions to be important regulatory mechanisms within attachment relationships. In fact, individuals with secure romantic attachment tend to use security-based strategies of emotions regulation, which are intended to maintain supportive intimate relationships, alleviating distress, and increase personal adjustment (Shaver and Mikulincer 2002, 2007). Contrary to this, individuals with high attachment anxiety tend to sustain and exaggerate these undesirable emotions, which keep their attachment system activated, thereby retaining all their energy focused on threatening aspects instead of focusing on the potentially functional aspects of emotional experiences (Shaver and Mikulincer 2007). Individuals with high attachment avoidance tend to regulate their emotions by trying to block or inhibit any emotional state that could activate their attachment system (Mikulincer and Shaver 2003). Interestingly, although hyperactivating and deactivating attachment strategies lead to opposite emotional experiences (i.e., intensification and suppression of emotions, respectively), both result in dysfunctional emotion regulation and interfere with adequate coping (Shaver and Mikulincer 2007). Indeed, in addition to emotion regulation, the level of one's own attachment security appears to shape how people cope with stressful situations within the context of intimate relationships (Mikulincer and Shaver 2008). Attachment theory suggest that securely

attached individuals tend to cope with stress by engaging in problem solving and seeking support from attachment figures when necessary, whereas insecurely attached individuals tend to use more inadequate coping strategies (Mikulincer and Shaver 2008).

Attachment insecurity is theoretically understood as being a predictor of both difficulties in emotion regulation and dyadic coping strategies. Although both emotion regulation and dyadic coping share a common goal, which is to alleviate stress, they are considered distinct constructs (Monteiro et al. 2014). More specifically, while emotion regulation involves intrinsic processes to regulate the internal emotional state (Gross 1998), dyadic coping involves deliberate efforts to manage stressful circumstances. Given that emotion regulation can be thought of as an intrapersonal strategy to deal with stress, and dyadic coping is conceptualized as a behavioral strategy, dyadic coping is also likely to be influenced by emotion regulation. Indeed, this relationship was also empirically demonstrated in a recent study from Monteiro et al. (2014).

Inadequate affect regulation strategies are also hypothesized to play an important role in the development and maintenance of mental health dysfunctions, such as NSSI behavior (Nock 2009). One of the most established theories about the development and maintenance of NSSI suggests that unhealthy relationships (e.g., insecure attachment) may lead to the development of poor emotion regulation skills, which in turn increases the likelihood of NSSI (Linehan 1993). Furthermore, the desire to alleviate negative emotions is often cited as the most frequent reason for engaging in NSSI (for a review, see Klonsky 2007), and falls in the *automatic negative reinforcement* function of Nock and Prinstein's (2004, 2005) model, elaborated earlier. Moreover, according to Nock and Cha's (2009) model, predisposing factors such as cognitive-emotional-biological vulnerability (e.g., high emotion reactivity) and social vulnerability (e.g., poor relationships quality), may make individuals susceptible to experiencing difficulties in emotion regulation. These factors may also predispose individuals to experience a lack of social problem-solving (coping) or communication skills needed to respond adequately to a stressful event. Difficulties in emotion regulation, as well as lacking adequate coping and communication skills, may then lead the individual to engage in NSSI, especially if triggered by a stressful event and/or the situation presents high social demands.

### *Empirical Evidence*

The relationships between romantic attachment and emotion regulation, as well as with dyadic coping, have received empirical support in literature. More precisely, both dimensions of insecure romantic attachment (i.e.,

attachment anxiety and avoidance) were found to be related to difficulties in emotion regulation (e.g., Guzmán-González et al. 2016; Han 2010; Marganska et al. 2013; Morel and Papouchis 2015) and general coping (e.g., Myers and Vetere 2002; Pascuzzo et al. 2013). To our knowledge, only one study has explored the empirical link between romantic attachment and dyadic coping (Kardatzke 2009). In that study, dyadic coping partially mediated the relationships between both romantic attachment dimensions and relationship satisfaction in a sample of 191 married graduate counselling students.

