

A Romantic Relationship Perspective on Self-Injury in Young Adulthood

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Thesis submitted to the School of Psychology in partial fulfillment of the
requirements for the Doctorate of Philosophy in Clinical Psychology

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To N.T., for everything.

Summary of Thesis

Non-suicidal self-injury (referred to hereafter as self-injury) is considered a serious health concern among young adult populations, and is associated with a host of devastating physical and psychological consequences (Hasking, Momeni, Swannell, & Chia, 2008). Self-injury encompasses both thoughts of harming oneself in addition to acts of self-injury. Elevated lifetime prevalence rates of 13-17% suggest that self-injury is an issue of widespread nature, with reports indicating that a considerable proportion of young adults engage in self-injurious thoughts and behaviours (Nixon, Cloutier, & Jansson, 2008; Swannell, Martin, Page, Hasking, & St John, 2014; Whitlock, Eckenrode, & Silverman, 2006). Identifying the factors that precede self-injury is crucial to advancing current clinical conceptualizations and treatment strategies for those engaging in such thoughts and behaviours (Schenk, Noll, & Cassarly, 2010). Despite the recognized role of romantic relationship experiences in contributing to the functioning and adjustment of the individuals comprising the romantic dyad, very little empirical attention has been paid to examining whether dimensions of romantic relationships are linked to the use of self-injury. The present thesis, consisting of two independent studies, sought to provide a better understanding of the factors underlying this troubling phenomenon by examining links between dimensions of romantic relationships and self-injurious thoughts and behaviours among community-based young adults involved in couple relationships. The studies presented in the present thesis were approved by the University of Ottawa's Research Ethics Board (see Appendix A for the Ethics Approval Certificate).

The first study involved testing a novel conceptual model in which intimate partner violence victimization (i.e., physical, psychological, and sexual violence) was examined as a potential mediator of the relationship between child maltreatment (i.e., neglect; witnessing

family violence; and physical, psychological, and sexual abuse) and self-injurious thoughts and behaviours. The sample consisted of 406 young adults (346 females; $M = 19.87$ years) who were involved in a couple relationship for a duration of at least six months at the time of participation. Results from bootstrapping procedures partially supported the theory put forth. Intimate partner violence victimization partially mediated the direct effect of child maltreatment on self-injurious behaviours. Contrary to predictions, intimate partner violence victimization did not mediate the association between child maltreatment and self-injurious thoughts. Hence, findings suggest that individuals who have experienced both forms of family violence may be particularly vulnerable to engaging in self-injurious behaviours.

The second study comprised an investigation of the links between the three romantic behavioural systems (consisting of the attachment, caregiving, and sexual systems) and self-injurious thoughts and behaviours, and examined the incremental contributions of the systems in the prediction of young adult self-injury. The sample consisted of 255 young adults (223 females; $M_{age} = 19.98$ years) currently involved in a couple relationship. Linear discriminant analyses revealed that participants endorsing self-injurious thoughts experienced greater attachment anxiety and avoidance, controlling and compulsive romantic caregiving behaviours, and lower sexual satisfaction than did participants who did not endorse such thoughts. In contrast, findings indicated that the behavioural systems did not predict self-injurious behaviours. Such findings suggest that dimensions of the three interrelated behavioural systems hold unique roles in understanding young adult self-injurious thoughts, and that the constructs that predict self-injurious thoughts may differ from those that predict self-injurious behaviours.

Acknowledgements

As I reach the end of the long path toward submitting my doctoral thesis, I am humbled beyond words with gratitude toward so many people who have privileged me with their support. With each slow, successive step forward, this recognition has deepened, as has my understanding of the adage “standing on the shoulders of giants”. This path, however rife with perils and potholes, was also replete with helping hands, gentle guidance, and expert wisdom that at certain times, renewed my will to keep moving forward, and at other times, lifted me up and carried me.

Foremost, I owe my thanks to my thesis supervisor, Dr. Marie-France Lafontaine. Your faith in my abilities allowed me to develop a confidence of my own. Although many years have passed since I first became a member of your lab as an undergraduate student, your encouragement in those early days shines brightly in my memory. You have always been so steadfast in your conviction that I have the ability to achieve a Ph.D. that your belief in me eventually permeated my feelings of self-doubt, and slowly filled me up with strength and a sense of faith in myself throughout the years of working under your direction. You have been a major catalyst for positive change and growth in both the professional and personal spheres of my life, and I am so very grateful to you. I wish to also extend my thanks to the members of my thesis committee, Drs. Jean-François Bureau, Elisa Romano, and Paul Greenman for your support, constructive feedback, and expert guidance in the development of my thesis.

To my dear labmates, Ms. Christine Levesque, Mrs. Jamie Lyn Flesch, Mr. Nicolas Gabbay, and Ms. Josée Fitzpatrick, and to my cherished colleagues, Dr. Jodi Martin, Mrs. Christina Tomei, and Mrs. Jennifer Lyons, I simply cannot express the depth of my thanks for all of your support over the years. In moments of celebration, and in times of downright blunder, your smiling faces and warm hugs have been my constant and cherished companions.

I wish to extend an enormous and heartfelt thanks to my family, Mr. Brian Caron, Mrs. Vivian Caron, Mrs. Erica Hadikin, and Mrs. Sarah Lariviere. You are the roots from which I have grown, and to which I owe my best qualities. You are also the roots that I return to, time and again, for renewal, for support, and for understanding beyond words. Thank you for rejoicing with me in my accomplishments, and for your empathy through my moments of despondence. Above all, thank you for being the absolute pinnacle of support throughout each step of this process.

To my beloved partner, Dr. Nawar Touchan, thank you for infusing such much joy into the years spent writing my thesis. Your brilliant mind and passionate disposition are consistent reminders to approach each day with curiosity and enthusiasm, and your unwavering confidence in my abilities quietly echoes through me, willing me to always move forward. The promise of your presence after work has equipped me with immunity against even the most arduous days. Thank you for encasing me in love.

Finally, thank you equally to the countless friends and colleagues who have offered their support, guidance, and understanding throughout this process. You are cherished gifts that have brightened my path beyond measure.

Content of Thesis and Contribution of Authors

The present thesis comprises four sections: a general introduction, two major studies, and a general discussion. The general introduction presents the topic of the thesis, defines the primary study variables, provides detailed theoretical and empirical context pertaining to the focus of the thesis, and specifies the main objectives of the thesis. Each study consists of a single, comprehensive research investigation. The first study is entitled *Exploring the Relationship between Child Maltreatment, Intimate Partner Violence Victimization, and Self-Injurious Thoughts and Behaviours*. This is followed by the presentation of the second study, entitled *Linking Romantic Attachment and Self-Injury: The Roles of the Behavioural Systems*. Finally, the general discussion presents a summary and integration of the findings of both studies, and outlines the clinical implications and directions for future research endeavours. Both studies have been adapted into manuscript format. The manuscript version of the first study has been submitted for publication in a peer-reviewed journal, and the manuscript version of the second study has been published in the *Journal of Relationships Research*.

Thesis author, Ms. Angela Caron, appears as the primary author of both study manuscripts. Thesis supervisor and principal study investigator, Dr. Marie-France Lafontaine, appears as the second author. Thesis committee member and co-investigator, Dr. Jean-François Bureau, appears as the third author. Ms. Caron participated in every aspect of the thesis project, including the literature review and conceptualization of the thesis, the development and implementation of study procedures and methods, the selection of validated measures, formulation of the research ethics request and subsequent study modifications, participant recruitment and compensation, data analysis, and the writing of the thesis document itself. Drs. Lafontaine and Bureau served invaluable roles, which included the global oversight of the project, in addition to acting as consultants throughout each step of the thesis.

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General Introduction

General Introduction

Over the past two decades, non-suicidal self-injury (referred to hereafter as self-injury) has emerged as a worldwide public health concern. However, systematic research on this dangerous phenomenon remains limited. Recent theoretical and empirical literature has afforded significant advances to the understanding of self-injury, although considerable gaps in our knowledge of this perplexing phenomenon persist (Gratz, 2006; Hamza & Willoughby, 2014; Nock, 2010). Self-injury is defined as the purposeful, self-inflicted destruction of body tissue, performed for non-socially approved purposes and without conscious suicidal intent (Muehlenkamp, 2014; Nixon & Heath, 2009). In addition to overt self-injurious behaviours, individuals also engage in thoughts of self-injury. Although there is a general consensus among researchers and clinicians that “self-injury” is the term most befitting of this phenomenon, a broad range of terms have been used to describe different types of self-injurious thoughts and behaviours across different studies, including self-mutilation (Andover, Pepper, & Gibb, 2007), self-injurious behaviour (Bowen & John, 2001), self-wounding (Huband & Tantam, 2000), and deliberate self-harm (Gratz, 2001; see Posner, Brodsky, Yershova, Buchanan, & Mann, 2014, for a review). Self-injury may occur at any age, although notably high prevalence rates have been found among adolescents and young adults (see Whitlock & Selekman, 2014, for a review). Self-injury manifests in various methods of injury, all of which are associated with physical harm and psychological distress, and are indicative of maladaptive coping strategies (Andover et al., 2007; Hasking, Momeni, Swannell, & Chia, 2008). A wide variety of methods (Gratz, Conrad, & Roemer, 2002; Nixon, Cloutier, & Jansson, 2008; Nock, 2010; Whitlock, Eckenrode, & Silverman, 2006) and reasons (see Klonsky, 2007, for a review) for engaging in self-injury have been reported in the available literature. As self-injury constitutes behaviours that are not

socially-sanctioned within one's culture, it therefore excludes tattooing, piercing, and other forms of body modification that are generally socially accepted.

Although it is distinguished from suicidal actions involving a conscious intent to end one's life, self-injury is considered an especially important risk factor for suicide, as it is associated with both increased desire and capability for suicide (Klonsky, May, & Glenn, 2013). Furthermore, individuals who engage in self-injury are at heightened risk for permanent physiological consequences (e.g., scarring, disfigurement) (Brown, Beck, Steer, & Grisham, 2000). In addition to the overt physiological consequences of self-injury, it is also associated with numerous interpersonal and intrapersonal difficulties (e.g., Favazza, 1998; Hamza, Stewart, & Willoughby, 2012; Kerr & Muehlenkamp, 2010; Muehlenkamp, 2006). Engaging in self-injury has been linked to psychological difficulties (e.g., emotion dysregulation, internalizing symptoms) and mental illness (e.g., depression, eating disorders) (for a review, see Klonsky, Muehlenkamp, Lewis, & Walsh, 2011; Kranzler, Fehling, Anestis, & Selby, 2016), in addition to feelings of shame (Rayner & Warne, 2016), loneliness (Adler & Adler, 2005), and peer rejection (Giletta, Schlote, Engels, Ciairano, & Prinstein, 2012). Self-injury is a serious clinical concern, with the professional community citing this phenomenon to be one of the most complex and difficult issues to effectively treat amongst clients in psychotherapy (Rayner & Warner, 2003; Stanley, Fineran, & Brodsky, 2014).

Toward a Better Understanding of Self-Injury

Distinction between Self-Injurious Thoughts and Behaviours

Self-injurious thoughts and behaviours are conceptualized as closely interlinked, but are considered putatively different forms of self-injury that differ in frequency, severity, and duration (Nock, Prinstein, & Sterba, 2009). Despite this theoretical distinction, research has

traditionally focused on the examination of behaviours at the exclusion of thoughts. Recent findings attest to the importance of dedicating empirical attention to self-injurious thoughts, as individuals experiencing such thoughts have been demonstrated to be at a heightened risk for acting on them (Nock et al., 2009b). Recent research has compared the correlates of self-injurious thoughts and behaviours, with findings identifying that thoughts and behaviours may share certain important correlates (e.g., less parental care, greater parental control, greater unresolved attachment to parents, and greater romantic attachment anxiety as compared to people who do not self-injure) (Levesque, Lafontaine, Bureau, Cloutier, & Dandurand, 2010; Martin, Bureau, Cloutier, & Lafontaine, 2011). In addition, such research indicates that self-injurious thoughts and behaviours hold certain differing correlates (i.e., intimate violence victimization linked to behaviours only, greater severity of child sexual abuse reported linked to behaviours) (Levesque et al., 2010; Martin et al., 2011). Despite such existing investigations, much remains to be known regarding the potential for shared and differing correlates of self-injurious thoughts and behaviours. Continued research in this vein is warranted, as this would allow for the development of a more thorough and nuanced understanding of the commonalities and differences between self-injurious thoughts and behaviours.

Prevalence of Self-Injury

Establishing accurate prevalence rates of self-injury among community-based young adult populations (i.e., university or college students recruited from sources other than hospital or outpatient treatment settings) has been problematic due in part to the lack of consensus of a common term to describe this phenomenon. In addition to this definitional inconsistency, determining prevalence rates is difficult since, historically, research in this area has focused to a large extent on clinical populations (i.e., individuals recruited from hospital or outpatient

settings) (Burless & De Leo, 2001). Self-injury has traditionally been considered an issue that affects individuals who have cognitive impairments, pervasive developmental disorders, and those who meet diagnostic criteria for borderline personality disorder (Nixon & Heath, 2009). Research findings accumulated throughout the past two decades have encouraged the adoption of a more broad scope of focus, as an abundance of converging findings continue to provide evidence that engagement in self-injury is not limited to clinical populations (Conterio & Lader, 1998; Nixon & Heath, 2009).

Researchers generally agree that between 13% and 17% of community-based young adults (e.g., individuals recruited from high schools or post-secondary institutions) engage in at least one act of self-injury throughout their lifetime (Nixon et al., 2008; Swannell, Martin, Page, Hasking, & St John, 2014; Whitlock et al., 2006). Although the prevalence of self-injurious thoughts remains under-researched, existing prevalence estimates indicate that between 8% (Levesque et al., 2010) and 10% (Martin, Bureau, Cloutier, & Lafontaine, 2011) of community-based young adults report engaging in self-injurious thoughts (without acting upon such thoughts) within a six-month period. Not surprisingly, clinical settings (e.g., hospital and mental health settings) consistently report even higher prevalence rates of self-injury among youth (21-55%) (Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Islam et al., 2015; Nixon, Levesque, Preyde, Vanderkooy, & Cloutier, 2015). Estimates of the prevalence of self-injury within both community-based and clinical populations typically vary considerably across studies, as they are heavily influenced by the methodological features of the studies (Muehlenkamp, Claes, Havertape, & Plener, 2012; Swannell et al., 2014). Specifically, studies vary regarding their definition of self-injury (higher estimates are reported among those using broader definitions), assessment measures used (rates are higher when self-report checklists are

used rather than an interview format), and the frequency of self-injury required to meet eligibility criteria (rates are higher when only a single episode is required for study participation) (Nock, 2010). The overarching conclusion that can be drawn from existing prevalence studies is that self-injury occurs at a considerable rate among young adults in both community-based and clinical populations.

Course of Self-Injury

Researchers concur that the onset of self-injurious behaviours commonly occurs between 14 and 16 years of age (Muehlenkamp & Gutierrez, 2007; Rodham & Hawton, 2009; Ross & Heath, 2002), and that its prevalence tends to rise during middle adolescence (Barrocas, Hankin, Young, & Abela, 2012). As the vast majority of the literature devoted to investigating self-injury consists of cross-sectional research designs (Curran & Willoughby, 2003), little is known about the longitudinal course of this phenomenon. Recent research has been focused on addressing this knowledge gap, with findings providing insights regarding the progression of self-injury, and the unique trajectory classes of such behaviour (Barrocas, Giletta, Hankin, Prinstein, & Abela, 2015; You, Leung, Fu, & Lai, 2011). Findings from a recent longitudinal study indicated that during the period of adolescence, self-injury is considered to be relatively stable among those who engage in such behaviours (Barrocas et al., 2015). This suggests that as people transition into young adulthood, distinct trajectories of self-injury are considered to emerge (Barrocas et al., 2015; Bjärehed, Wångby-Lundh, & Lundh, 2012; Klonsky & Olin, 2008; Whitlock, Muehlenkamp, & Eckenrode, 2008). The literature suggests that there may be heterogeneity in the course of self-injury, with subgroups of adolescents who self-injure demonstrating different longitudinal trajectories in their patterns of engagement over the course of time. In particular, it appears that while self-injury is a transient phenomenon that steadily decreases with age for the

general population of adolescents and young adults, other individuals continue to engage in self-injury in a chronic manner (Barrocas et al., 2015). As such, the literature indicates that the course of self-injury may be conceptualized according to two primary trajectories: episodic (i.e., onset occurs in adolescence with progressive decline as individuals approach adulthood) and stable (i.e., chronic engagement is maintained throughout young adulthood) (Barrocas et al., 2015; Brunner et al., 2007; You et al., 2011).

Sex Differences in Self-Injury

Existing literature suggests that self-injury manifests differently among community-based young adult males and females. However, current knowledge of the details of such differences remains limited to date. At present, studies examining sex differences in prevalence rates of self-injury have not yielded consistent results. While a large number of researchers have concluded that prevalence rates of self-injurious behaviours are relatively similar among males and females (e.g., Gratz, 2001; Klonsky, Olmanns, & Turkheimer, 2003; Levesque et al., 2010; Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007; Van Camp, Desmet, & Verhaeghe, 2011; Zoroglu et al., 2003), some suggest that females engage in self-injury more frequently than do males (e.g., Bresin & Schoenleber, 2015; Muehlenkamp & Gutierrez, 2007; Whitlock et al., 2006). Again, such inconsistent findings may be attributed to methodological differences in the studies. Indeed, as noted by Nixon and Heath (2009), the presence or absence of sex differences in community samples is often accounted for by the inclusion of measurement items assessing overdose and pill abuse (which are largely female behaviours). Community-based research with observations of sex differences often include overdose or medication abuse without conscious suicidal intent (e.g., Laye-Gindhu & Schonert-Reichl, 2005; Nixon et al., 2008), whereas studies that are limited to assessing tissue damage (e.g., cutting, burning, self-hitting to bruise) do not

report sex differences (e.g., Lloyd-Richardson et al., 2007; Van Camp et al., 2011; Zoroglu et al., 2003). Although research examining sex differences in the prevalence of self-injurious thoughts is very limited, two existing studies suggest that females may engage in such thoughts more frequently than males (Martin et al., 2011; Levesque et al., 2010), although it is possible that such findings may be attributed to the higher proportion of female participants represented in both studies. While the observed prevalence rates of self-injurious behaviours among males and females in the community differ across studies, there is a general consensus that there are significant sex differences in clinical samples, with females reporting a higher rate of endorsement than males. Researchers contend that females may be overrepresented within clinical populations of people who self-injure, as they may be more likely to seek help than males (Bresin & Schoenleber, 2015; Nixon & Heath, 2009).