When the interest to study NSSI began to grow, one of the most studied variables was emotion regulation. In fact, significant empirical evidence exists to corroborate the relationship between emotion dysregulation and self-injurious behaviors (e.g., Heath et al. 2008; Holly 2011; Yurkowski et al. 2015). It is also well known that maladaptive methods of coping may lead to NSSI (Laye-Gindhu and Schonert-Reichl 2005). Empirical research also supports this assertion by showing significant relations between maladapted coping strategies and self-injurious behaviors (e.g., Andover et al. 2007; Cawood and Huprich 2011; McMahan et al. 2013). However, it is important to note that, to our knowledge, no study to date has examined the relationship between NSSI and *dyadic* coping in particular.

## Hypotheses

Based on theories and previous research, it is plausible to assume that romantic attachment insecurity fosters the use of maladapted emotion regulation and dyadic coping strategies, which then increases likelihood of having engaged in NSSI behavior in the past 6 months. The current study was undertaken to explore this question, as no study to date had explored these specific relationships in one theoretical model. Therefore, it is expected that: (1) insecure romantic attachment (i.e., attachment anxiety and avoidance) will be positively associated with difficulties in emotion regulation and NSSI, and negatively associated with dyadic coping; (2) difficulties in emotion regulation will be negatively associated with dyadic coping; (3) difficulties in emotion regulation will be positively associated with NSSI, while dyadic coping will be negatively associated with NSSI; (4) difficulties in emotion regulation will mediate the relationships between insecure romantic attachment (both dimensions) and dyadic coping; (5) dyadic coping will mediate the relationship between emotion regulation and NSSI; and (6) difficulties in emotion regulation and dyadic coping will mediate the relationships between insecure romantic attachment (both dimensions) and NSSI.

## Method

### Participants

To be eligible to participate in this study, participants must have a good knowledge of English, be between the ages of 17 and 25 years old, and currently involved in a romantic relationship for at least 6 months. The sample was composed of 914 students enrolled in introductory psychology courses at a Canadian university. Of these, 109 participants were excluded from further analyses for failing to provide sufficient information about their NSSI behavior. An additional eight participants were eliminated for failing to complete the questionnaire package, leaving a total of 797 participants (81.9 % female). The mean age of participants was 19.65 years ( $SD = 1.68$ , range = 17–25.8) and the average duration of the romantic relationship was 1.88 years ( $SD = 1.34$ , range = 6 months to 10 years). The racial background of the participants was 73.8 % Caucasian, 8.4 % Asian, 4.9 % Black, 4.9 % Middle Eastern, 2 % Latino/Hispanic and 6 % of other racial background. The majority of the participants was in a heterosexual relationship (96.6 %), not cohabiting with their partner (87.8 %), and did not have children with their current partner (85.7 %).

Of the 797 participants included in the final sample, 6.9 % ( $n = 55$ ) reported having engaged in NSSI at least once in the past 6 months. No significant gender difference was found with respect to engagement in NSSI behavior ( $\chi^2 [1, N = 797] = .12, p = .73$ ). The most frequently reported method for NSSI was cutting (12.7 %) and scratching (12.7 %), followed by hitting (10.9 %). Lower arms and wrists were the most common injured areas of the body (27.3 %), followed by thighs and knees (18.2 %), hands and fingers (16.4 %), as well as upper arms and elbows (16.4 %). Average age of onset for NSSI was 14.13 years ( $SD = 3.46$ ).

### Procedure

The study was conducted within the Integrated System of Psychology Research (ISPR) of a Canadian university. By means of ISPR, participants voluntarily registered to participate in the study and were subsequently provided access to a secure and encrypted Internet link (Survey Monkey) to complete the questionnaires online. Participants were provided additional credit, appended to their final course grade, to compensate for their participation. The questionnaire package included information that outlined the voluntary nature of the research and indicated that participants were free to discontinue their participation at any time without consequence. Completion of the battery of

questionnaires was assumed to indicate informed consent. Students were provided with a list of psychological resources, in case they wished to speak to a professional about any questions or concerns. Finally, to ensure anonymity, the questionnaires were coded with five-digit numbers. The present study has been approved by the university Social Sciences and Humanities Research Ethics Board.