Emerging findings indicate that there are robust sex differences in the methods used to self-injure, as well as the location of the body where the self-injury occurs. Specifically, females report engaging more frequently in cutting and scratching, while males report more self-hitting behaviours, such as punching oneself and hitting one's head (Heath, Toste, Nedechewa, & Charlebois, 2008; Laye-Gindhu & Schonert-Reichl, 2005; Sornberger, Heath, Toste, & McLouth, 2012). Generally speaking, females are considered to more frequently use methods that involve bleeding (Bresin & Schoenleber, 2015; Sornberger et al., 2012). Moreover, two studies have also examined sex differences in specific locations of self-injury among community-based samples, with findings indicating that females may be more likely to injure the wrists, arms, and thighs, while males are more likely to injure the hands, chest, genitals, and face (Whitlock et al., 2006; Sornberger et al., 2012).

Functions and Consequences of Self-Injury

The functions of self-injury have been examined in a number of recent studies, with converging evidence indicating that emotion regulation is most often the primary intent (for review studies, see Klonsky, 2007, and Whitlock & Selekman, 2014). Emotion regulation is conceptualized as the awareness, understanding, and acceptance of emotions, coupled with the ability to internally modulate emotional responses. A lack of such abilities is considered to reflect deficits in emotion regulation (Gratz & Roemer, 2004). When faced with an emotionally-intense experience, individuals choose from emotion regulation strategies that are available in a given context. When distressed by aversive emotions, young adults may attempt to manage or reduce distress by engaging in self-injurious thoughts or behaviours. As such, self-injurious thoughts and behaviours are considered maladaptive emotion regulation strategies (Linehan, Bohus, & Lynch, 2007; Nixon & Heath, 2009). Previous research has identified a vast array of factors that are associated with deficits in emotion regulation, such as insecure romantic attachment (e.g., Guzmán-González, Lafontaine, & Levesque, in press; Morel & Papouchis, 2015), poor romantic caregiving abilities (Mikulincer & Shaver, 2012), and low sexual satisfaction (i.e., Rellini, Vujanovic, & Zvolensky, 2010; Rellini, Vujanovic, Gilbert, & Zvolensky, 2012). Despite this, it is equally imperative that the risk factors and correlates of specific emotion regulation strategies themselves are identified, as certain ones—such as self-injury—pose life-threatening consequences.

The review conducted by Klonsky (2007) indicated that self-injury is most commonly used as a maladaptive strategy for alleviating or coping with overwhelming negative affect. Specifically, findings reported in Klonsky's (2007) review outlined three types of evidence supporting emotion regulation as the leading function of self-injury: a) most participants self-reported that their primary motivation for engaging in self-injury is to reduce negative affect; b)

self-report and laboratory studies determined that a desire to reduce or manage negative affect preceded self-injury, and that affect improved following self-injurious episodes; and c) laboratory-based proxies for self-injury (e.g., visualizing cutting) resulted in improved affect. Moreover, individuals who self-injure tended to report feeling overwhelmed, sad, and frustrated before self-injuring, and calmed and relieved afterward (Klonsky, 2009). Further, the functions and consequences of self-injury have been indicated to be largely congruent. That is to say, individuals who self-injure to achieve a certain outcome (e.g., coping with negative affect) reported experiencing the desired consequence (Saraff, Trujillo, & Pepper, 2015). The efficacy of self-injury in regulating affect has been shown to reinforce the behaviour (Klonsky, 2009). Reasons consistent with an emotion regulation function are endorsed primarily among community young adults (Klonsky, 2009; Laye-Gindhu & Schonert-Reichl, 2005), and also among inpatient samples (Nock & Prinstein, 2004; Penn, Esposito, Schaeffer, Fritz, & Spirito, 2003). Other intrapersonal functions of self-injury observed in the literature include: self-punishment, anti-dissociation, and sensation-seeking (Klonsky, 2007). Self-injury has also been shown to serve interpersonal functions, including social influence and nonconformist peer identification (Dahlström, Zetterqvist, Lundh, & Svedin, 2015; Health et al., 2008). Functions are considered to overlap and co-occur (Klonsky, 2009), however, the emotion regulation purpose of self-injury appears to be the most fundamental, compelling motivator for engaging in such behaviours.

Prevailing Theories of Self-Injury

As documented in the literature reviewed above, it has been well-established that self-injury constitutes a prevalent, dangerous phenomenon that is associated with a host of detrimental consequences. A theoretical framework is essential to understanding why young

adults engage in self-injury, and is necessary to explaining how associated risk factors influence such behaviour. While an array of theoretical accounts of self-injury have been proposed, almost all of such models lack sufficient empirical support and address only a single aspect of self-injury—a phenomenon that is most likely multidetermined (Jacobson & Batejan, 2014). Early theoretical work was focused predominantly on proposing hypotheses about the functions of self-injury. For example, theories proposed that self-injury is performed as an attempt to control urges about sex or death (e.g., Cross, 1993; Friedman, Glasser, Laufer, Laufer, & Wohl, 1972), to define boundaries between the self and others, or to protect others from one's own anger or rage (Simpson & Porter, 1981; Suyemoto, 1998). Unfortunately, little systematic research has been conducted in support of these theoretical accounts of self-injury. In contrast, empirical studies that have examined potential risk factors and correlates of self-injury have been largely atheoretical. This has resulted in the identification of a large number of factors associated with self-injury, but little understanding of how or why they may lead one to self-injure (Nock, 2010). Stemming from this, it has been established that a myriad of distal and proximal factors are associated with self-injury (e.g., child maltreatment, intimate violence victimization, influence of one's peer group), although comprehensive explanations of the processes whereby such empirically-identified correlates lead one to self-injure are largely absent from the literature (Jacobson & Batejan, 2014; Nock, 2010).

In an attempt to address the limitations denoted above, Nock (2009b; 2010) proposed the integrated theoretical model, which provides an explanation of how numerous empirically-supported correlates may interact to lead to the development and maintenance of self-injury. In addition, attachment theory (Bowlby, 1969/1982; Mikulincer & Shaver, 2016; Shaver, Hazan, & Bradshaw, 1988) also provides an empirically-supported explanatory framework for

understanding how the dynamics of one's close interpersonal relationships can lead to the use of maladaptive coping strategies, such as self-injury. While there are certain areas of overlap between these two theories, they are described separately to ensure that the unique and distinct elements of each are presented. The following sections will provide descriptions of these two models, as they are of particular relevance to the studies comprising the present thesis. The integrated theoretical model and the attachment theory model encompass the variables of study in Studies I and II, respectively, and provide fitting accounts of how such variables may influence the use of self-injury.

The Integrated Theoretical Model of Self-Injury

As described above, the integrated theoretical model of self-injury provides an explanatory account of how a number of seemingly diverse correlates of self-injury may interact to result in an increased likelihood of engaging in such behaviour (Nock, 2009b; 2010). An overview of this model is presented below, as it provides a framework for understanding how the network of associations between the variables of study in Study I may lead to an increased risk of engaging in self-injury. This theoretical model consists of three major components, which serve to explain how both distal risk factors (i.e., child maltreatment) and proximal risk factors (i.e., inter- and intrapersonal vulnerabilities, stressful life circumstances) may result in self-injury. The first component of the model pertains to the functions of self-injury, as Nock (2009b; 2010) maintains that self-injury is repeatedly performed because it works as an immediate method of regulating one's emotions, and of influencing one's social environment in a desired manner. The second and third components of the model present specific factors that influence the decision to use self-injury. According to this theory, the risk of engaging in self-injury is increased by distal risk factors such as child maltreatment, as a history of maltreatment is

believed to create a predisposition to problems regulating one's affective state. Child maltreatment is considered to lead to the development of proximal interpersonal and intrapersonal risk factors that predispose an individual to respond to stressful events with affective dysregulation. In terms of interpersonal risk factors, Nock (2009b; 2010) proposes that child maltreatment may lead to deficits in social problem-solving and communication skills (Hilt, Cha, & Nolen-Hoeksema, 2008; Nock & Mendes, 2008). With regard to intrapersonal risk factors, Nock (2009b; 2010) proposes that child maltreatment may increase the likelihood of developing high aversive emotions and poor distress tolerance. Finally, the author of this model maintains that such risk factors, coupled with the onset of a stressful event, such as an interpersonal loss or interpersonal dispute, may then trigger engagement in self-injury. To summarize, this model proposes that distal risk factors (i.e., child maltreatment) increase one's risk of later developing proximal risk factors (i.e., deficits in social problem-solving and interpersonal communication skills, high aversive emotions and poor distress tolerance). The presence of such risk factors, in conjunction with the onset of a stressful life event results in a heightened risk for psychological distress and coping through maladaptive means, such as self-injury.

Adult Attachment Theory

Before discussing how attachment theory serves as an explanatory framework for understanding self-injury, it is important to first present an overview of the main components of the theory. Adult attachment theory (Mikulincer & Shaver, 2016; Shaver et al., 1988) constitutes a framework for studying the dynamics of romantic love, and for understanding the profound impacts that intimate relationships have on intrapersonal and interpersonal functioning. This theory of romantic love constitutes an extension of Bowlby's (1969/1982) attachment theory,

which was designed to conceptualize infants' relationships to their caregivers. The core assumption of adult attachment theory is that romantic relationships involve a combination of three interrelated behavioural systems originally described by Bowlby: the attachment, caregiving, and sexual systems, thus comprising a tripartite model. These systems are considered to have their own respective evolutionary functions, and encompass the behavioural responses that have generally promoted the survival and reproduction of our ancestors. Each of these behavioural systems is considered to affect the others in various ways, but they are conceptualized as distinct (Mikulincer, 2006).

The attachment system. Of the three behavioural systems that comprise the tripartite model of adult romantic attachment, the attachment system is the most widely studied (Gillath & Schachner, 2006). The attachment system is considered to develop throughout infancy and childhood, and holds important implications for interpersonal and personality development throughout the lifespan. It is characterized by proximity-seeking behaviour toward attachment figures (usually parents) that provide comfort and security in times of distress. When a child perceives the caregiver to be responsive and available, he or she will generally be playful, sociable, and engaged in exploring their environment. When the child perceives a threat to the relationship or to their well-being, the child will protest by seeking out the attention and comfort of the caregiver. Thus, the set goal of the attachment system is to maintain physical or psychological proximity between child and caregiver, which helps to ensure the child's safety (Fraley & Roisman, 2015). Over repeated interactions, such experiences with attachment figures are reinforced, and become integrated into enduring working models of the self and others (Bowlby, 1979). Such working models reflect what the child has learned about the responsiveness and availability of their caregivers. If caregivers are generally warm and

responsive, the child comes to learn that others can be counted on when needed. Such consistent and sensitive care promotes the development of a secure working model of attachment, which encompasses a sense of self-worth and positive expectations of others and the world. If caregivers are rejecting, unpredictable, or frightening, the child learns that others cannot be counted on for support, and that he or she must regulate their behaviours accordingly in order to have their needs met. This is embodied by either demanding excessive attention and care, or by withdrawing from others and placing great emphasis on self-reliance and sufficiency. The child thus develops an insecure working model of attachment, which is characterized by a negative appraisal of the self and/or others (e.g., doubts of one's lovability, mistrust of others) (Fraley & Roisman, 2015). Thus, Bowlby (1973) proposed that early experiences with caregivers form the foundation for two types of working models: mental representations of others' responses to our distress signals (i.e., working model of others), as well as mental representations of one's own worthiness, efficacy, and value (i.e., working model of self). According to the theory, this leads to the development of a general working model or enduring attachment prototype that remains relatively stable over time (Fraley & Roisman, 2015).

Attachment theorists have demonstrated that early attachment experiences with caregivers form a framework for social competence, and set the stage for how individuals will navigate romantic relationships later in life (for a review, see Fraley & Roisman, 2015). As children eventually transition into young adulthood, their primary attachments shift from parents to romantic partners (Hazan & Shaver, 1987). As such, the primary strategy of proximity maintenance in times of need remains, but such comfort becomes sought out from romantic partners rather than primary caregivers (Hazan & Shaver, 1987; Mikulincer & Shaver, 2016). When entering into a romantic relationship, the working models developed through interactions

with parents are expected to persist, and serve as a basis for regulating emotions, expectations, and behaviours in the context of the relationship (Bretherton & Munholland, 2008; Collins & Read, 1994). Empirical findings derived from both longitudinal and meta-analytical research offer support for the stability of attachment orientation and internal working models from infancy to young adulthood (see Fraley, 2002; Steele et al., 2014; Waters, Hamilton, & Weinfield, 2000). In addition to having a general working model of attachment that is considered to guide how people respond to relationships, research indicates that people may also hold relationship-specific models that inform how they interact in specific relationships (Ross & Spinner, 2001). Furthermore, research also indicates that attachment orientations may not be as fixed as once considered, and demonstrates that attachment orientations may be revised or changed depending on new experiences that occur within one's relationships later in life (e.g., Burgess Moser, Johnson, Dagleish, Lafontaine, Wiebe, & Tasca, 2015; Crowell, Treboux, & Waters, 2002; Fraley, Vicary, Brumbaugh, & Roisman, 2011; Klohnen & Bera, 1998).

Negative working models of romantic attachment in adulthood are characterized by two independent dimensions: attachment-related anxiety and avoidance (Brennan, Clark, & Shaver, 1998). Attachment anxiety involves a negative model of the self, and is defined as excessive fears of rejection or abandonment due to chronic doubts of one's lovability. In contrast, attachment avoidance involves a negative model of others, and refers to discomfort with emotional intimacy due to interpersonal mistrust (Mikulincer, 2006). People who are low on both dimensions (and who thus hold positive models of themselves and others) are considered to have a secure romantic attachment orientation.

The caregiving system. The caregiving system is complementary to the attachment system, and is considered to have evolved to provide protection and support to dependent others,

such as children or a distressed adult who is temporarily in need of comfort (Mikulincer & Shaver, 2016). The organization of the romantic caregiving system is thought to occur within the context of caregiving received from parents in childhood. That is, caregiving experiences in childhood are believed to shape how individuals express caregiving in their romantic relationships (Kunce & Shaver, 1994). Research findings support this theoretical postulate, as adults' romantic caregiving behaviours have been demonstrated to reflect the quality of perceived care they received from parents in childhood. This suggests that parental care representations inform one's own representations of self-as-caregiver in adulthood (Carnelley, Pietromonaco, & Jaffe, 1996; Feeney, 1996; Julal & Carnelley, 2012). In the context of romantic relationships, the activation of one partner's attachment system (by threat to well-being or perceived relationship security), in turn, triggers his or her partner's caregiving system with the set-goal of reducing the troubled partner's distress and restoring his or her sense of safety. As both members of a couple continually alternate between the need for security and comfort, as well as the provision of care to the partner, the dynamic interplay between the attachment and caregiving systems is considered essential to the functioning of romantic relationships (Mikulincer, 2006).

According to Kunce and Shaver (1994), four dimensions characterize caregiving behaviours in adult attachment relationships. *Proximity* refers to an individual's tendency to offer physical and emotional closeness as a means of comforting a distressed partner. *Sensitivity* is considered the ability to accurately perceive distress cues and needs in one's partner. Both proximity and sensitivity are considered expressions of responsive caregiving. *Controlling caregiving* refers to the tendency to take too much responsibility for the partner's problems, while minimizing opportunities for the partner to find his or her own means of coping. Finally,

compulsive caregiving refers to an individual's tendency to become intrusive and over-involved in the partner's life with minimal regard for his or her actual need for help. Both controlling and compulsive caregiving are considered negative or maladaptive expressions of caregiving.

The sexual system. In addition to the attachment and caregiving systems, the sexual system is a vitally important component of both individual and couple functioning. This system is considered to have evolved to promote reproduction, and is expressed through sexual behaviour, emotions, and desires (Birnbaum, 2010, 2015; Johnson, Lafontaine, & Dalglish, 2015; Mikulincer, 2006). This system is the last of the three to develop, as individuals generally become sexually active during adolescence or young adulthood. As a result of its later development, it is influenced by the history and functioning of the attachment and caregiving systems. Adult attachment theory maintains that attachment and caregiving strategies developed in the early years of life shape relationship goals, and play a role in affecting desired levels of intimacy and affection with romantic partners (Birnbaum, 2015; Johnson et al., 2015). Indeed, empirical evidence supports the view that such early attachment and caregiving experiences account for some of the functioning of the sexual system in adulthood (Birnbaum, 2010; Mikulincer & Shaver, 2016). The sexual system is considered crucial to the functioning of most couple relationships, given its tremendous importance in the initial stages of romantic love, and its role in the consolidation and maintenance of long-lasting romantic relationships (Mikulincer, 2006; Johnson et al., 2015). The functioning of the sexual system can be viewed in terms of sexual satisfaction and dissatisfaction, which refers to the subjective assessment of the positive and negative aspects of one's sexual relationship and experiences (Byers, Demmons, & Lawrence, 1998; Péloquin, Brassard, Lafontaine, & Shaver, 2014).

While sexual satisfaction is a broad, multidimensional concept, researchers contend that two primary dimensions underpin this construct: *self-focused satisfaction* and *partner/activity focused satisfaction*. Self-focused satisfaction refers to sexual satisfaction generated by one's own personal experiences and sensations experienced, while partner/activity focused satisfaction refers to sexual satisfaction derived from one's perception of their partner's sexual reactions, and the quality of sexual activities partaken in together (Stulhofer, Busko, & Brouillard, 2010).