## Measures

### Demographic Information

Participants were asked to provide personal (i.e., age, gender, ethnicity/racial background, and living arrangements) and relationship demographic information (i.e., number of children and length of relationship).

### Romantic Attachment

The Short-Form Experiences in Close Relationships (ECR-12; Lafontaine et al. 2015) is a 12-item measure derived from the original 36-item ECR (Brennan et al. 1998). This questionnaire evaluates romantic attachment along two dimensions, namely attachment anxiety (e.g., “*I need a lot of reassurance that I am loved by my partner*”) and attachment avoidance (e.g., “*I don’t feel comfortable opening up to romantic partners*”). Each scale includes 6 items that are rated on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree*. The average score for each scale ranges between 1 and 7. Elevated scores represent greater anxiety and avoidance. Psychometric properties of the ECR-12 were found to be as good as the original version of the ECR and stronger than those of an existing shorter form (Lafontaine et al. 2015). Indeed, Lafontaine and colleagues demonstrated good 1-year test–retest reliability, good convergent and predictive validity, as well as acceptable to good internal consistency scores across diverse samples (Cronbach’s alphas ranging from .78 to .87 for the anxiety subscale and .74 to .83 for the avoidance subscale). Reliability coefficients for the current study were good with Cronbach’s alphas of .89 for the attachment anxiety scale and .84 for the attachment avoidance scale.

### Emotion Regulation

The Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer 2004) is a 36-item questionnaire that measures several components of emotion regulation, including non-acceptance of emotional responses (e.g., “*When I’m upset, I feel guilty for feeling that way*”), difficulties engaging in goal-directed behavior (e.g., “*When I’m upset, I have difficulty concentrating*”), impulse control

difficulties (e.g., “*When I’m upset, I lose control over my behaviors*”), lack of emotional awareness (e.g., “*When I’m upset, I acknowledge my emotions*; reverse score), limited access to emotion regulation strategies (e.g., “*When I’m upset, I believe that I will remain that way for a long time*”), and lack of emotional clarity (e.g., “*I have difficulty making sense out of my feelings*). Each item is rated on a five-point Likert scale ranging from 1 = *almost never* to 5 = *almost always*. Items are summed to yield a total score (ranging from 36 to 180), as well as subscale scores, with elevated scores representing greater difficulties in emotion regulation. In the current study, only the total score will be used, which demonstrated a high reliability coefficient ( $\alpha = .93$ ), good test–retest validity, and adequate construct and predictive validity (Gratz and Roemer 2004). For the current study, the reliability coefficient of the total score was evaluated at .94.

### Dyadic Coping

The Dyadic Coping Inventory (DCI; Bodenmann 2008) is a 37-item measure that assesses the degree to which couples support and actively help one another during times of stress. Respondents use a five-point Likert scale (ranging from 1 = *very rarely* to 5 = *very often*) to rate their own coping (i.e., stress communication, supportive dyadic coping, delegated dyadic coping, and negative dyadic coping), their perception of their partner’s coping (i.e., stress communication, supportive dyadic coping, delegated dyadic coping, and negative dyadic coping), and their perception of how they cope as a couple (i.e., common dyadic coping). Subscale scores are obtained by summing the scores of the respective subscale items, with elevated subscale scores denoting greater levels of the constructs measured by each subscale (e.g., greater common dyadic coping). Only common dyadic coping will be used in the present study, as it is the only subscale that allows participants to self-evaluate how both they and their partner cope as a couple in time of stress. A previous study reported a good reliability coefficient for common dyadic coping (Cronbach’s alpha of .81) and demonstrated preliminary evidence of concurrent validity of the DCI (Levesque et al. 2014). Cronbach’s alpha for common dyadic coping in the current study was .87.

### Non-suicidal Self-injury

The Ottawa Self-Injury Inventory (OSI; Cloutier and Nixon 2003) measures current or past NSSI behaviors, reported functions of NSSI, NSSI thoughts, and addictive features of NSSI. The OSI consists of 27 items (and several sub-items) that assess cognitive, affective, behavioral, and environmental elements of NSSI. The inventory includes both

**Table 1** Descriptive statistics and intercorrelations for romantic attachment, difficulties in emotion regulation, dyadic coping, and non-suicidal self-injury (NSSI)

|                       | Mean  | SD    | 1 | 2      | 3      | 4       | 5      |
|-----------------------|-------|-------|---|--------|--------|---------|--------|
| 1. Anxiety            | 3.66  | 1.53  | – | .17*** | .53*** | –.13*** | .16*** |
| 2. Avoidance          | 2.55  | 1.16  |   | –      | .26*** | –.51*** | .05    |
| 3. Emotion regulation | 84.10 | 22.17 |   |        | –      | –.23*** | .25*** |
| 4. Dyadic coping      | 15.46 | 3.46  |   |        |        | –       | –.05   |
| 5. NSSI               | .07   | .25   |   |        |        |         | –      |

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

quantitative (dichotomous, categorical, and continuous) and qualitative (open-ended) items. The occurrence of NSSI will be determined by responses to the following question “How often in the past six months have you actually injured yourself without the intention to kill yourself?” Responses are rated on a 5-point scale (*not at all, 1–5 times, monthly, weekly, daily*). For the current study, the latter responses will be further collapsed to create a dichotomous variable representing the presence or the absence of NSSI behavior in the past 6 months, with *not at all* ratings reflecting a *no* category, and all other responses indicating an endorsement of NSSI. Internal structure, convergent evidence of the initial functions, and addictive features of the OSI have been demonstrated (Martin et al. 2013).

## Results

### Preliminary Analyses

In order to optimize the sample size, missing values for the relevant items (excluding NSSI engagement) were estimated using Expectation Maximization method. None of the items had more than 5 % missing values, indicating that this option was appropriate for use (Tabachnick and Fidell 2007). Means, standard deviations, and intercorrelations for the main variables are presented in Table 1. Results demonstrated significant correlations between all the main variables, with the exception of NSSI and attachment avoidance as well as NSSI and dyadic coping. Potential covariates including gender, age, living arrangements (e.g., living at home with parents, living in a rented accommodation with romantic partner, roommates, or alone), and length of relationship were examined although none were included in further analyses due to non-significant associations with the outcome variable of having engaged in NSSI behavior in the past 6 months.

### Multiple Mediation Analysis

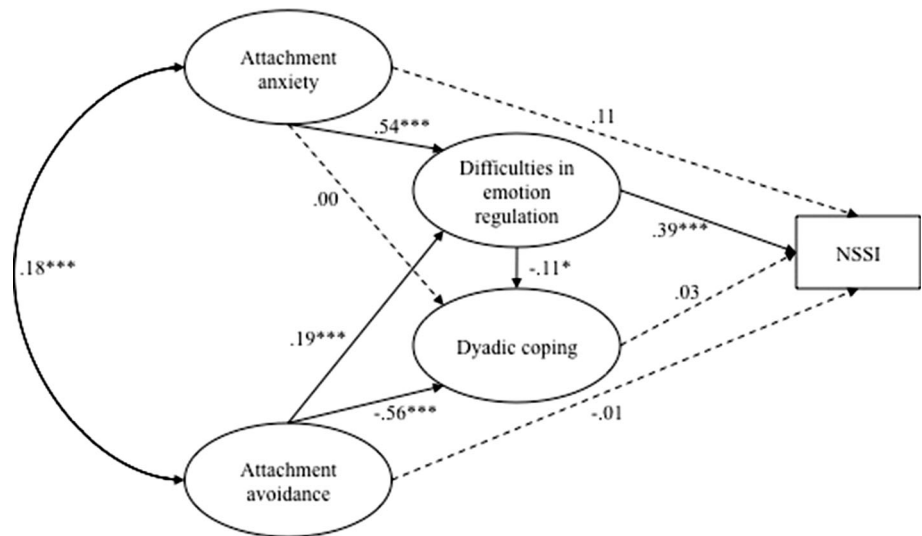
Multiple mediation analysis was conducted using MPlus software, version 6.12 (Muthén and Muthén 2011). This