The three behavioural systems mutually influence one another and operate jointly to impact the quality of romantic relationships (Mikulincer, 2006; Mikulincer & Shaver, 2016; Shaver et al., 1988). As described above, one partner's attachment behaviours or signals of need activates the other partner's caregiving system with the aim of soothing and comforting the distressed partner. The attachment system is also considered to impact the functioning of the caregiving system. Specifically, securely attached individuals are considered to be able to provide effective care to a distressed partner, while insecurely attached individuals are considered to have difficulty providing sensitive, responsive care (Mikulincer, 2006). This is because possessing a sense of attachment security is related to feelings of self-efficacy when coping with distress (Mikulincer, 2006). While the attachment and caregiving systems are considered to shape the functioning of the sexual system, the sexual system may also influence these systems as it may serve as a powerful motivational force for both bringing partners together initially, as well as consolidating and maintaining emotional bonding in long-lasting relationships (Birnbaum, 2015; Mikulincer, 2006).

Attachment Theory and Self-Injury

As outlined above, the three systems that comprise the tripartite model of romantic attachment perform vital roles in a person's emotional life, and contribute greatly to both one's

personal and interpersonal functioning (Mikulincer, 2006). These interrelated systems are considered to have important implications for overall well-being, such that suboptimal functioning may negatively impact emotion regulation skills and coping abilities (Birnbaum, Mikulincer, Szepeswol, Shaver, & Mizrahi, 2014; Gratz et al., 2002; Mikulincer & Shaver, 2012; Mikulincer, Shaver, & Pereg, 2003; Walsh, Fortier, & DiLillo, 2009). Given the close ties between these attachment systems and such aspects of personal functioning, attachment theory is considered an explanatory framework for understanding the functions and motivational forces underlying emotion regulation strategies, such as self-injury (Suyemoto, 1998; Yates, 2009).

The developmental psychopathology approach to self-injury proposes that insecure attachment to caregivers in childhood (and, by extension, insecure attachment to romantic partners in adolescence and adulthood) can be conceptually linked to self-injury in three ways (for a detailed description, see Yates, 2009). First, (a) the adverse experiences underlying insecure attachment (e.g., inconsistent parental care, neglectful romantic partner) may affect the individual by leading to the development of a view of self as unlikeable or undeserving of care (i.e., attachment anxiety). Alternately, the individual may come to perceive others as critical or unsupportive (i.e., attachment avoidance), and be left to cope with emotional distress alone. This developmental process is termed the *representational path*, whereby self-injury is thought to emerge from insecure attachment-related representations of the self as defective and of others as unsupportive. Secondly, (b) self-injury may develop as an emotion regulation strategy among those with insecure attachment orientations (e.g., to a romantic partner), as they may be unable to effectively cope with emotionally-laden experiences. This path is referred to as the *regulatory path*, in which the individual uses self-injury as their primary resource for dealing with emotional distress. Finally, (c) self-injury may develop through a *reactive path* resulting from

traumatic childhood attachment experiences that result in dysfunction to the individual's stress response system. While the developmental psychopathology approach proposes three paths (i.e., representational, regulatory, and reactive) whereby insecure attachment may lead to self-injury, conceptually, these paths do not necessarily occur independently of one another and are likely to intersect. For example, an individual with a negative view of self or others (representational path) may also have difficulty effectively regulating distress (regulatory path), both of which may be linked to early traumatic experiences which impacted the development of his or her stress response system (reactive path). Adult attachment theory also provides a theoretical framework for understanding how the romantic caregiving and sexual systems may influence the use of maladaptive emotion regulation strategies, such as self-injury. Attachment theorists contend that one's ability to respond to the needs of others is also representative of one's ability to also regulate their own distress-related emotions in effective ways. Specifically, expressions of negative caregiving (e.g., compulsive and controlling caregiving behaviours) reflect a lack of responsive, appropriate attunement to the needs of a distressed partner, and are believed to reflect one's own inability to effectively self-regulate. As such poor caregiving abilities are considered to characterize individuals who may also experience difficulties alleviating their own distress in healthy ways (Collins, Guichard, Ford, & Feeney, 2006; Mikulincer & Shaver, 2012), thus increasing the likelihood that they will engage in maladaptive coping strategies, such as self-injury. Moreover, attachment theory proposes that the functioning of the sexual system plays a role in one's emotion regulation abilities (Birnbaum et al., 2014; Mikulincer & Shaver, 2012). Dissatisfaction with one's sex life may stem from a wide variety of causes, such as sexual dysfunction (e.g., erectile dysfunction, sexual pain disorders), or difficulties coordinating one's sexual desire and interests with that of a partner. Chronic, ongoing sexual dissatisfaction can

contribute to the failure of the primary strategy of the sexual system— enhancing mutual attraction and sexual satisfaction in order to promote reproduction—and result in the adoption of secondary hyperactivating or deactivating strategies. Chronic hyperactivation of the sexual system includes mentally-preoccupying, intrusive worries about one's sexual desirability. In an attempt to assuage such concerns, one may engage in effortful or even coercive attempts to persuade a partner to have sex or acknowledge one's sexual appeal. In contrast, chronic deactivation of the sexual system is characterized by inhibiting or dismissing one's sexual needs, and rejecting sexual activity as a valuable source of pleasure (Shaver & Mikulincer, 2008). The chronic, intrusive worries associated with sexual hyperactivation are considered to lead to a decreased ability to regulate negative affective states. In addition, the dismissal and suppression of sexual needs that encompass chronic sexual deactivation are considered to hinder one's ability to effectively cope with stressors affecting other areas of one's life (Mikulincer & Shaver, 2012, 2016). Thus, both the sexual hyperactivation and deactivation are considered to diminish one's emotion regulation abilities. Given this link between sexual dissatisfaction and emotion regulation difficulties, it is plausible to hypothesize that sexual dissatisfaction may be similarly linked to specific emotion regulation strategies, such as self-injury.

As described above, the sub-optimal functioning of each of the three behavioural systems may individually compromise one's ability to cope with distress in healthy ways, and may thus be linked to the use of maladaptive emotion regulation strategies such as self-injury. It is also possible that the dynamic interplay that exists between the systems may serve to exacerbate risk for engagement in maladaptive emotion regulation strategies. Each system informs or activates another (Mikulincer, 2006; Mikulincer & Shaver, 2016; Shaver et al., 1988), and as such, the sub-optimal functioning of one system (e.g., insecure attachment) contributes to the sub-optimal

functioning of another system (e.g., poor caregiving abilities). The sub-optimal functioning of all systems in concert may thus impact one's emotion regulation abilities threefold, thus increasing the risk for engaging in maladaptive coping strategies such as self-injury.

Empirical Links between Self-Injury and Attachment Relationships

In addition to the theoretical links between the attachment systems and self-injury, some empirical attention has also been paid to examining how the quality of central attachment relationships may be related to the use of self-injury. A relatively modest body of empirical work has focused on addressing how the quality of parent-child attachment relationships influence the likelihood of engaging in self-injury in adolescence and young adulthood. Negative or deleterious parent-child relational experiences may be thought of as first-onset risk factors, as the literature indicates that they are closely tied to one's initial adoption of self-injury as a coping strategy during adolescence. Moreover, a very small number of recent studies have explored how experiences in romantic attachment relationships may contribute to the maintenance of self-injury as a coping strategy among young adults involved in couple relationships. Such existing studies provide us with insights into how individuals' attachment relationships in both childhood and later romantic relationships may be tied to the use of self-injury and other maladaptive emotion regulation strategies.

Self-Injury and Parent-Child Relationship Experiences

Family environment, relationship quality, and attachment. Empirically, research has indicated that family environments, in which feelings are invalidated or rejected, leave a child with little opportunity to learn about, experience, and effectively cope with emotions (Linehan, 1993; Yap, Allen, & Ladouceur, 2008). Moreover, research has established links between invalidating family contexts and self-injury, with findings supporting the notion that such family

environments do not provide the child with supportive or accepting responsiveness in the face of emotional distress, and thus leave the child ill-equipped to cope with painful experiences later in life (for a review, see Crowell, Derbidge, & Beauchaine, 2014). Poor quality of relationships with parents has also been consistently cited as a risk factor for engagement in self-injury among adolescents and young adults (for a review, see Prinstein, Guerry, Browne, & Rancourt, 2009). Specifically, family chaos, separation from parents, feeling alienated by parents, limited emotional expressivity, relational trauma, and poor communication with parents have all been linked to self-injury (Adrian, Zeman, Erdley, Lisa, & Sim, 2011; Claes, Vandereycken, & Vertommen, 2004; Crowell et al., 2008; Martin et al., 2016; Martin, Bureau, Yurkowski, Lafontaine, & Cloutier, 2015; Crowell et al., 2008; van der Kolk, Perry, & Herman, 1991; Wedig & Nock, 2007). In addition to the literature demonstrating associations between self-injury and poor quality of relationships to parents, researchers have also investigated links between poor attachment to parents and the occurrence of self-injury (i.e., Gratz et al., 2002; Hallab & Covic, 2010; Heath et al., 2008; Tatnell, Kelada, Hasking, & Martin, 2014). Despite somewhat inconsistent findings reported across studies, the general conclusion gleaned from the existing literature on parent-child attachment is that representations of insecure attachment to parents (referred to in the studies as anxious, preoccupied, and unresolved attachments) is positively linked to self-injury.

Child maltreatment. Exposure to child maltreatment is among the most consistently cited environmental risk factors for self-injury identified to date (Dugal, Bigras, Godbout, & Bélanger, 2016; Gratz, 2001; Gratz et al., 2002; Heilbron, Franklin, Guerry, & Prinstein, 2014). There are strong associations between maltreatment and later engagement in self-injurious thoughts and behaviours in numerous retrospective studies of child maltreatment (for a review,

see Lang & Sharma-Patel, 2011). More severe and chronic forms of maltreatment are predictive of more self-injury, as are close familial ties to the perpetrator of abuse (Yates, 2004). Most research aimed at examining links between self-injury and negative childhood experiences has concerned the role of child sexual abuse, with a vast body of evidence indicating a relation between child sexual abuse and later self-injury (e.g., Armiento, Hamza, Stewart, & Leschied, 2016; Briere & Gil, 1998; Gladstone et al., 2004; Gratz et al., 2002; Gratz & Roemer, 2008). Existing findings also provide support for a significant link between child physical abuse and self-injury (e.g., Gratz et al., 2002; Di Pierro, Sarno, Perego, Gallucci, & Madeddu, 2012; Zoroglu et al., 2003). Although literature pertaining to links between self-injury and other potentially traumatic childhood experiences remains comparatively modest, studies indicate that psychological maltreatment (e.g., Zetterqvist, Lundh, & Svedin, 2014), parental neglect (e.g., Swannell et al., 2012), and witnessing family violence (e.g., Armiento et al., 2016) are also linked to the use of self-injury as a coping strategy in adolescence and young adulthood. Furthermore, a handful of studies have examined the impacts of different types of maltreatment in concert (for a review, see Lang & Sharma-Patel, 2011; Di Pierro et al., 2012; Vaughn, Salas-Wright, Underwood, & Gochez-Kerr, 2015), with results indicating that among groups of self-injuring individuals, people who self-injure more frequently reported exposure to more types and more incidents of child maltreatment than did those who self-injure less frequently.

Self-Injury and Romantic Relationship Experiences

Insecure attachment. A very small number of recent studies have provided converging evidence for a link between insecure romantic attachment and self-injury. To our knowledge, the first investigation in this area was conducted by Fung (2008), who examined associations between dimensions of insecure romantic attachment (i.e., attachment anxiety and avoidance)

and self-injurious behaviours among patients in a clinical setting. Results indicated that while attachment anxiety was significantly linked to self-injurious behaviours, attachment avoidance was not. Similar results were obtained in a second related study that consisted of a representative community sample (Levesque et al., 2010), with findings indicating that attachment anxiety (and not attachment avoidance) was linked to both self-injurious thoughts and behaviours. In contrast to the findings presented by Fung (2008) and Levesque and colleagues (2010), Fitzpatrick and colleagues (2013) and, most recently, Braga and Gonçalves (2014) demonstrated that both attachment anxiety and avoidance were significantly linked to self-injurious behaviours. Taken together, the findings gleaned from these four studies support the presence of a link between insecure romantic attachment and self-injury, although much remains unclear regarding this association. Pertinent findings remain sparse and contradictory, as the results found are incongruent (i.e., half of the studies indicated links between both dimensions of insecure attachment and self-injury, while the other half support only a link between attachment anxiety and self-injury), and the constructs measured vary (i.e., only one of three studies examined both self-injurious thoughts and behaviours), as do the populations of study (i.e., clinical versus community samples). As such, there is a need for further examination of the impacts of both dimensions of insecure romantic attachment on self-injurious thoughts and behaviours in order to develop a comprehensive understanding of the relations between these constructs.

Negative expressions of romantic caregiving. To our knowledge, no research to date has examined whether there is an association between romantic caregiving behaviours and self-injury. Despite this gap in the literature, findings from a related study indicated that examining such a prospective link may be an avenue worthy of empirical exploration. Specifically, one study has explored the psychological correlates of romantic caregiving behaviours, and found

that negative romantic caregiving behaviours toward one's partner (e.g., controlling caregiving behaviours, low sensitivity to the partner's needs) are positively associated with emotion regulation problems (Mikulincer & Shaver, 2012). Negative forms of caregiving were associated with lower scores on measures of mood regulation and self-control, as well as higher scores on measures of emotional intensity and rumination. Such findings can be understood through the lens of attachment theory, which maintains that poor caregiving abilities characterize individuals who may also experience difficulties regulating their own distress in healthy ways (e.g., going for a walk, taking a nap) (Collins et al., 2006). Such conceptually (Collins et al., 2006) and empirically-supported (Mikulincer & Shaver, 2012) ties between negative caregiving behaviours and emotion regulation difficulties provide a foundation for anticipating links between negative caregiving behaviours and the use of specific emotion regulation strategies, such as self-injury.

Sexual dissatisfaction. To our knowledge, there is presently no literature that focuses on the links between sexual dissatisfaction and self-injury. However, findings from two studies (i.e., Rellini et al., 2010; Rellini et al., 2012) have suggested that sexual dissatisfaction is linked to emotion regulation difficulties. As described above, the presence of self-injurious thoughts and behaviours is intricately tied to emotion regulation. As such, these findings offer preliminary indices that sexual dissatisfaction may similarly be linked to the use of specific emotion regulation strategies such as self-injury; however, empirical investigation is first needed in order to substantiate such potential ties.

Intimate violence victimization. In addition to the links between self-injury and dimensions of romantic relationship functioning (i.e., insecure romantic attachment and caregiving), researchers have also determined that intimate violence victimization may be linked to self-injury. Findings from a modest number of studies indicate that all forms of intimate

violence victimization (i.e., physical, sexual, and psychological violence) have been linked to both self-injurious thoughts (Wong, Wang, Meng, & Phillips, 2011) and behaviours (Levesque et al., 2010; Sansone, Chu, & Wiederman, 2007; Vaughn, Salas-Wright, DeLisi, & Larson, 2015; Wong et al., 2011), as exposure to unhealthy, violent environments is considered to increase one's risk of responding to distress by engaging in unhealthy coping strategies, such as self-injury (Moylan et al., 2010; Nock, 2009a). Although a few studies have documented associations between intimate violence victimization and self-injury, almost all related research has been conducted with female clinical samples. To our knowledge, only two studies to date have examined associations between intimate violence victimization and self-injurious behaviours with a representative sample of both male and female young adults (Levesque et al., 2010; Vaughn et al., 2015). Findings from both studies supported links between all forms of intimate violence victimization and self-injurious behaviours in both males and females. Levesque and colleagues (2010) also examined self-injurious thoughts but conversely did not find evidence of a link between intimate violence victimization and self-injurious thoughts. As such, our current understanding of the associations between intimate violence victimization and self-injury among community-based individuals is considerably limited, given the modest state of the literature (only two studies to date that have examined the link between victimization and self-injurious behaviours, and only one study that has examined the link between victimization and self-injurious thoughts), and the puzzling finding reported therein (i.e., intimate violence victimization significantly linked to self-injurious behaviours, but not self-injurious thoughts). Despite the few existing studies that have examined the link between both self-inflicted injury and partner-inflicted violence, more thorough investigation is required in order to better clarify our current understanding of such relations among community-based individuals.

In a related vein, researchers have also begun to examine the links between dating violence and self-injury. “Dating violence” is defined as abusive behaviours that occur within the context of a dating relationship, which constitutes a connection between two individuals beyond a friendship, but not to the extent of a serious committed or long-term relationship (Murray & Kardatzke, 2007). Findings uniformly indicate that both dating violence perpetration and victimization are associated with self-injurious behaviours among representative samples of adolescents and young adults (Baker, Helm, Bifulco, & Chung-Do, 2014; Murray, Wester, & Paladino, 2008; Rizzo et al., 2014; Taliaferro & Muehlenkamp, 2015). To our knowledge, no literature has yet investigated whether dating violence is similarly linked to self-injurious thoughts. Although the concepts of intimate violence victimization and dating violence certainly overlap, it is implicitly understood that the former encompasses violence that occurs within committed romantic relationships, in which an attachment bond (be it secure or insecure) has emerged over time between the partners comprising the dyad. In contrast, research examining dating violence and self-injury encompasses violence occurring in the context of any form of relationship beyond a platonic friendship, and thus does not necessarily constitute examinations of relationships in which an attachment bond may have developed between the dating partners. Examining violence occurring in the context of romantic attachment relationships is important in order to explore how the quality of experiences occurring in central attachment relationships may serve to reinforce or maintain self-injury. As the scope of the present thesis encompasses an examination of how the functioning of committed romantic relationships (and the quality of the attachment bonds within such relationships) is tied to young adult self-injury, the discussion of relationship violence will herein be reserved to intimate violence victimization.