software permits the use of a robust estimator (WLSMV: Weighted Least Square Mean- and Variance-adjusted) that does not assume normally distributed variables and provides the best option for handling dichotomous outcome (Brown 2006). To test the model, endorsement of NSSI behavior in the past 6 months (dichotomous variable) was entered as the dependent variable with romantic attachment (attachment anxiety and avoidance) as independent variables; difficulties in emotion regulation and dyadic coping were entered as mediators. As hypothesized, a direct path linking difficulties in emotion regulation to dyadic coping was also included in the model. All variables were entered as latent variables, with the exception of NSSI, which was entered as a dichotomous observed variable. In order to create stable indicators for each latent variable (attachment anxiety, attachment avoidance, difficulties in emotion regulation, and dyadic coping), respective items were divided randomly to one of three parcels and subsequently averaged (Little et al. 2002). Bias corrected (BC) confidence intervals were used with the bootstrapping (5000 samples) method in order to obtain more powerful confidence interval (CI) limits for indirect effects (Preacher and Hayes 2008). The Weighted Root Mean Square Residual (WRMR) is a descriptive fit index that is believed to be better suited for dichotomous outcomes (Yu 2002). Following guidelines produced by Yu (2002), a WRMR of less than 1.0 indicates good fit of the model. As such, the model of the current study was considered to have an adequate fit (WRMR = .86). Results are discussed in terms of direct (see Fig. 1) and indirect effects (see Table 2).

### Direct Effects

Results revealed that neither attachment anxiety nor attachment avoidance were directly associated with endorsement of NSSI behavior. Moreover, while attachment avoidance was associated with both difficulties in emotion regulation and poor dyadic coping, attachment anxiety was only associated with difficulties in emotion regulation. In line with the hypotheses, difficulties in emotion regulation were associated with poor dyadic coping and an increased likelihood of having engaged in NSSI

**Fig. 1** Standardized coefficients for the mediating role of emotion regulation and dyadic coping in the associations between romantic attachment and NSSI. *Solid lines* represent significant direct effects while *dotted lines* represent non-significant direct effect



**Table 2** Standardized indirect effects from romantic attachment to NSSI through difficulties in emotion regulation and dyadic coping

| Predictor          | Mediator           | Outcome       | Estimate | SE   | BC 95 % CI |       |
|--------------------|--------------------|---------------|----------|------|------------|-------|
|                    |                    |               |          |      | LL         | UL    |
| Avoidance          | Emotion regulation | NSSI          | .076***  | .021 | .035       | .117  |
| Avoidance          | Dyadic coping      | NSSI          | -.017    | .046 | -.107      | .073  |
| Anxiety            | Emotion regulation | NSSI          | .212***  | .042 | .130       | .293  |
| Anxiety            | Dyadic coping      | NSSI          | .000     | .004 | -.008      | .008  |
| Emotion regulation | Dyadic coping      | NSSI          | -.003    | .010 | -.022      | .016  |
| Anxiety            | Emotion regulation | Dyadic coping | -.057*   | .027 | -.110      | -.003 |
| Avoidance          | Emotion regulation | Dyadic coping | -.020*   | .010 | -.040      | -.001 |

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

during the past 6 months. However, counter to expectation, poor dyadic coping was not associated with NSSI.

*Indirect Effects*

As hypothesized, insecure romantic attachment (both attachment anxiety and attachment avoidance) was indirectly associated with poor dyadic coping and NSSI engagement through difficulties in emotion regulation. However, the indirect effects between insecure romantic attachment and NSSI through dyadic coping were not significant, as well as the indirect effect between difficulties in emotion regulation and NSSI through dyadic coping.

**Alternative Models**

In order to ascertain the robustness of the model tested, two alternative plausible models were examined. The first alternative model included NSSI as a categorical outcome variable with five response categories. The same results were obtained as the model that included NSSI as a dichotomous outcome variable. The second alternative

model included emotion regulation as the predictor variable and romantic attachment as the mediator variable. This was tested in order to rule out the possibility that difficulties in emotion regulation precede romantic attachment. No significant indirect effect was obtained between difficulties in emotion regulation and NSSI for this specific model.