Measurement of Self-Injury

Given the elevated prevalence rates for self-injury in both clinical and community samples, as well as the individual and social detriments associated with self-injury (e.g., Hamza et al., 2012; Kerr & Muehlenkamp, 2010; Muehlenkamp, 2006), recent research efforts have focused on the development of effective measures intended to assess and monitor young adult self-injury (Martin et al., 2013). The availability of well-designed measures of self-injury has a number of potential benefits and uses, and can be a valuable aspect of clinical assessment and of psychological treatment planning and monitoring. It is also essential to further advance current understanding of self-injury. While there are a number of self-report tools available, there is no one “gold standard” measure in this area. Also, existing measures vary considerably in the particular aspects of self-injury that they have been designed to assess. For example, some questionnaires are used primarily as brief screening tools, while others focus on measuring the frequency of self-injurious acts, assessing methods of injury, and determining reasons for engaging in self-injury. A number of structured interviews have also been designed; however, their use is often limited to clinical assessment purposes, as the costly and lengthy administration required is not suitable for certain research purposes.

While a variety of self-report measures exist, few are considered optimal for use with community-based respondents. Many measures were designed for use among psychiatric inpatient populations (e.g., the Self-Injury Motivation Scale-II, Osuch, Noll, & Putnam, 1999; the Functional Assessment of Self-Mutilation scale, Lloyd, Kelly, & Hope, 1997), with some constructed exclusively using samples of female inpatients (e.g., the Self-Injury Inventory, Zlotnick et al., 1996). Thus, such measures may not be suitable for use with both male and female community respondents, as they were designed to assess the experiences of those in clinical populations. In recent years, the Deliberate Self-Harm Inventory (Gratz, 2001), the

Inventory of Statements About Self-Injury (Klonsky & Glenn, 2009), and the Non-Suicidal Assessment Tool (Whitlock, Exner-Cortens, & Purington, 2014) have emerged as well-validated and robust measures of self-injury; however, these instruments are focused exclusively on behaviours, and thus do not provide information about self-injurious thoughts. Additionally, other widely-used self-report measures include the Self-Harm Inventory (Sansone, Wiederman, & Sansone, 1998) and the Self-Harm Behavior Questionnaire (Gutierrez, Osman, Barrios, & Kopper, 2001). However, as these instruments consist of yes/no response formats or contain only a small number of items specific to self-injury, they may offer limited utility for researchers and clinicians interested in gathering a more nuanced quality of information, such as the frequency, type, and functions of self-injurious thoughts and behaviours.

While a number of assessment tools are considered suitable for use in both clinical treatment and research-oriented settings (for a review of validated instruments, see Klonsky & Lewis, 2014), the Ottawa Self-Injury Inventory (OSI; Cloutier & Nixon, 2003; Martin et al., 2013) departs from existing measures by offering assessment of both the core or standard areas of measurement of both self-injurious thoughts and behaviours (e.g., scales assessing frequency and severity), as well as novel areas of measurement not found in other questionnaires. The OSI is a comprehensive self-report questionnaire designed to identify psychosocial correlates of self-injury in adolescents and young adults in both clinical and community-based samples. The items of the OSI cover cognitive, affective, behavioural, and environmental aspects of self-injury, and the entire questionnaire requires approximately 20 minutes to complete. Additionally, measurement of young adult self-injury in the context of the OSI may help to elucidate various aspects of this phenomenon, as it is the only questionnaire that includes items related to the addictive properties of the behaviour, scales assessing respondents' perceived effectiveness of

self-injury at emotion regulation, and a scale to measure motivation to stop engaging in self-injury. Moreover, the OSI is the only measure to evaluate the evolution of self-injury by including items that examine whether the motivations for continuing to self-injure are different from the motivations associated with initial engagement.

Moreover, this measure has established psychometric properties, including test-retest reliability (Cloutier & Nixon, 2003) and good internal consistency scores (Martin et al., 2013). In summary, a wide number of assessment tools are available. The OSI may be of particular use for research purposes, and clinical treatment planning and monitoring, given its widespread areas of assessment (Cloutier & Humphreys, 2009; Martin et al., 2013; Nixon et al., 2015).

The Current Studies

In light of the gaps in the literature reviewed above, this thesis consists of two major studies aimed at expanding current limited insights regarding the associations between romantic relationship functioning and young adult self-injury. As documented above, the body of existing literature provides us with preliminary indices that romantic relationship functioning may serve to influence self-injury. However, our understanding of this association is considerably limited as it currently hinges on a small number of findings pulled together from the sparse studies in this area. The two studies that follow are intended to serve as individual contributions to the advancement of our knowledge of this troubling phenomenon by examining it from a largely unexplored perspective: that of couple relationship functioning. The studies are intended to serve as independent investigations of different facets of romantic relationship functioning and their links to young adult self-injury, and both present novel conceptualizations of such hypothesized relations. While the two studies are distinct and can stand alone from one another, they are complementary insofar as they each serve as important pieces that, when placed together, depict

a broader and more detailed narrative of the associations between romantic relationship functioning and self-injury. Specifically, Study I consisted of an investigation of a conceptual model examining intimate violence victimization as a mediator of the relation between child maltreatment and self-injurious thoughts and behaviours. Through testing this model, important theoretical queries were explored regarding whether intimate violence victimization may serve as a maintenance factor for self-injury among young adults with a history of child maltreatment. Secondly, Study II consisted of an examination of the associations between romantic attachment theory's three interrelated behavioural systems (i.e., the attachment, caregiving, and sexual systems) and self-injurious thoughts and behaviours. The relative strength of such links was then compared to establish the strongest predictors of young adult self-injury. Through examining relations between the behavioural systems—considered to be centrally tied to romantic relationship functioning (e.g., Mikulincer & Shaver, 2016)—and self-injury, this provided much further nuance and detail to the narrative of how romantic relationship functioning may be linked to self-injury first introduced in Study I. Both studies also encompass numerous secondary aims, all of which are presented in studies I and II below.

In summary, both of the studies are expected to contribute to a more thorough understanding of young adult self-injury by examining its associations with central romantic relationship constructs. More generally, this is expected to broaden current knowledge of the link between romantic relationships and the functioning and adjustment of young adults. The implications of each investigation are discussed in-depth throughout their respective studies, as well as in the General Discussion section of the thesis.

Study I:

Exploring the Relationship between Child Maltreatment, Intimate Partner Violence
Victimization, and Self-Injurious Thoughts and Behaviours

A manuscript version of this study has been submitted for publication.

Caron, A., Lafontaine, M.-F., & Bureau, J.-F. (2016). *Exploring the Relationship between Child Maltreatment, Intimate Partner Violence Victimization, and Self-Injurious Thoughts and Behaviours*. Manuscript submitted for publication.

Author Note

This research was funded by a Joseph-Armand Bombardier Doctoral scholarship from the Social Sciences and Humanities Research Council and an Ontario Graduate Scholarship from the Ontario Provincial Government.

Abstract

Child maltreatment is considered a significant risk factor for young adult self-injury; however, the mechanisms that underlie this relationship are not yet understood. Emerging research indicates that interpersonal and intrapersonal mediating factors may underpin this association. The present study specifically investigated the mediating role of intimate violence victimization in the relationship between child maltreatment and self-injurious thoughts and behaviours. The sample consisted of 406 young adults (346 females; $M_{\text{age}} = 19.87$ years; $SD = 1.72$) currently involved in a couple relationship of at least six months duration. Bootstrapping procedures were used to test the mediation, and demonstrated that intimate violence victimization partially mediated the relationship between child maltreatment and self-injurious behaviours. Contrary to expectations, intimate violence victimization did not mediate the association between child maltreatment and self-injurious thoughts. These results suggest that individuals who have experienced both forms of interpersonal violence (i.e., child maltreatment and intimate violence victimization) may be particularly vulnerable to engaging in self-injurious behaviours. More broadly, the findings of this study highlight the utility of examining models that incorporate both distal and proximal factors contributing to the use of self-injury, and provide direction toward better understanding the relationship experiences of self-injuring young adults.

Keywords: non-suicidal self-injury; young adults; child maltreatment; intimate partner violence victimization

Exploring the Relationship between Child Maltreatment, Intimate Partner Violence
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Self-injury is considered a serious health concern among young adult populations, and is associated with a host of dangerous physical and psychological implications (Hasking, Momeni, Swannell, & Chia, 2008). Elevated lifetime prevalence rates of 13-17% suggest that self-injury is an issue of widespread nature, with reports indicating that a considerable proportion of young adults engage in self-injurious thoughts and behaviours (Nixon, Cloutier, & Jansson, 2008; Swannell, Martin, Page, Hasking, & St John, 2014; Whitlock, Eckenrode, & Silverman, 2006). Identifying the factors that precede self-injury is crucial to advancing current clinical conceptualizations and treatment strategies for those engaging in such thoughts and behaviours (Shenk, Noll, & Cassarly, 2010). Regarding such risk factors, child maltreatment is consistently cited as holding a key role in the development of later self-injury (for a review, see Lang & Sharma-Patel, 2011). Although child maltreatment is considered a significant risk factor for self-injury, the mechanisms through which childhood environment and adversities might lead to self-injury are not well understood to date (Swannell et al., 2012). Research is increasingly highlighting the role of mediating factors that may serve to explicate this link, such as social supports, self-criticism, and alexithymia (e.g., Christoffersen, Møhl, DePanfilis, & Vammen, 2015; Glassman, Weierich, Hooley, Deliberto, & Nock, 2007; Paivio & McCulloch, 2004). Moreover, recent findings indicate a link between intimate partner violence victimization (referred to hereafter as intimate violence victimization) and self-injury (e.g., Levesque, Lafontaine, Bureau, Cloutier, & Dandurand, 2010; Sansone, Chu, & Wiederman, 2007; Vaughn, Salas-Wright, DeLisi, & Larson, 2015a), thus indicating that for young adults involved in a couple relationship, exposure to relationship violence is also associated with self-injury. While

existing research findings provide an invaluable foundational conception of the factors that may lead to young adult self-injury, much remains to be understood regarding the underlying relational pathways that link these concerning phenomena.

Brief Overview of Self-Injury

Self-injury encompasses both thoughts of harming oneself, in addition to actual self-injurious behaviours (e.g., cutting and hitting oneself). Thoughts and behaviours are considered different forms of self-injury that frequently co-occur, as thinking of harming oneself has been demonstrated to increase risk for acting upon such thoughts (Nock, Prinstein, & Sterba, 2009). Self-injurious thoughts and behaviours are often used to regulate distressing negative affect, and thus constitute maladaptive emotion regulation strategies (e.g., Linehan, Bohus, & Lynch, 2007; Nixon & Heath, 2009). Self-injury constitutes a leading cause of injury worldwide (Nock et al., 2008) and is associated with an increased risk for suicide (Muehlenkamp & Gutierrez, 2007). While a vast myriad of both adaptive and maladaptive emotion regulation strategies are practiced across young adults, identifying the risk factors and correlates of self-injury are of particular importance, considering its potential for life-threatening consequences.

Overview of Child Maltreatment

Child maltreatment constitutes a considerable social and health problem that affects many individuals throughout Canada (Public Health Agency of Canada, 2008) and is associated with profound and enduring consequences. Child maltreatment refers to any non-accidental behaviour by a parent or caregiver that results in harm or risk of harm to a child. Child maltreatment can include acts of omission (i.e., neglect) and commission (i.e., abuse) (Leeb, Paulozzi, Melanson, Simon, & Arias, 2008), and is commonly divided into five subtypes: physical abuse, sexual abuse, psychological maltreatment, neglect, and the witnessing of family violence. Findings

published by the Canadian Incidence Study of Reported Child Maltreatment (Public Health Agency of Canada, 2008) determined that incidences of child maltreatment are of considerable concern, with results indicating thousands of confirmed cases comprising all types of maltreatment. Canadian prevalence studies conclude that every year, between 4-16% of children are physically abused, 1-15% experience neglect, approximately 10% experience psychological maltreatment, 8-10% witness family violence, and between 5-10% of girls and 5% of boys are sexually abused by a caregiver (see Gilbert et al., 2009 for a review). In Canada, girls have a higher risk of sexual abuse than do boys, although the rates of other types of maltreatment are similar for both sexes (Gilbert et al., 2009).

Traditionally, the majority of empirical investigations into child maltreatment have focused on examining different types of maltreatment in isolation from one another (Edwards, Holden, Felitti, & Anda, 2003; Hamby & Grych, 2013). Recent research has adopted a broader scope of inquiry, indicating that most victimized children do not experience one type of maltreatment, but rather, tend to experience multiple victimization (e.g., Babchishin & Romano, 2014; Cyr, Clément, & Chamberland, 2013; Dugal, Bigras, Godbout, & Bélanger, 2016; Turner, Finkelhor, & Ormrod, 2010), defined as exposure to different types of maltreatment within the same time period (Finkelhor, Ormrod, Turner, & Hamby, 2005). Indeed, among victimized children, approximately 6.5 in 10 have experienced multiple victimizations throughout the past year (see Babchishin & Romano, 2014, for a review). Multiple victimization is associated with a host of devastating consequences, and has been demonstrated to follow a linear dose-response relationship between victimization and psychosocial correlates, including symptoms of trauma, depression, anxiety, and anger/aggression symptoms, as well as impairments in academic performance (Babchishin & Romano, 2014; Cyr et al., 2013; Romano, Babchishin, Marquis, &

Fréchette, 2015). This growing body of literature provides thorough evidence for the considerable overlap among types of child maltreatment, with such findings indicating that investigating different types of maltreatment in unison may constitute a more accurate reflection of the reality of child maltreatment as a multiple victimization phenomenon.

Overview of Intimate Violence Victimization

In addition to child maltreatment, intimate violence victimization constitutes a devastating and prevalent form of family violence. It is considered a serious and often unrecognized problem that is consistently associated with physical and psychological consequences to those affected (Stewart, MacMillan, & Wathen, 2013). This term describes psychologically, physically, and sexually violent behaviour perpetrated by a current or former partner. Intimate violence victimization is an umbrella term which constitutes a wide spectrum of acts, ranging from more common forms of violence to more extreme and lethal activity. Specifically, types of psychological violence include acts ranging from insulting and yelling at one's partner to exercising control over an aspect of one's partner's life, such as finances or social outings. Physical violence includes acts ranging from hitting and slapping to causing severe injury. Finally, sexual violence can range from pressuring one's partner to engage in sexual activity to forced sexual activity (Breiding, Basile, Smith, Black, & Mahendra, 2015; Thompson, Basile, Hertz, & Sitterle, (2006). This form of violence may be perpetrated by either partner, and may be bilateral (common couple violence) or unilateral (perpetrated by one partner against the other). Intimate violence victimization is of particular concern among young adult populations, as there is a negative correlation between intimate violence and age (Caetano, Field, Ramisetty-Mikler, & McGrath, 2005; Cunradi, Caetano, Clark, & Schafer, 2000) and the course of intimate violence is considered to peak during young adulthood and decline thereafter

(Grandin & Lupri, 1997). Annual community prevalence estimates indicate that among Canadian adolescents and young adults living in the province of Quebec, 63% of females and 51% of males are subjected to at least one incident of physical, sexual, or psychological violence perpetrated by a dating partner (Hébert, Van Camp, Lavoie, Blais, & Guerrier, 2014). In particular, research conducted on a representative sample of Canadian adolescents and young adults found that 23% of females and 25% of males reported having experienced at least one act of physical relationship violence within a five-month period (Boivin, Lavoie, Hébert, & Gagné, 2012). Moreover, psychological violence is considered to be a relatively normative occurrence among representative couples, with prevalence studies indicating that 61% of French-Canadian adolescents and young adults experience psychological violence in their current romantic relationship (Godbout et al., in press), and that 57% of females and 59% of males report having engaged in at least one incident of psychological violence toward their partner within a one-year period (Lafontaine, Brassard, & Lussier, 2006). Community prevalence estimates of sexual violence among young adult Canadian couples indicate that sexual violence victimization occurs more frequently among females than among males. Specifically, findings from a study conducted on a sample of Canadian university students revealed that 31% of females and 20% of males reported being the victim of at least one form of sexual violence (e.g., unwanted sexual contact, verbal sexual coercion) in their current romantic relationship (Brousseau, Bergeron, Hébert, & McDuff, 2011).

Intimate violence victimization is consistently associated with numerous serious psychological and physical health consequences (Stewart et al., 2013; Warshaw, Brashler, & Gil, 2009). Individuals affected by intimate violence are at a significant risk for developing depression, anxiety, and trauma-related disorders, in addition to a number of other potentially

debilitating consequences such as substance use and suicidal ideation (Caldwell, Swan, & Woodbrown, 2012; Okuda et al., 2011). Such forms of abuse are also linked to numerous adverse physical health outcomes, such as poor general health, disability, and frequent receipt of medical attention (Campbell et al., 2002). Most related studies focus on the consequences of violence among married adults, while violence occurring among college-aged dating or cohabiting partners remains under-researched (Johnson & Dawson, 2011). As such, a detailed exploration of intimate violence victimization among young adults is necessary to fully understand its relations to young adult development and functioning.

Theoretical Links between Self-Injury, Child Maltreatment, and Intimate Violence Victimization

While a specific theory conceptualizing the links between child maltreatment, intimate violence victimization, and self-injury has not yet been proposed, such relations may perhaps best be understood through the lens of attachment theory (Bowlby, 1969/1982) as well as the integrated theoretical model of self-injury (for a detailed description, see Nock, 2009). Attachment theory provides a framework for understanding the link between child maltreatment and intimate violence victimization, as it contends that the quality of early parent-child experiences serves as a template that is carried forward into later romantic relationships. As children, individuals form representations of relationships formulated through interactions with parents in childhood which then guide and inform expectations for the quality of later interactions with romantic partners. To this end, parents are considered to serve as prototypes for one's later romantic partners, and thus, intimate violence may be more readily tolerated by individuals with a history of child maltreatment (Connolly et al., 2014; Roisman, Madsen, Hennighausen, Sroufe, & Collins, 2001).

The integrated theoretical model synthesizes research from several areas of the literature, and elaborates upon the processes linking child maltreatment to self-injury. This model contends that the risk for self-injury is increased by the presence of distal risk factors (e.g., childhood abuse) that contribute to problems with interpersonal communication and social problem-solving. According to the model, child maltreatment may lead to the development of proximal interpersonal and intrapersonal vulnerability factors, such as high aversive emotions and deficits in social problem-solving and communication skills among people who self-injure (Hilt, Cha, & Nolen-Hoeksema, 2008; Nock & Mendes, 2008). By extension, it is plausible to anticipate that such vulnerabilities may function to place one at a heightened risk for intimate violence victimization, as they may preclude the expression and negotiation of needs, and may limit one's ability to effectively manage conflict within the context of a couple relationship. The author of this model maintains that such risk factors, coupled with the onset of a stressful event (e.g., overwhelming work or social demands), may then trigger engagement in self-injury.

Building upon the integrated theoretical model of self-injury, we propose an extended explanation for the maintenance of self-injury among young adults and postulate that intimate violence victimization may serve to explicate the association between child maltreatment and self-injury. While child maltreatment is closely tied to the development of self-injury, the experience of intimate violence victimization may serve as a maintenance factor that precludes or interrupts the development of healthy coping behaviours that typically emerge when individuals develop romantic attachment bonds to their partners, namely dyadic coping (Revenson, Kayser, & Bodenmann, 2005). While the initial onset of self-injury may be precipitated by a history of child maltreatment, such thoughts and behaviours may be maintained by the continued distress of being re-victimized in the context of one's romantic relationship.

Attachment research has demonstrated that within healthy romantic relationships, partners turn to one another to seek support and care in times of distress, thus engaging in dyadic coping (Revenson et al., 2005). For those individuals victimized by intimate violence, the necessary emotional safety required to reach out to one's partner to cope with the onset of a stressor may be lacking, and as such, their existing coping strategies (namely, self-injurious thoughts and behaviours) may be continually practiced rather than taper off through the introduction of dyadic coping experiences, as may be the case in more healthy couple relationships. The use of self-injury may serve a more effective soothing or emotion regulation function than would seeking comfort from one's perpetrator of violence.

Empirical Links between Self-Injury, Child Maltreatment, and Intimate Violence

Victimization

In addition to the theoretical conceptualization put forth, there have been some empirical inquiries into the various associations between self-injury, child maltreatment, and intimate violence victimization. Such research findings provide us with foundational insights regarding both the early life experiences and current romantic relationship experiences that are linked to the use of self-injury among young adults.

Child maltreatment and self-injury. Strong associations between child maltreatment and self-injury have been repeatedly established and replicated in the literature, with retrospective and prospective studies from both community and clinical samples reporting that exposure to child maltreatment is associated with a drastic increase to the risk of engaging in self-injurious thoughts and behaviours for both males and females (e.g., Arens, Gaher, & Simons, 2012; Di Pierro, Sarno, Perego, Gallucci, & Madeddu, 2012; see Lang & Sharma-Patel, 2011 for a review; Martin, Bureau, Yurkowski, Lafontaine, & Cloutier, 2015; Vaughn, Salas-

Wright, Underwood, & Gochez-Kerr, 2015b), above and beyond the effects of other risk factors (Yates, Carlson, & Egeland, 2008). There is broad agreement that the average age of onset for self-injury is between 14 to 16 years (Klonsky, 2011), while child maltreatment typically encompasses experiences before the age of 13 years (as measured in the present study) (Higgins & McCabe, 2001). As such, child maltreatment typically occurs before the onset of self-injury. A familial tie to the perpetrator(s) of abuse is a particularly strong predictor of self-injury, as are more severe and chronic forms of abuse (Yates, 2004). The majority of research in this area concerns the role of child sexual abuse, with an extensive body of literature providing evidence for the strong association between sexual victimization and engagement in self-injury as a means of coping with intense, distressing emotions (e.g., Briere & Gil, 1998; Gladstone et al., 2004; Gratz, Conrad, & Roemer, 2002; Gratz & Roemer, 2008; Klonsky & Moyer, 2008; Yates, 2004). Existing findings have also demonstrated a link between child physical abuse and self-injury (e.g., Gratz et al., 2002; Vaughn et al., 2015b; Zoroglu et al., 2003). In addition, a smaller number of studies indicate that other forms of child maltreatment (i.e., psychological maltreatment, parental neglect, and witnessing family violence) are all positively linked to the occurrence of self-injury in young adulthood (e.g., Armiento, Hamza, Stewart, & Leschied, 2016; Martin et al., 2015; Tantam & Whittaker, 1992; van der Kolk, Perry, & Herman, 1991; Vaughn et al., 2015b; Wiederman, Sansone, & Sansone, 1999).

Although it is evident that child maltreatment is linked to later self-injury, the underlying or causal pathway between the two remains unclear (Swannell et al., 2012). At present, there is a mixed consensus regarding whether there exists a direct relation between maltreatment and self-injury, or whether the links between maltreatment and self-injury can best be understood by examining potential mediating factors. A growing line of research is in support of the latter, with

a number of recent studies aimed at investigating intrapersonal factors such as self-criticism (e.g., Glassman et al., 2007), dissociation (e.g., Yates et al., 2008), and emotion regulation difficulties (e.g., Paivio & McCulloch, 2004), as well as interpersonal factors such as low social support (Christoffersen et al., 2015) as possible mediators.

Child maltreatment and intimate violence victimization. Intimate violence victimization is well-documented among survivors of child maltreatment, with a wealth of literature indicating that child maltreatment is associated with later victimization in the context of partner violence among both male and female adults. Most related studies have focused on child sexual abuse, and have linked this form of maltreatment with a high likelihood of intimate violence victimization in adulthood (e.g., Daigneault, Hebert, & McDuff, 2009; Dong, Anda, Dube, Giles, & Felitti, 2003; Fry, McCoy, & Swales, 2012; Renner & Slack, 2006). Recently, child physical (Renner & Slack, 2006; Widom, Czaja, & Dutton, 2014) and psychological maltreatment (for a review, see Reyome, 2010) have also been identified as antecedents for later intimate violence victimization. Findings regarding neglect (Beeman, Hagemeister, & Edleson, 2001; McGuigan & Pratt, 2001; Widom et al., 2014) and witnessing family violence (Dumas, Margolin, & John, 1994; Stith et al., 2000) have similarly indicated that these forms of maltreatment also serve as risk factors for intimate violence victimization. While such research provides compelling evidence for the link between childhood maltreatment and intimate violence victimization, this body of literature is focused predominantly on examining this association among adult populations. Further, a considerable portion of these studies (e.g., Beeman et al., 2001; McGuigan & Pratt, 2001; Renner & Slack, 2006) were conducted utilizing clinical samples as well as disenfranchised participant samples (e.g., participants at risk of engaging in criminal activity, participants receiving social assistance). Thus, existing findings regarding the

link between maltreatment and later victimization may not be representative of the experiences of community-based young adults. Research is needed to elucidate the role of child maltreatment in the risk of intimate violence victimization among young adults in the community.

Intimate violence victimization and self-injury. As research efforts have managed to consistently identify an association between child maltreatment and self-injury, some investigators have begun to examine another form of interpersonal violence—intimate violence victimization— as a correlate of self-injury. Findings from a small number of recent studies suggest that all forms of intimate violence victimization (i.e., physical, sexual, and psychological violence) are related to self-injurious thoughts (Wong, Wang, Meng, & Phillips, 2011) and behaviours (Levesque et al., 2010; Sansone et al., 2007; Vaughn et al., 2015a; Wong et al., 2011). While such literature provides important evidence for the link between intimate violence victimization and self-injury, further exploration of this relationship is needed among representative community samples. To our knowledge, only two studies to date (i.e., Levesque et al., 2010; Vaughn et al., 2015a) have examined this association with a representative sample of both males and females. Levesque and colleagues (2010) reported mixed results that supported links between all types of intimate violence victimization and self-injurious behaviours. In contrast, the authors also investigated the link between intimate partner victimization and self-injurious thoughts, but found no significant results. Findings reported by Vaughn and colleagues (2015a) are also limited, as they examined only physical violence and its relation to self-injurious behaviours. As certain types of intimate violence are considered to occur frequently among representative couples (i.e., psychological and physical violence), it is important that its contributions to self-injury be thoroughly examined. As such, further research replicating and

extending such findings is justified in order to clarify the role of intimate violence victimization in the use of self-injurious thoughts and behaviours.

Objectives of the Study

As described above, research indicates that the current variables of interest (i.e., child maltreatment, intimate violence victimization, and self-injury) are closely related; however, the underlying processes tying them together are not yet understood. We propose the conceptual possibility that the presence of intimate violence victimization may serve to reinforce or maintain self-injury among young adults with a history of child maltreatment, as violence victimization may preclude or inhibit the develop of healthy dyadic coping behaviours that typically emerge in couple relationships. In order to elucidate the unique associations between these variables and explore this conceptual possibility, the primary aim of the present study was to propose and evaluate a novel model examining intimate violence victimization as a mediator of child maltreatment and self-injury. Specifically, the study investigated the potential mediating role of intimate violence victimization (i.e., physical, psychological, and sexual violence victimization) on the relationship between child maltreatment (i.e., neglect, witnessing family violence, and physical, psychological, and sexual abuse) and self-injurious thoughts and behaviours. The present study also constituted two secondary objectives. There is a paucity of research examining the ties between child maltreatment and intimate violence victimization among representative young adults. In an effort to relieve this gap in the literature, one of the aims of this study was to establish whether child maltreatment is linked to intimate violence victimization among young adults in the community. Moreover, it currently remains unclear whether intimate violence victimization is linked to both self-injurious thoughts and behaviours, as very limited research has been focused on exploring such ties. In order to elucidate such relations, another principal

aim of this study was to provide clarification on the potential link between intimate violence victimization and both forms of self-injury.

Hypotheses

The present study was guided by four hypotheses. In line with existing research, it was expected that child maltreatment (as measured by participants' total experiences of neglect, witnessing family violence, and physical, psychological, and sexual abuse) would directly predict self-injurious thoughts and behaviours (as indicated by the use of self-injurious thoughts and behaviours during the last six months). Secondly, it was hypothesized that child maltreatment would directly predict intimate violence victimization (as measured by participants' total experiences of physical, psychological, and sexual violence during the last six months). Similarly, it was hypothesized that intimate violence victimization would directly predict self-injurious thoughts and behaviours. Finally, it was expected that intimate violence victimization would mediate the relationship between child maltreatment and self-injurious thoughts and behaviours. These hypotheses were tested through the implementation of two statistical models. As described hereafter, the first model (Model 1) examined links between child maltreatment, intimate violence victimization, and self-injurious thoughts, while the second model (Model 2) explored the associations between such forms of interpersonal violence and self-injurious behaviours. Although self-injurious thoughts and behaviours are considered separate phenomena, the literature reviewed above indicates that both forms of self-injury are linked to child maltreatment and intimate violence victimization, and as such, no separate hypotheses were proposed.

Method

Participants

The sample was comprised of 406 young adults (346 females; $M_{\text{age}} = 19.87$ years; $SD = 1.72$) enrolled in introductory psychology courses (detailed description below). Eligibility criteria for participation in the study included a) being between the ages of 17 and 25 years of age (as this age range is generally considered to capture the period of young adulthood), b) being involved in a heterosexual couple relationship for a duration of at least six months at the time of participation, and c) having a good knowledge of English. This participant pool was recruited solely for the present thesis, and therefore not used in any existing laboratory studies.

The average duration of participants' current romantic relationship was 2.09 years ($SD = 1.29$). All participants were involved in a heterosexual relationship, the majority of whom were not married (93%), and were not cohabiting with their partner (86%) at the time of participation. Most participants (92%) indicated that their main daily occupation was being a student, while other participants identified as white-collar workers (3%) or as blue-collar workers (2%). The remaining 3% of participants identified as unemployed, as self-employed, or as homemakers. Seventy-eight percent of the sample were of European descent, while 12% of the sample identified as Asian, 4% as Black, 4% as Middle Eastern, and 2% as Latino.

Thirteen percent ($n = 52$) of participants reported experiencing self-injurious thoughts (but not behaviours) throughout the past six-months, while 12% of participants reported engaging in self-injurious behaviours throughout the past six months (all participants who endorsed self-injurious behaviours also endorsed self-injurious thoughts) ($n = 49$), and 75% ($n = 305$) of participants reported no engagement in self-injurious thoughts or behaviours throughout the past six months. Within the subgroup of people who self-injure, the average age of onset of self-injury was 14.33 years ($SD = 2.90$). The most commonly reported methods of self-injury included cutting (56%), scratching (44%) and burning (23%).

Procedure

All participants were registered in introductory psychology courses at an Eastern Canadian University, and voluntarily registered for the study through a research participation program offering first year undergraduate students opportunities to partake in research for additional course credit. Participants were automatically screened for age, relationship status, and proficiency in English prior to being permitted to register for the study. Each participant was assigned a computer-generated five-digit identification code by the program's computerized system, which was used to label the data. No other identifying information was collected. Participants were allotted two credit points toward their final course grade for partaking in the study.

Once registered for the study, all participants were subsequently provided access to the questionnaire package through a secure and encrypted web-based link (Survey Monkey). The questionnaire package opened with an information letter which outlined the voluntary nature of the study, and participants' right to withdraw at any time without consequence (see Appendix B). The information letter also provided participants with the contact information of the researchers involved in the study, as well as the contact information for the Protocol Officer for Research in Ethics of the university, should they desire further information regarding the study or their rights as research participants. Subsequent pages presented participants with necessary instructions, followed by the measures of study. Participants were given the option to save their responses and resume participation at a later date by using the study link provided by the online system. This study was conducted in English only, as certain key measures that will be used have only been validated in English at this time. However, given that the student population was composed of both English and French-speaking individuals, a French information letter was also provided (see

Appendix C). This was to ensure that bilingual students may obtain a thorough understanding of the study in their language of choice and provide informed consent to participate in the study. As such, the French information letter indicated that the content of the study is in English. Upon completion, all participants were provided with a resource list of psychological services available if so desired (see Appendix D).

Measures

Sociodemographic questionnaire. This questionnaire was administered to gather personal demographic information (e.g., age, sex, ethnicity/racial background, and years of education) and relationship demographic information (e.g., length of relationship, cohabitation, marital status, and number of children) about participants (see Appendix E).

Measure of child maltreatment. The Comprehensive Child Maltreatment Scale for adults (CCMS; Higgins & McCabe, 2001) is a 22-item measure of five separate types of child maltreatment experienced during childhood (i.e., sexual abuse, physical abuse, psychological maltreatment, neglect, and witnessing family violence) (see Appendix F). Likert-type response formats are used to assess the frequency of occurrences of each type of maltreatment directed toward participants by their mothers, fathers, or other adults. Responses include: (0) *Never or almost never*, (1) *Occasionally*, (2) *Sometimes*, (3) *Frequently*, and (4) *Very frequently*. Only maltreatment perpetrated by participants' mothers and fathers was examined in the present study. A combined subscale of the sum of each incident of maltreatment perpetrated by participants' mothers and fathers was calculated to create one overall index of child maltreatment. Total scores on the index of child maltreatment ranged from 0 to 90, with elevated scores indicating greater levels of maltreatment. To our knowledge, the CCMS is the only self-report scale available that assesses all five types of child maltreatment separately (Higgins & McCabe, 2001),

and is considered appropriate for use with young adults (D. Higgins, personal communication, June 13, 2014). This scale is considered to be a psychometrically-sound measure of multiple forms of child maltreatment, with adequate test-retest reliability and adequate internal consistency reported by its authors (sexual abuse scale: $a = .88$, physical abuse scale: $a = .66$, psychological maltreatment scale: $a = .78$, neglect scale: $a = .84$, and witnessing family violence scale: $a = .77$) (Higgins & McCabe, 2001). Moreover, internal consistency scores were acceptable to excellent for the current sample, with Cronbach's alphas of $a = .94$, $a = .85$, $a = .81$, $a = .81$, and $a = .68$ for each scale, respectively, and $a = .94$ for the total index of child maltreatment.

Measure of intimate violence victimization. The Revised Conflict Tactics Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) is a 78-item measure of intimate violence that assesses intimate violence perpetration (27 items) and victimization (27 items) within five subscales: physical violence, psychological violence, negotiation strategies, injuries sustained, and sexual violence (see Appendix G). Only the items assessing victimization were used, as the present study was focused on investigating links between victimization (not perpetration) and self-injury. An eight-point Likert-type response format is used to indicate the frequency of occurrences of violence throughout the last six months. Responses include: "this has never happened," "once in the last six months," "twice in the last six months," "3–5 times in the last six months," "6–10 times in the last six months," "11–20 times in the last six months," "more than 20 times in the last six months," and "not in the last six months, but it happened before." Each response category was coded with the approximate median score: 0, 1, 2, 4, 8, 15, and 25, respectively. The category "not in the last six months, but it happened before" was coded as 0 in order to obtain a six-month prevalence rate of intimate violence. A

combined subscale of the sum of each incident of physical, psychological, and sexual violence was calculated to create one overall index of victimization. These subscales were selected, as they each assess one of the three major types of intimate violence victimization, and their respective items may be combined into one index of victimization (Straus et al., 1996). Total scores on the index of victimization ranged from 0 to 675, with elevated scores indicating of greater levels of victimization. This scale is considered a psychometrically-sound measure of multiple types of intimate violence, and is considered appropriate for use with young adults in both heterosexual (Straus et al., 1996) and same-sex relationships (Matte & Lafontaine, 2011). Numerous studies attest to the reliability and validity of this measure (see Straus, 2007, for a review), and good internal consistency for its psychological, physical, and sexual violence scales have been reported by its authors ($\alpha = .79$, $\alpha = .86$, and $\alpha = .97$, respectively). Internal consistency scores were excellent for the current sample, with Cronbach's alphas of $\alpha = .93$, $\alpha = .98$, and $\alpha = .95$, respectively, and $\alpha = .98$ for the total index of victimization.