**Discussion**

Researchers have developed models that emphasize the role of interpersonal relationships and experiences in developing and maintaining NSSI behaviors (e.g., Nock and Prinstein 2004, 2005). The attachment theory provides an excellent explanatory framework for NSSI in this context. However, while much of the research pertaining to the role of attachment on NSSI explored parent–child attachment relationships, there is a gap in the scientific world pertaining to romantic attachment relationships. Given the importance of these relationships in young adulthood (Collins 2003), and the determining impact of romantic

relationships on psychological well-being (Karremans and Finkenauer 2012), the influence of romantic attachment in NSSI should be further explored along with explanatory variable for this relationship. The purpose of the present study was therefore to investigate an innovative, theoretically-grounded model specifying the direct and indirect associations between insecure romantic attachment, difficulties in emotion regulation, dyadic coping, and endorsement of NSSI behavior in a sample of university students. Findings from the current study corroborate those of previous studies demonstrating that NSSI is an important phenomenon among university population, which is equally prevalent in both men and women (e.g., Heath et al. 2008; Levesque et al. 2010).

Findings revealed that difficulties in emotion regulation mediated the relationship between romantic attachment (i.e., attachment anxiety and avoidance) and dyadic coping. This is consistent with our hypotheses and supports the literature on attachment, which stipulates that individuals with high attachment anxiety and/or attachment avoidance have difficulties with the general process of regulating their own emotions (Mikulincer and Shaver 2003; Shaver and Mikulincer 2007), which lead to the use of inadequate coping strategies (Shaver and Mikulincer 2007). In fact, several recent studies attest to the positive relationship between insecure romantic attachment and difficulties in emotion regulation (e.g., Guzmán-González et al. 2016; Han 2010; Marganska et al. 2013; Morel and Papouchis 2015) as well as with coping (e.g., Myers and Vetere 2002; Pascuzzo et al. 2013). However, given that much of the existing research has been conducted with general coping (for an exception, see Kardatzke 2009), this study extends past research by demonstrating direct and/or indirect association between insecure romantic attachment and poor dyadic coping strategies. That is, individuals with high attachment anxiety and/or high attachment avoidance tend to have difficulty regulating their emotions, which leads them to use poor dyadic coping strategies to deal with their stress (e.g., tendency to withdraw instead of helping each other, providing support in an insincere way).

In line with our hypotheses, findings also revealed that difficulties in emotion regulation mediated the association between insecure romantic attachment (i.e., attachment anxiety and avoidance) and NSSI. Although no direct effect was found between romantic attachment and NSSI, this result is coherent with past research (e.g., Yurkowski et al. 2015) and with Linehan's theory (1993), suggesting that unhealthy relationships could be related to NSSI by means of difficulties in emotion regulation processes. It is worthy of note, that although past research has shown inconsistencies in their results regarding which dimension of insecure romantic attachment is associated with NSSI (Braga and Gonçalves 2014; Fitzpatrick et al. 2013; Fung

2006; Levesque et al. 2010), the findings of the present study suggest that both attachment anxiety and attachment avoidance influence NSSI. In fact, both dimensions tend to result in dysfunctional emotion regulation processes in their own way (Shaver and Mikulincer 2007), which can then increase the likelihood of engaging in NSSI behavior (Nock 2009).

Contrary to our expectations, although difficulties in emotion regulation was found to mediate the link between insecure romantic attachment and NSSI, dyadic coping was not. Despite the fact that both emotion regulation and dyadic coping are considered strategies to deal with stress (intrapersonal and behavioral, respectively), it would seem that insecure romantic attachment does not work through dyadic coping to influence NSSI. In fact, there was no evidence of any direct effect between dyadic coping and NSSI, which provides an explanation as to why mediations including this relation were not significant. This suggests that, with regards to NSSI, individuals would be more affected by what is happening inside themselves (i.e., intrapersonal strategies) rather than what they are externalizing (i.e., behavioral strategies). Furthermore, compared to emotion regulation, which refers only to oneself, dyadic coping includes conjoint efforts of both partners. This could explain the lack of relation between dyadic coping and NSSI, given that previous research has found that personal variables have more effect on one's own functioning than variables including other's behaviors (e.g., Levesque et al. 2014; Péloquin et al. 2011). Furthermore, the lack of relationship between dyadic coping and NSSI could be attributed to the fact that the sample of the current study consisted largely of individuals who do not live with their romantic partners and are in the first few years of their relationship. Hence, in this situation, it is possible that mutual efforts to manage stressful situations as a couple do not have as great an influence on one's NSSI behavior.