Measure of self-injury. The Ottawa Self-Injury Inventory (OSI; Cloutier & Nixon, 2003; Martin, Cloutier, Levesque, Bureau, Lafontaine, & Nixon, 2013) is a 120-item measure of current and past self-injurious thoughts, behaviours, and intended results of the behaviours (see Appendix H). This measure assesses the cognitive, affective, and behavioural components of self-injury, in addition to its functions and addictive features. This questionnaire consists of both quantitative (dichotomous, categorical, and continuous) and qualitative (open-ended) items. One item from the OSI was used to measure engagement in self-injurious behaviours over the last six months (i.e., '*How often in the last 6 months have you actually injured yourself without the intention to kill yourself?*'), and a second item was used to assess engagement in self-injurious thoughts over the last six months (i.e., '*How often in the last 6 months have you thought about*

injuring yourself without the intention to kill yourself? '). A five-point Likert-type response format is used to indicate the frequency of occurrences of self-injurious thoughts and behaviours. Responses include: "not at all," "1-5 times," "monthly," "weekly," and "daily." Each response category was coded with the score: 0, 1, 2, 3, and 4, respectively. Response categories were then collapsed dichotomously to represent 1) the presence (i.e., at least one incident of self-injury during the past six months) and 2) absence of self-injurious thoughts and behaviours (i.e., no self-injury). In the present study, engagement in self-injurious behaviours and thoughts was analyzed separately in order to individually examine these two phenomena. Recent studies attest to the psychometric properties of OSI, and it is considered an appropriate tool for assessing self-injurious thoughts and behaviours experienced among young adults (i.e., Bureau, Martin, Freynet, Poirier, Lafontaine, & Cloutier, 2010; Cloutier & Nixon, 2003; Martin et al., 2013). The authors reported that this measure demonstrates adequate test-retest reliability (Cloutier & Nixon, 2003), and good internal consistency scores (Martin et al., 2013).

Results

Preliminary Analyses and Assumptions

All statistical analyses were conducted using SPSS Version 24. Prior to testing the hypotheses, the data were screened for missing data and univariate outliers in accordance with guidelines presented by Tabachnick and Fidell (2013). A total of 423 participants participated in this study. Of these participants, 17 did not complete the questionnaire package, and were therefore excluded from the analyses conducted. Data from the remaining 406 participants included in the analyses were screened for missing values. All missing values were random and none had more than 5% of data missing per item. Therefore, all missing values were estimated using the expectation maximization algorithm (Tabachnick & Fidell, 2013).

The independent, mediator, and outcome variables (self-injurious thoughts, self-injurious behaviours) demonstrated negatively skewed distributions, with most individuals reporting no history of child maltreatment, no intimate violence victimization, and no self-injury. This is not unexpected, as the sample was recruited from a non-clinical population and as such, should not follow a normal distribution. A test of Mahalanobis distance revealed that the dataset contained nine multivariate outliers. Outlying cases were retained and no transformations were applied to the data; instead non-parametric robust methods were used to test the hypotheses proposed. Furthermore, such cases represented participants endorsing child maltreatment, intimate violence victimization, and self-injurious thoughts and behaviours, and their scores were not the result of data entry errors or otherwise impossible values. In accordance with the hypotheses proposed, the experiences of such participants are expected to differ from those of the majority of the overall sample, which consisted largely of non-self-injuring, non-victimized individuals who do not endorse experiencing either form of violence. As such, these cases were not transformed or deleted given that their values are different from the remainder of the sample. Multicollinearity between the predictor and mediator variables is to be expected in a mediation analysis (Hayes, 2013) and was thus not investigated. Further, the assumptions of linearity and heterogeneity of variance were not investigated, as the use of non-parametric tests protects against the influences of such violations (Field, 2013).

Finally, the sample size requirement for conducting the principal analyses was satisfied in accordance with guidelines proposed by Fritz and MacKinnon (2007). According to the authors, 462 participants are needed to detect a small effect, 71 participants are needed to detect a medium effect size, and 34 participants are needed to detect a large effect size for mediation at .80 power. The first model examined in the principal analyses (Model 1, $n = 357$) consisted of

participants who did not endorse self-injury ($n = 305$) and participants who endorsed self-injurious thoughts ($n = 52$), and is thus considered sufficient in order to detect a large effect. The second model examined (Model 2, $n = 354$) consisted of participants who did not endorse self-injury ($n = 305$) and participants who endorsed self-injurious thoughts and behaviours ($n = 49$), and is thus considered sufficient in order to detect a large effect.

Potential covariates. The potential confounding influences of participant age, sex, and current living arrangements (“Where do you currently live?”) were examined, based on the previously-established links between these variables and self-injury (e.g., Barrocas, Hankin, Young, & Abela, 2012; Bureau et al., 2010; Nixon et al., 2008). No significant associations were found between these variables and the outcome variables (i.e., self-injurious thoughts, self-injurious behaviours), thus no covariates were included in the analyses.

Correlational analyses. Bivariate correlations were computed in order to examine preliminary relations between primary study variables. The means, standard deviations, and intercorrelations for the primary study variables in Models 1 and 2 are presented in Tables 1.1 and 1.2, respectively. For Model 1, results indicated that greater child maltreatment was positively correlated with greater intimate violence victimization and self-injurious thoughts. Intimate violence victimization was not significantly correlated to self-injurious thoughts. For Model 2, results indicated significant positive correlations between all primary study variables.

Principal Analyses

Mediation analyses were conducted using the PROCESS macro (version 2.16) (Hayes, 2013) for SPSS to investigate the postulation that intimate violence victimization mediates the associations between child maltreatment and self-injurious thoughts and behaviours. PROCESS is a widely-used and recommended software that uses an ordinary least squares or logistic

regression-based path analytic framework for estimating direct and indirect effects for an expansive number of mediation models, including single mediator models (Hayes 2012, 2013; Preacher & Hayes, 2004). As recommended by Preacher and Hayes (2008), bias-corrected (BC) confidence intervals were used with the bootstrapping method (10,000 samples) in order to obtain more powerful confidence intervals (CI) for indirect effects. This is a robust nonparametric resampling approach to effect size estimates and hypothesis testing that makes no assumptions about the shape of the distributions of the variables, and can be applied to small samples with confidence (Preacher & Hayes, 2004).

With regard to the present study, two separate mediation models were performed. The first model (Model 1) investigated intimate violence victimization (as measured by one overall index of victimization) as a mediator of the association between child maltreatment (as measured by one overall index of maltreatment) and the use of self-injurious thoughts, while the second model (Model 2) examined the intimate violence victimization as a mediator of the relation between child maltreatment and the use of self-injurious behaviours (for visual representations of the models tested, see Figures 1 and 2). Furthermore, the hypothesized direct links between child maltreatment, intimate violence victimization, and self-injurious thoughts and behaviours were also explored by means of such statistical models. For both models, self-injury was examined dichotomously [i.e., Model 1: participants who did not endorse self-injury were coded as '0', participants who endorsed thoughts (but not behaviours) were coded as '1'; Model 2: participants who did not endorse self-injury coded as '0', participants who endorsed behaviours (and thoughts) coded as '2'].

With respect to Model 1 ($N = 357$), results indicated that child maltreatment was directly associated with both intimate violence victimization and the use of self-injurious thoughts. In

contrast, intimate violence victimization was not directly associated with self-injurious thoughts. Results indicated that the indirect effect coefficient was not significant. As such, these results do not support the mediational model proposed, and indicate that the indirect effect of child maltreatment on self-injurious thoughts through intimate violence victimization was not significant. The direct and indirect effects for all associations are presented in Table 1.3.

For Model 2 ($N = 354$), results indicated that child maltreatment was directly associated with both intimate violence victimization and the use of self-injurious behaviours. Similarly, intimate violence victimization was also directly linked to self-injurious behaviours. The indirect effect coefficient was significant, thus supporting the mediational hypothesis. While child maltreatment remained a significant predictor of self-injurious behaviours after controlling for the mediator, the strength of the association was significantly reduced. This indicates that intimate violence victimization partially mediated the effect of child maltreatment on self-injurious behaviours. The direct and indirect effects for all associations are presented in Table 1.4. In order to investigate the specific subtypes of child maltreatment and intimate violence victimization that were associated with self-injurious thoughts and behaviours, point-biserial correlations were computed in a post-hoc manner.¹

¹For Model 1, only psychological maltreatment perpetrated by one's father, as well as witnessing family violence, was significantly linked to self-injurious thoughts. No significant associations between subtypes of intimate violence victimization and self-injurious thoughts were found. For Model 2, all subtypes of child maltreatment except for sexual abuse perpetrated by one's father was significantly linked to self-injurious behaviours (i.e., physical abuse, psychological maltreatment, and neglect perpetrated by one's mother and father, sexual abuse perpetrated by one's mother, as well as witnessing family violence). As sexual abuse is considered to be perpetrated with relatively less frequency than the other subtypes of child maltreatment (Gilbert et al., 2009), it is possible that the lack of relationship found between sexual abuse perpetrated by one's father and self-injurious behaviours may be explained by a lower endorsement of items assessing this form of maltreatment. Finally, all subtypes of intimate violence victimization (i.e., physical, psychological, and sexual violence) were significantly linked to self-injurious behaviours. Frequencies of subtypes of child maltreatment and intimate violence victimization endorsed are presented in Table 1.5.

Discussion

A wealth of research attests to the important link between child maltreatment and the use of self-injurious thoughts and behaviours in adolescence and young adulthood (for a review, see Lang & Sharma-Patel, 2011). More recent literature has demonstrated that intimate violence victimization is also linked to self-injury (e.g., Vaughn et al., 2015a), although the specific constellation of these associations remains unclear. Accordingly, the primary aim of the present study was to evaluate a novel conceptual model examining intimate violence victimization as a mediator of the relation between child maltreatment and self-injurious thoughts and behaviours. The main contribution of the study is the finding that young adults with a history of child maltreatment may be more likely to be exposed to intimate violence victimization, which, in turn, is associated with the use of self-injurious behaviours, but not the use of self-injurious thoughts.

Specifically, results from Model 1 indicated that child maltreatment predicted intimate violence victimization, while the latter did not, in turn, predict self-injurious thoughts. The link found between child maltreatment and intimate violence victimization complements the attachment theory-based notion that a parent-child relationship marked by maltreatment may serve as a model for violence victimization in later romantic relationships (Connolly et al., 2014; Roisman et al., 2000). This finding is also aligned with the cycle of violence hypothesis which postulates that parental maltreatment of children exposes them to a host of disadvantages (Heyman & Slep, 2002), including a greater likelihood of being rejected by their peers. Maltreated children may then be left to seek friendships with deviant peer groups, choosing romantic partners from these peers during adolescence and young adulthood (Feiring & Furman, 2000). As most research conducted on the link between child maltreatment and intimate violence

victimization has targeted specific at-risk populations (e.g., clinical samples of participants, participants at risk of engaging in criminal activity), this finding also extends existing research, as it indicates that community-based young adults with a history of maltreatment may also be at a heightened risk for exposure to intimate violence.

To our knowledge, only one existing study has investigated the link between self-injurious thoughts and intimate violence victimization among a representative sample of young adults (Levesque et al., 2010). The present findings lend support to that of Levesque and colleagues (2010), who similarly found no link between intimate violence victimization and self-injurious thoughts. This suggests that while exposure to child maltreatment holds an important role in predicting the use of self-injurious thoughts in young adulthood, being subject to intimate violence victimization may not represent the typical experience of individuals who engage in self-injurious thoughts (and not behaviours) to cope with felt distress. Intimate violence victimization is a deleterious and traumatic experience, and thus it is plausible that thinking of harming oneself may not be sufficient to effectively reduce the intense negative affect resulting from such ongoing victimization. It is possible that the experience of repeated victimization in the context of one's significant interpersonal relationships in both childhood and young adulthood may lead to engagement in more severe or destructive maladaptive coping strategies beyond self-injurious thoughts (e.g., self-injurious behaviours, disordered eating, or substance abuse). Indeed, exposure to multiple traumatic events heightens vulnerability to risky and maladaptive coping strategies (e.g., Littleton, Horsley, John, & Nelson, 2007; Marshall, Galea, Wood, & Kerr, 2013), with a linear relationship between the number of traumatic experiences lived and severity of dangerous or risky actions practiced (Dube et al., 2003; Johnson & Johnson, 2013; Layne et al., 2014). As romantic relationship functioning is considered central to young

adult coping and adjustment (Pascuzzo, Cyr, & Moss, 2013), and proximal mediating factors are considered important to understanding the link between child maltreatment and self-injury, more empirical research is thus needed to ascertain whether romantic relationship variables other than intimate violence victimization may describe the population most at risk of engaging in self-injurious thoughts. Further, while it is certainly plausible that intimate violence victimization may not be a mediator, the lack of significance as found in the present study may also be a methodological artifact. According to guidelines proposed by Fritz and MacKinnon (2007), the sample of participants endorsing self-injurious thoughts ($n = 48$) is considered sufficient to detect a large effect size. However, a larger sample would be required in order to detect a small ($n = 462$) or medium ($n = 71$) effect size. As such, it is possible that such an effect may exist, although further research utilizing a larger sample is needed to investigate this possibility.

Results from Model 2 indicated that intimate violence victimization partially mediated the association between child maltreatment and self-injurious behaviours. This finding is in line with the hypotheses proposed, and suggests that exposure to child maltreatment may lead to an increased risk for subsequent revictimization in the context of one's romantic relationship, which in turn may increase the risk of self-injurious behaviours. The direct link found between intimate violence victimization and self-injurious behaviours is consistent with prior research (i.e., Levesque et al., 2010; Vaughn et al., 2015a). Taken together, the present study, in conjunction with the existing two studies, provide budding evidence that ongoing or recent intimate violence victimization may hold an important key to understanding the maintenance factors underlying young adult self-injury. Further, this result provides empirical support for the extension of the integrated theoretical model of self-injury as described above. Indeed, the initial onset of self-injurious thoughts and behaviours may be precipitated by a history of child maltreatment, and

such behaviours may be maintained by the continued distress of being re-victimized in the context of one's romantic relationship.

Intimate violence victimization may serve to maintain self-injurious behaviours in a twofold manner. Firstly, as self-injury most often serves an emotion regulation function, it may be used to reduce intense or overwhelming negative affect resulting from the experience of ongoing violence victimization. Secondly, such violence may interfere with the development of dyadic coping strategies commonly employed by individuals comprising couple relationships to diffuse stress and restore one's sense of well-being, thus leaving victimized individuals to regulate their distress alone. In addition to the emotion regulation function of self-injury, individuals also report harming themselves to elicit sympathy or care from others (Klonsky, 2007). Thus, it is possible that individuals victimized by their partners may engage in acts of self-injury in an attempt to evoke compassion or sensitivity from their perpetrator.

A comparison of the divergent results yielded from Models 1 and 2 offer further insights into the role of the dual victimization of exposure to both forms of interpersonal violence on self-injurious thoughts and behaviours. As described above, it may be that the particular profile of an individual who engages in self-injurious thoughts—but does not act upon such thoughts—may not be captured through the lens of such dual victimization. Alternately, the experience of dual victimization in both childhood and within one's romantic relationship may be more characteristic of individuals who not only think about harming themselves, but who progress one step further to actually act on such thoughts or urges. Taken together, the findings yielded from the two mediational models tested suggest that the experience of dual victimization may be too distressing to be effectively mitigated through engaging in self-injurious thoughts alone, and as

such, there may be a greater propensity for individuals exposed to both forms of interpersonal violence to engage in self-injurious behaviours.

Limitations and Future Directions

Despite the unique findings presented in this study, some limitations and directions for future studies warrant consideration. First, it remains to be seen if the present results are generalizable to samples characterized by larger variability in educational background and gender identity. Considering that the sample was primarily composed of female university students, its findings may not be representative of males and non-student young adults. Second, due to the cross-sectional nature of the study and its reliance on self-report measures, no definite conclusions can be drawn concerning the direction of causality. Indeed, the correlational nature of the study does not allow us to ascertain that the directionality of the associations are not actually reverse, being that engaging in self-injurious behaviours could impact the likelihood that one will be subjected to intimate violence victimization. That said, the direction of the models tested are rooted in existing theory and research, thus enhancing confidence in the hypothesized directionality of the associations examined between the variables of interest. Furthermore, child maltreatment was measured using retrospective self-report, which poses limitations pertaining to the subjectivity of participants' memories. In order to reduce the potential of such a bias, a validated and psychometrically-sound measure was selected for use in the present study. Finally, the present study constituted an examination of overall experiences of child maltreatment and intimate violence victimization, and did not examine specific subtypes of such constructs, as this would have compromised the power of the analyses conducted. As such, the present study findings do not shed light on which types of maltreatment and victimization may be more strongly linked to self-injurious thoughts and behaviours.

The present study's limitations open a number of avenues for future investigation. Researchers may be interested in replicating the present study with a larger sample of participants engaging in self-injurious thoughts in order to clarify whether intimate violence victimization indeed does not mediate the link between child maltreatment and self-injurious thoughts, or if such an effect went undetected given the sample size used in the present study. Moreover, researchers may also be interested in testing the present models with larger samples of males and non-students in order to examine if the present results generalize to broader populations of young adults. In addition, research examining mediation models consisting of child maltreatment, intimate violence victimization, and nuanced facets of self-injury (e.g., severity, duration, or frequency of self-injury) would be a helpful and successive step toward better understanding how such constructs relate to different aspects of self-injury. Although the present study findings indicate that the link between child maltreatment and self-injury may be understood through the lens of a mediating variable (i.e., intimate violence victimization), only direct links were examined between child maltreatment and intimate violence victimization and between intimate violence victimization and self-injury. Researchers may be interested in exploring whether these associations may be similarly understood according to mediating or moderating variables. Finally, future research endeavours should conduct prospective cohort studies, as the findings of such a research design would considerably advance our understanding of the potential causal links between the variables of study.