Limitations of the current study should be noted. First, the cross-sectional design employed in the current study precludes directionality and makes it impossible to conclusively establish a causal relationship between the variables in question. Future studies may employ longitudinal designs to allow examining temporal sequencing between variables in play. Second, all of the data came from self-report measures, which could have resulted in shared source and shared method variance. A multi-method approach that includes more objective measures than self-report questionnaires may provide a better understanding of the relevant concepts and further inform the nature of the associations between romantic attachment, emotion regulation, dyadic coping, and NSSI. Third, given that most psychology classes include a greater proportion of women than men, the recruitment method did not favor equal gender representation. In addition, given that the sample was comprised of university students between the ages of



17 and 25 years old, it is possible that the results are not representative of the general population, individuals experiencing clinical distress, and/or individuals involved in long-term relationships and living with their romantic partner. Furthermore, participants in the current study were predominately Caucasians and the majority were involved in a heterosexual relationship. Consequently, the results may not generalize to other ethnic/racial groups or to persons in homosexual relationships. Future research is needed in order to replicate our results with other populations. Fourth, a study including not only the individual but also the partner would permit exploration of both actor (e.g., the influence of one's own romantic attachment on one's own NSSI behavior) and partner (e.g., the influence of the partner's romantic attachment on one's own NSSI behavior) effects on one's own NSSI behavior. An Actor-Partner Interdependence Model (APIM; Kenny et al. 2006) would permit such analyses in future research and may provide a better understanding of the influence that interactions between partners may have on one's own NSSI behavior.

## Conclusion

The current study serves to highlight the complex associations between insecure romantic attachment, difficulties in emotion regulation, dyadic coping, and NSSI within a mediational model. More specifically, our findings demonstrate that difficulties in emotion regulation do mediate the relationships between insecure romantic attachment and NSSI behavior. However, no such mediational relationship was found in regards to dyadic coping.

From a clinical standpoint, young adulthood in a university setting represents the beginning of a new chapter in life full of changes and demands. This period is often characterized by the departure of the family nest and the beginning of a serious romantic relationship. All these life events undoubtedly generate and/or maintain emotional tumult and could lead to undesirable behaviors like NSSI. Given the potentially severe consequences of NSSI (e.g., accidental death), it is important to prevent this behavior and develop adequate treatment to help individuals who struggle with this behavior. Treatments for self-injury targeting emotion regulation have already been shown to be effective (for a review, see Gratz 2007; Ougrin et al. 2015). In line with those treatments, results from the current study also emphasizes the fact that treatments should act on how individuals manage their stress internally (i.e., emotion regulation) rather than externally (i.e., dyadic coping). Furthermore, the current study extends past research by suggesting that young adults could benefit from NSSI treatments, as it may help

them develop the necessary skills that would increase the likelihood of developing a secure attachment within their romantic relationship. The current study displays a complex pattern of mediations that represent a first step toward demystifying NSSI behavior.

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**Christine Levesque** is a PhD candidate in experimental psychology at the University of Ottawa, where she also received her BA in psychology. Her major research interests pertain to non-suicidal self-injury, couple relationships, sexuality, and young adult coping and attachment process.

**Marie-France Lafontaine** is a Full Professor and director of the Couple Research Lab at the School of Psychology at the University of Ottawa. Her research and clinical interests include romantic attachment, intimate partner violence, self-injury, heterosexual and same-sex romantic relationships, and physical health.

**Jean-François Bureau** is an Associate Professor at the University of Ottawa and the director of the Child and Adult Relationships and Environment Laboratory (CARE Lab). His major research interests include representational and behavioural manifestations of attachment in preschool, and school-aged children, and in adolescents and their influence on social-affective and cognitive development.