Implications and Conclusions

The findings of the present study demonstrate the strong role held by adverse relational experiences in the use of young adult self-injury, and emphasize that this troubling phenomenon may be best understood through the lens of both distal and proximal correlates. In particular,

findings suggest that self-injurious thoughts and behaviours may be precipitated by a history of child maltreatment, and that the use of self-injurious behaviours may be maintained by the presence of intimate violence victimization. These results similarly suggest that the relational experiences of individuals who engage in thoughts of self-injury and those who also engage in self-injurious acts may differ insofar as exposure to intimate violence victimization may be a more characteristic experience of individuals who engage in acts of self-injury. Such findings contribute to the existing knowledge of correlates of young adult self-injury, and also hold important clinical and conceptual-level implications.

From a conceptual standpoint, this study may hold implications for existing theoretical frameworks pertaining to the development and maintenance of self-injury. Specifically, this study's findings both complement and expand upon the integrated theoretical model (Nock, 2009), and is the first to examine the associations between both forms of interpersonal violence and self-injury. Findings indicate that in addition to considering the role of distal correlates such as child maltreatment, proximal correlates such as intimate violence victimization should also be incorporated into our understanding of the factors related to young adult self-injury.

Finally, these results hold valuable implications for both prevention and clinical intervention strategies. Although child maltreatment prevention is critical for a myriad of reasons, it also constitutes a key component to reducing the risk for later engagement in both abusive romantic relationships as well as maladaptive coping strategies such as self-injury, as evidenced by the significant associations revealed between such variables. Further, the potential maintenance role of intimate violence victimization highlights the importance of interventions aimed at educating young adults on healthy romantic relationships, as this may be vital to ultimately reducing the occurrence of self-injurious behaviours. As the present findings illustrate

the key role of close interpersonal relationships in the use of self-injury, therapies focused on improving relationship quality and enhancing effective problem-solving and coping strategies may be effective in both preventing and encouraging the cessation of young-adult self-injury.

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Table 1.1

*Descriptive Statistics and Correlations between Child Maltreatment, Intimate Violence**Victimization, and Self-Injurious Thoughts (Model 1)*

	Mean	SD	1.	2.	3.
1. Child Maltreatment	9.08	10.41	-	.15**	.11*
2. Intimate Violence Victimization	9.74	14.06		-	.04
3. Self-Injurious Thoughts	.15	.35			-

Note. Means, standard deviations, and bivariate correlations between primary study variables and outcome variables for Model 1 ($N = 357$).

* $p < .05$, ** $p < .01$

Table 1.2

Descriptive Statistics and Correlations between Child Maltreatment, Intimate Violence Victimization, and Self-Injurious Behaviours (Model 2)

	Mean	SD	1.	2.	3.
1. Child Maltreatment	10.48	11.64	-	.31**	.40**
2. Intimate Violence Victimization	17.41	48.49		-	.41**
3. Self-Injurious Behaviours	.28	.69			-

Note. Means, standard deviations, and bivariate correlations between primary study variables and outcome variables for Model 2 ($N = 354$).

** $p < .01$

Table 1.3

Direct and Indirect Effects of Child Maltreatment on Self-Injurious Thoughts through Intimate Violence Victimization

	Estimate	SE	BC 90% CI	
			LL	UL
1. Direct effect of child maltreatment on self-injurious thoughts	.047**	.015	.022	.071
2. Direct effect of child maltreatment on intimate violence victimization	.186*	.086	.044	.327
3. Direct effect of intimate violence victimization on self-injurious thoughts	.009	.001	-.001	.025
4. Indirect effect of intimate violence victimization on the link between child maltreatment and self-injurious thoughts	.002	.002	-.001	.071

Note. Direct and indirect effects between primary study variables for Model 1 ($N = 357$).

* $p < .05$, ** $p < .01$

Table 1.4

Direct and Indirect Effects of Child Maltreatment on Self-Injurious Behaviours through Intimate Violence Victimization

	Estimate	SE	BC 90% CI	
			LL	UL
1. Direct effect of child maltreatment on self-injurious behaviours	.062***	.015	.038	.086
2. Direct effect of child maltreatment on intimate violence victimization	1.282***	.207	.940	1.624
3. Direct effect of intimate violence victimization on self-injurious behaviours	.027**	.009	.012	.041
4. Indirect effect of intimate violence victimization on the link between child maltreatment and self-injurious behaviours	.035**	.013	.015	.073

Note. Direct and indirect effects between primary study variables for Model 2 ($N = 354$).

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

Table 1.5

Frequency of Subtypes of Child Maltreatment and Intimate Violence Victimization Endorsed

		Model 1 (N = 357)	Model 2 (N = 354)
		No self-injury: 75% (n = 305) Thoughts: 13% (n = 52)	No self-injury: 75% (n = 305) Behaviours: 12% (n = 49)
Child mal.	Phys. vio. (M)	29%	34%
	Phy. vio. (F)	30%	33%
	Psy. vio. (M)	76%	78%
	Psy. vio. (F)	75%	77%
	Sex. abuse (M)	1%	3%
	Sex. abuse (F)	2%	3%
	Neglect (M)	30%	33%
	Neglect (F)	24%	27%
	Witness. vio.	64%	66%
IPV vic.	Phys. vio.	17%	21%
	Psy. vio.	68%	71%
	Sex. vio.	35%	39%

Note. Frequencies calculated according to endorsement of one or more incident of each subtype of child maltreatment or IPV victimization. (M) = maltreatment perpetrated by one's mother, (F) = maltreatment perpetrated by one's father.

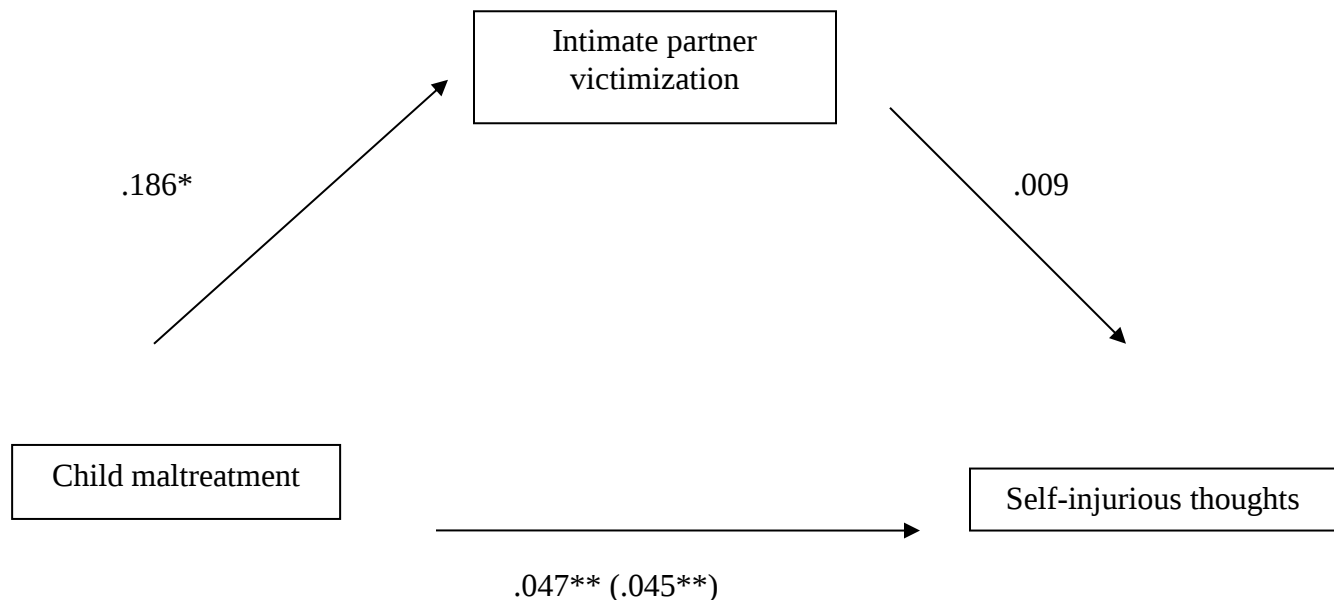


Figure 1. Unstandardized coefficients for the relationship between child maltreatment and self-injurious thoughts as mediated by intimate violence victimization. The unstandardized regression coefficient between child maltreatment and self-injurious thoughts, controlling for intimate violence victimization, is in parentheses.

Note. * $p < .05$, ** $p < .01$.

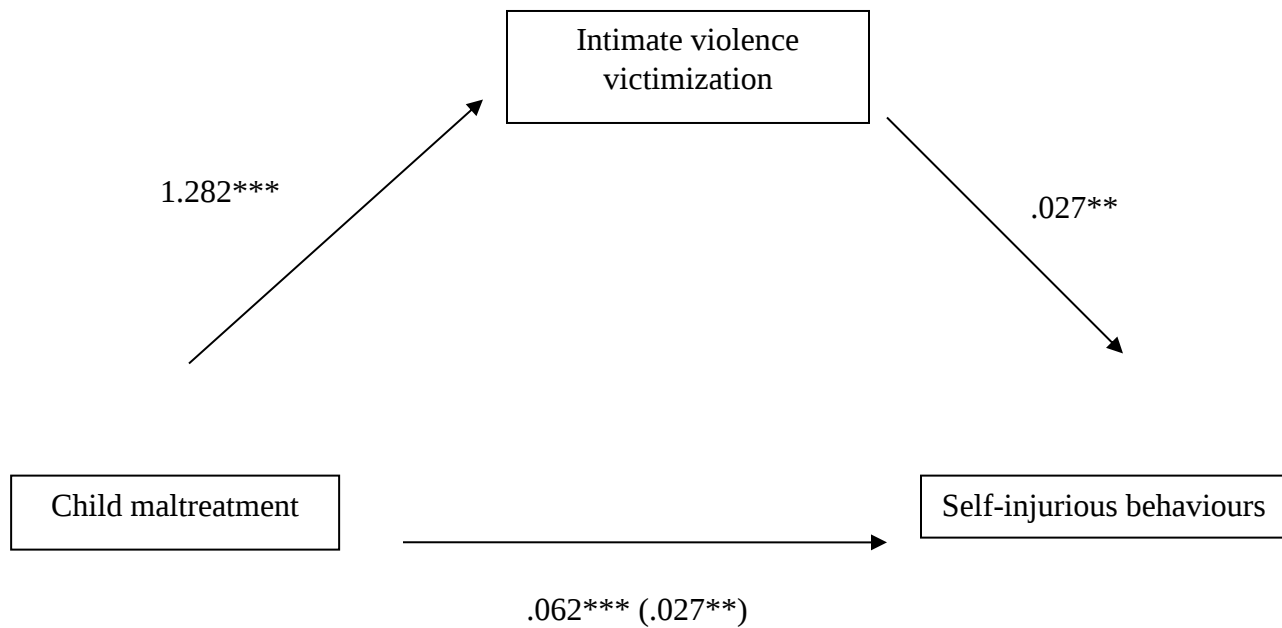


Figure 2. Unstandardized coefficients for the relationship between child maltreatment and self-injurious behaviours as mediated by intimate violence victimization. The unstandardized regression coefficient between child maltreatment and self-injurious behaviours, controlling for intimate violence victimization, is in parentheses.

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

Study II:

Linking Romantic Attachment and Self-Injury: The Roles of the Behavioural Systems

A manuscript version of this study is published in the
Journal of Relationships Research.

Caron, A., Lafontaine, M.-F., & Bureau, J.-F. (2017). Linking romantic attachment and self-injury: The roles of the behavioural systems. *Journal of Relationships Research*, 8, e4, 1–14.

Author Note

This research was funded by a Joseph-Armand Bombardier Doctoral scholarship from the Social Sciences and Humanities Research Council and an Ontario Graduate Scholarship from the Ontario Provincial Government.

Abstract

Attachment theory is considered an explanatory framework for understanding maladaptive coping strategies such as self-injury. While links between childhood attachment and self-injury have been established in the literature, much less is known about the links between the romantic behavioural systems (consisting of the attachment, caregiving, and sexual systems) and self-injury. The present study investigated whether self-injurious thoughts and behaviours could be predicted by the functioning of the three behavioural systems, and examined the incremental contributions of the systems in the prediction of young adult self-injury. Linear discriminant analyses were conducted on a sample of 255 young adults (223 females; $M_{\text{age}} = 19.98$ years; $SD = 1.79$) currently involved in a heterosexual couple relationship. Results revealed that participants who endorsed self-injurious thoughts experienced greater attachment anxiety and avoidance, controlling and compulsive romantic caregiving behaviours, and lower sexual satisfaction than participants who did not endorse such thoughts. In contrast, findings indicated that the behavioural systems did not predict self-injurious behaviours. Such findings suggest that dimensions of the three interrelated behavioural systems hold unique roles in understanding young adult self-injurious thoughts, and that the constructs that predict self-injurious thoughts may differ from those that predict self-injurious behaviours.

Keywords: non-suicidal self-injury; young adults; attachment; caregiving; sexual satisfaction; couple relationships

Linking Romantic Attachment and Self-Injury: The Roles of the Behavioural Systems

Adult attachment theory stipulates that couple relationships are governed by three interrelated behavioural systems—the attachment, caregiving, and sexual systems—all of which are considered to have strong ties to the functioning and adjustment of the individuals comprising the romantic dyad (Bowlby, 1969/1982; Fraley & Roisman, 2015; Mikulincer & Shaver, 2016; Shaver, Hazan, & Bradshaw, 1988). This theory offers a comprehensive framework for understanding the factors central to young adult functioning, and for explaining the developmental pathways leading to the use of different coping strategies to manage life stressors (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2012). In recent years, attachment theory has been credited as a guiding framework for understanding the phenomenology of self-injury (e.g., Gratz, Conrad, & Roemer, 2002; Kimball & Diddams, 2007; Yates, 2009), a dangerous and prevalent practice utilized widely among community-based young adults (Hasking, Momeni, Swannell, & Chia, 2008; Whitlock & Selekman, 2014). Despite its theoretical applications, very little empirical investigation has been conducted to examine the links between romantic attachment experiences and self-injury. Moreover, no research has yet examined the potential associations between the romantic caregiving and sexual systems and the occurrence of self-injury, despite their respective links to multiple facets of young adult functioning and coping abilities. The present study sought to provide a better understanding of the factors underlying this troubling phenomenon by exploring its links to all three of attachment theory's behavioural systems.

Brief Overview of Self-Injury

In addition to overt acts of self-injury, individuals may also engage in thoughts of self-injury (Nock, Prinstein, & Sterba, 2009). Although self-injurious thoughts and behaviours often

co-occur, they are considered separate forms of self-injury that differ in frequency and duration, and that may be precipitated by different contextual factors (e.g., specific affective states) (Nock et al., 2009). While research has traditionally focused solely on the study of self-injurious behaviours, there is also value in examining self-injurious thoughts, as thoughts are often a precursor to engagement in acts of self-injury (Nock et al., 2009). Apart from findings accrued from a handful of recent studies (Levesque, Lafontaine, Bureau, Cloutier, & Dandurand, 2010; Martin, Bureau, Cloutier, & Lafontaine, 2011), very little is known about shared and differing correlates of self-injury, and about what factors predict the transition from thoughts to behaviours (Nock et al., 2009). Both thoughts and behaviours most often serve an emotion regulation function (Whitlock & Selekman, 2014). Self-injury is utilized at an alarming rate among community-based young adults (see Whitlock & Selekman, 2014, for a review), and constitutes one of the leading causes of injury worldwide (Nock et al., 2008). It is among the most harmful maladaptive emotion regulation strategies practiced by young adults. While a vast myriad of both adaptive and maladaptive emotion regulation strategies are practiced among young adults, identifying the risk factors and correlates of self-injury are of particular importance, given the troubling intersection between prevalence and fatal consequences.

The Tripartite Model of Romantic Attachment

As aforementioned, adult attachment theory contends that romantic relationships involve a combination of three dynamic behavioural systems that mutually influence one another (Mikulincer & Shaver, 2016; Pietromonaco & Beck, 2015; Shaver et al., 1988). In the context of adult romantic relationships, the attachment system is characterized by seeking comfort and security from one's partner during times of distress and hardship (e.g., physical illness, rejection, failure, or conflict). Individuals with anxious attachment patterns doubt that they are deserving of

attentive, consistent care from their partners, and thus feel a need to draw attention to their distress. The result is a pattern of hyperactivation, characterized by seeking persistent reassurance and proximity from romantic partners. In contrast, individuals with avoidant attachment patterns experience great discomfort with emotional intimacy, as they anticipate that others are not trustworthy or reliable. As a result, these individuals demonstrate a pattern of deactivation in response to a perceived threat, which is characterized by minimizing distress and denying needs for comfort and support from others (Brennan, Clark, & Shaver, 1998; Pietromonaco & Beck, 2015).

The caregiving system is complementary to the attachment system, and is characterized by attempts to alleviate a troubled partner's distress. According to Kuncie and Shaver (1994), two dimensions characterize positive or responsive romantic caregiving behaviours: *proximity* (i.e., offering physical and emotional closeness as a means of comforting a distressed partner), and *sensitivity* (i.e., the ability to accurately perceive distress cues in one's partner). A deactivated caregiving system is characterized by a withdrawal from caregiving and insistence on maintaining emotional distance to a distressed partner seeking comfort (Mikulincer, 2006; Mikulincer & Shaver, 2012). Additionally, two dimensions represent negative or unresponsive caregiving behaviours: *controlling caregiving* (i.e., taking too much responsibility for the partner's problems, while minimizing opportunities for the partner to find his or her own means of coping), and *compulsive caregiving* (i.e., becoming over-involved in the partner's problems with minimal regard for his or her actual need for help). Both controlling and compulsive caregiving encompass hyperactivating strategies, as they are intrusive, effortful attempts to demonstrate to one's partner that one can be an effective caregiver (Mikulincer, 2006).

Finally, the sexual system encompasses people's motives for engaging in sexual interactions, and is expressed through sexual behaviours, emotions, and desires (Birnbaum, 2010; Mikulincer, 2006). The healthy functioning of the sexual system can be viewed in terms of sexual satisfaction, which refers to the subjective assessment of the positive and negative aspects of one's sexual relationship and experiences (Byers, Demmons, & Lawrence, 1998; Péloquin, Brassard, Lafontaine, & Shaver, 2014). Sexual satisfaction can be measured according to two dimensions: *self-focused satisfaction* (i.e., sexual satisfaction generated by one's own experiences and felt sensations) and *partner/activity focused satisfaction* (i.e., sexual satisfaction derived from one's perception of their partner's sexual reactions, and the quality of sexual activities shared) (Stulhofer, Busko, & Brouillard, 2010). Ongoing sexual dissatisfaction (i.e., low self-focused and partner/activity-focused satisfaction) is considered to lead to the hyperactivation or deactivation of the sexual system. Chronic sexual hyperactivation involves mentally-preoccupying, intrusive worries and concerns about one's sexual desirability. Alternately, sexual deactivation involves the dismissal of sexual needs and the rejection of sexual activity as a valuable source of pleasure (Birnbaum, 2010; Mikulincer, 2006).

Theoretical Links between Self-Injury and the Tripartite Model of Romantic Attachment

Drawing from attachment theory, the developmental psychopathology approach to self-injury proposes that the adverse experiences underlying insecure attachment (e.g., neglectful romantic partner) may affect the individual by leading to the development of a view of self as unlikeable or undeserving of care (i.e., attachment anxiety). Alternately, the individual may come to perceive others as critical or unsupportive (i.e., attachment avoidance), and be left to cope with emotional distress alone. Self-injury is thought to emerge from insecure attachment-related representations of the self as defective, and of others as unsupportive. Moreover, self-injury may

develop as an emotion regulation strategy among those with insecure attachment orientations (e.g., to a romantic partner), as they may be unable to effectively cope with emotionally laden experiences (for a detailed description of this model, see Yates, 2009).

Attachment theory also provides a conceptual framework whereby the prospective links between maladaptive emotion regulation strategies (and, by extension, self-injury) and the romantic caregiving system may be understood. According to the theory, individuals who are not able to provide sensitive, responsive care to their partners (and who thereby engage in unresponsive caregiving behaviours) may lack healthy self-regulatory resources, and are more likely to be preoccupied by their own distress (Collins, Guichard, Ford, & Feeney, 2006; Mikulincer & Shaver, 2012).

Finally, attachment theory also maintains that the functioning of the sexual system is tied to an individual's emotion regulation abilities (Birnbaum, Mikulincer, Szepeswol, Shaver, & Mizrahi, 2014; Mikulincer & Shaver, 2012). The chronic intrusive worries associated with sexual hyperactivation are considered to lead to a decreased ability to regulate negative affective states. In addition, the dismissal and suppression of sexual needs that encompass chronic sexual deactivation are considered to hinder one's ability to effectively cope with stressors affecting other areas of one's life (Birnbaum et al., 2014; Mikulincer & Shaver, 2012). Drawing from the theorized ties between sexual dissatisfaction and emotion regulation difficulties, it is plausible that sexual dissatisfaction may also be linked directly to self-injury.

Empirical Links between Self-Injury and the Tripartite Model of Romantic Attachment

A very small number of recent studies provide converging support for a link between insecure romantic attachment and self-injury. Specifically, findings from Fung's (2008) germinal study of romantic attachment and self-injurious behaviour determined that romantic attachment

anxiety (but not attachment avoidance) predicted engagement in self-injurious behaviours among participants recruited from a psychiatric setting. In a similar vein, Levesque and colleagues (2010) also found that attachment anxiety (and not attachment avoidance) significantly predicted engagement in self-injurious thoughts and behaviours among community-based young adults. Conversely, Fitzpatrick, Lafontaine, Gosselin, Levesque, Bureau, and Cloutier (2013), and most recently Braga and Gonçalves (2014), demonstrated that both attachment anxiety and avoidance were linked to self-injurious behaviours among their community-based samples. Taken together, evidence garnered from these studies unanimously indicates that attachment anxiety is linked to the use of self-injury. Conversely, existing studies do not report similarly convergent findings with regards to whether attachment avoidance is also linked to self-injury.

To our knowledge, there is presently no literature available regarding links between romantic caregiving behaviours and self-injury. Despite this empirical gap, attachment theorists contend that poor caregiving abilities characterize individuals who may also experience difficulties alleviating their own distress in healthy ways (Collins et al., 2006). Indeed, one study has explored the psychological correlates associated with romantic caregiving behaviours (Mikulincer & Shaver, 2012). Findings revealed that negative romantic caregiving behaviours expressed to one's partner (i.e., controlling caregiving behaviours, low sensitivity to the partner's needs) are associated with emotion regulation problems. According to the authors, this was reflected in lower scores on measures of mood regulation and self-control, and increased scores on measures of emotional intensity and rumination. Given the link demonstrated between caregiving behaviours and emotion regulation difficulties, it is plausible to anticipate that negative caregiving abilities may also be associated with self-injury.

There is a dearth of empirical literature devoted to the examination of associations between sexual satisfaction and emotion regulation difficulties. To our knowledge, only two empirical studies have endeavoured to examine such relations (i.e., Rellini, Vujanovic, & Zvolensky, 2010; Rellini, Vujanovic, Gilbert, & Zvolensky, 2012). In the first empirical study published to date, Rellini and colleagues (2010) documented significant negative associations between emotion regulation difficulties and sexual satisfaction among a sample of trauma-exposed males and females. In agreement with such findings, Rellini and colleagues (2012) also reported negative associations between sexual satisfaction and emotion regulation among a sample of females with a history of child maltreatment. In fact, the authors reported that the inverse relation between sexual satisfaction and emotion regulation difficulties was stronger than that observed between sexual satisfaction and child maltreatment. While these results represent an important first step toward establishing a link between emotion regulation difficulties and sexual dissatisfaction, no research to date has been devoted to examining how sexual dissatisfaction may relate to the use of specific emotion regulation strategies, such as self-injury.

Taken together, the literature presented above provides a foundation to anticipate that each of the behavioural systems is uniquely linked to the use of maladaptive emotion regulation strategies such as self-injury. Existing theoretical and empirical works provide compelling indication that the quality of one's attachment relationships and experiences are intricately linked to young adult self-injury; however, our understanding of the role of the behavioural systems—the very beating heart of romantic relationships—is punctured by the stark paucity of research in this domain. A detailed investigation examining the systems within one model is necessary in order to both elucidate the ties between all three systems and self-injury, as well as identify

which system(s) most strongly contribute to this dangerous and perplexing problem in order to aid in discerning where treatment and prevention efforts should be prioritized.

Objectives of the Study

Given that very little is known regarding how the functioning of attachment theory's behavioural systems may be tied to the use of maladaptive emotion regulation strategies such as self-injury, the primary aim of the present study was to investigate these relations in a number of unique ways. Specifically, this investigation aimed to simultaneously examine dimensions of romantic attachment (i.e., attachment anxiety and attachment avoidance), caregiving (i.e., caregiving proximity, caregiving sensitivity, controlling caregiving, and compulsive caregiving), and sexual satisfaction (i.e., self-focused sexual satisfaction and partner/activity-focused satisfaction) within one model in order to determine which dimensions may be most strongly linked to the use of self-injurious thoughts and behaviours. In addition to this primary aim, the present study also encompassed two secondary objectives. It currently remains unclear whether both dimensions of romantic attachment insecurity (i.e., anxiety and avoidance) serve to predict self-injury. In an effort to better elucidate such relations, this study aimed to replicate and extend existing findings regarding the associations between both dimensions of romantic attachment and self-injurious thoughts and behaviours. Finally despite the documented associations between both romantic caregiving processes and sexual satisfaction and emotion regulation difficulties (Mikulincer & Shaver, 2012; Rellini et al., 2010; Rellini et al., 2012), there is a paucity of research exploring whether this link extends to specific maladaptive emotion regulation strategies, namely self-injurious thoughts and behaviours. This study sought to fill this gap in the literature by providing the first examination of whether the functioning of these two systems can predict self-injurious thoughts and behaviours.

Hypotheses

First, it was hypothesized that participants endorsing self-injurious thoughts and/or behaviours (as indicated by engagement in self-injurious thoughts and behaviours during the last six months) would experience greater attachment anxiety and attachment avoidance than participants who do not endorse self-injury. Second, it was hypothesized that participants endorsing self-injurious thoughts and/or behaviours would engage in less responsive caregiving expressed or offered to their partner (i.e., low caregiving proximity and low caregiving sensitivity), and more controlling and compulsive caregiving behaviours than participants who did not endorse self-injury. Third, it was hypothesized that participants endorsing self-injurious thoughts and/or behaviours would report lower sexual satisfaction (i.e., self-focused satisfaction and partner/activity-focused satisfaction) than participants who do not endorse self-injury. Fourth, the incremental (independent) contributions of the attachment, caregiving, and sexual mating systems in the prediction of self-injurious thoughts and behaviours were examined in an exploratory manner, and as such, no specific a priori hypotheses were proposed. Specifically, variables intended to represent measurement of the three systems (i.e., attachment system measured according to: attachment anxiety and attachment avoidance; caregiving system measured according to: caregiving proximity, caregiving sensitivity, controlling caregiving, and compulsive caregiving; sexual system measured according to: self-focused sexual satisfaction and partner/activity focused sexual satisfaction) were examined to determine which variables constitute the best predictors of self-injurious thoughts and behaviours. Although thoughts and behaviours are considered separate phenomena, based on the lack of past research, no separate hypotheses were made with regard to their links to the behavioural systems.

Method**Participants**

The sample was comprised of 255 young adults (223 females; $M_{\text{age}} = 19.98$ years; $SD = 1.79$) enrolled in introductory psychology courses (detailed description below). Eligibility criteria for participation in the study included a) being between the ages of 17 and 25 years of age (as this age range is generally considered to capture the period of young adulthood), b) being involved in a heterosexual couple relationship of at least six months duration at the time of participation, and c) having a good knowledge of English. The sample used in the present study was drawn from the same participant pool as the sample presented in Study I. This participant pool was not used in any existing laboratory studies.

The average duration of participants' current romantic relationship was 2.18 years ($SD = 1.39$). All participants were involved in a heterosexual relationship, the majority of whom were not married (89%), and were not cohabitating with their partner (83%) at the time of participation. Most participants (91%) indicated that their main daily occupation was being a student, while other participants identified as white-collar workers (4%) or as blue-collar workers (2%). The remaining 3% of participants identified as unemployed, as self-employed, or as homemakers. Seventy-eight percent of the sample were of European descent, while 15% of the sample identified as Asian, 4% as Black, and 3% as Middle Eastern.

Fourteen percent ($n = 35$) of participants reported experiencing self-injurious thoughts (but not behaviours) throughout the past six-months, 8% ($n = 19$) of participants reported engaging in self-injurious behaviours throughout the past six months (all participants who endorsed self-injurious behaviours also endorsed self-injurious thoughts), and 78% ($n = 201$) of participants reported no engagement in self-injurious thoughts or behaviours throughout the past six months. Within the subgroup of participants endorsing self-injury, the average age of onset of

self-injury was 14.30 years ($SD = 2.92$). The most commonly reported methods of self-injury included cutting (50%), scratching (36%), and burning (31%).

Procedure

All participants were registered in introductory psychology courses at an Eastern Canadian University, and voluntarily registered for the study through a research participation program offering first year undergraduate students opportunities to partake in research for additional course credit. Participants were automatically screened for age, relationship status, and proficiency in English prior to being permitted to register for the study. Each participant was assigned a computer-generated five-digit identification code by the program's online system, which was used to label the data. No other identifying information was collected. Participants were allotted two credit points toward their final course grade for partaking in the study.

Once registered for the study, all participants were subsequently provided access to the questionnaire package through a secure and encrypted web-based link (i.e., Survey Monkey). The questionnaire package opened with an information letter outlining the voluntary nature of the study, and participants' right to withdraw at any time without consequence. The information letter also provided participants with the contact information of the researchers involved in the study, as well as the contact information for the Protocol Officer for Research in Ethics of the university, should they desire further information regarding the study or their rights as research participants. Subsequent pages presented participants with necessary instructions, followed by the measures of study. Participants were given the option to save their responses and resume participation at a later date by using the study link provided by the online program. This study was conducted in English only, as certain key measures that will be used have only been validated in English at this time. However, given that the student population was composed of

both English and French-speaking individuals, a French information letter was also provided. This was to ensure that bilingual students may obtain a thorough understanding of the study in their language of choice and provide informed consent to participate in the study. As such, the French information letter indicated that the content of the study is in English. Upon completion, all participants were provided with a resource list of psychological services available if so desired.

Measures

Sociodemographic questionnaire. This questionnaire was administered to gather personal demographic information (e.g., age, sex, ethnicity/racial background, and years of education) and relationship demographic information (e.g., length of relationship, cohabitation, marital status, and number of children) about participants.

Measure of romantic attachment. The Short-Form Experiences in Close Relationships Questionnaire (ECR-12; Lafontaine, Brassard, Lussier, Valois, Shaver, & Johnson, 2016) is a 12-item measure that evaluates two dimensions of attachment experiences in romantic relationships: anxiety (about rejection or abandonment) and avoidance (of intimacy and dependence) (see Appendix I). The original version of the ECR contains 36 items (Brennan et al., 1998), although a shorter, 12-item version of this instrument was used in the present study. Likert-type response formats assess the degree to which an individual identifies with statements regarding how they generally experience romantic relationships. Responses range from: (1) *Strongly disagree*, to (4) *Neutral/mixed*, to (7) *Strongly agree*. Higher scores indicate greater levels of anxiety and avoidance. Items measuring the two dimensions of attachment are averaged individually to create separate indexes of anxiety and avoidance. The ECR is used worldwide, with a wealth of literature attesting to its high reliability and validity (e.g., Alonso-Arbiol, Balluerka, Shaver, &

Gillath, 2008; Brennan et al., 1998; Fraley, Waller, & Brennan, 2000; Lafontaine & Lussier, 2003). It has been validated for use with a vast number of populations, including young adults involved in heterosexual relationships (Brennan et al., 1998). The psychometric properties of the ECR-12 are considered to be as strong as those of the original ECR, with good one-year test-retest reliability, convergent and predictive validity, as well as acceptable to good internal consistency scores (Cronbach's alphas ranging from $\alpha = .74$ to $.89$ for the anxiety subscale, and $\alpha = .71$ to $.86$ for the avoidance subscale) reported by its authors. Internal consistency scores were good for the current sample, with Cronbach's alphas of $.88$ for anxiety, and $.85$ for avoidance.

Measure of caregiving. The Caregiving Questionnaire (CQ; Kuncie & Shaver, 1994) is a 32-item measure of caregiving as expressed in the context of romantic relationships (see Appendix J). This measure evaluates four patterns of caregiving offered or expressed to one's partner: proximity (willingness to provide care needed), sensitivity (the ability to recognize and interpret the partner's needs), controlling caregiving (tendency to take too much responsibility for the partner's problems), and compulsive caregiving (tendency to intrude and become over-involved in the partner's problems). Likert-type response formats are used to assess the degree to which an individual identifies with statements regarding their caregiving behaviours in romantic relationships. Responses range from: (1) *Not at all descriptive of me*, to (6) *Very descriptive of me*. Higher scores on the items measuring proximity and sensitivity indicate greater positive caregiving patterns, while higher scores on items measuring controlling and compulsive caregiving scales represent greater engagement in negative caregiving patterns. Items measuring the four dimensions of caregiving are summed individually to obtain four overall indexes of caregiving. This measure has been validated for use with various populations, including student couples involved in heterosexual (Feeney & Collins, 2003) relationships. The CQ demonstrates

good test-retest reliability and internal consistency indices, with good subscale internal consistency reported by its authors (proximity scale: $\alpha = .83$; sensitivity scale: $\alpha = .83$, controlling caregiving scale: $\alpha = .87$; and compulsive caregiving scale: $\alpha = .80$). Moreover, internal consistency scores were acceptable to good for the current sample, with Cronbach's alphas of .80 for proximity, .82 for sensitivity, .79 for controlling caregiving, and .66 for compulsive caregiving.

Measure of sexual satisfaction. The New Sexual Satisfaction Scale (NSSS; Stulhofer et al., 2010) is a 20-item measure that evaluates two dimensions of sexual satisfaction: self-focused (i.e., sexual satisfaction generated by personal experiences/sensations) and partner/activity-focused (i.e., sexual satisfaction derived from an individual's perception of the partner's sexual experience, and the diversity and/or frequency of sexual activities) (see Appendix K). Likert-type response formats are used to assess sexual satisfaction throughout the last six months. Responses include: (1) *Not at all satisfied*, (2) *A little satisfied*, (3) *Moderately satisfied*, (4) *Very satisfied*, and (5) *Extremely satisfied*. Higher scores indicate greater levels of sexual satisfaction. Items measuring the two dimensions are summed individually to create two indexes of sexual satisfaction. The NSSS is considered an appropriate tool for assessing sexual satisfaction among young adults involved in both heterosexual and same-sex relationships, and has been identified as the most psychometrically-sound bidimensional measure of sexual satisfaction (Mark, Herbenick, Fortenberry, Sanders, & Reece, 2014). This measure demonstrates good psychometric properties, with satisfactory construct validity, test-retest reliability, and internal consistency scores reported by its authors (self-focused satisfaction scale: $\alpha = .91$, partner/sexual activity subscale: $\alpha = .92$) (Stulhofer et al., 2010). Internal consistency scores were excellent for

the current sample, with Cronbach's alphas of .94 for self-focused satisfaction, and .94 for partner/sexual activity focused satisfaction.

Measure of self-injury. The Ottawa Self-Injury Inventory (OSI; Cloutier & Nixon, 2003; Martin, Cloutier, Levesque, Bureau, Lafontaine, & Nixon, 2013) is a 120-item measure of current and past self-injurious thoughts, behaviours, and intended results of the behaviours. This measure assesses the cognitive, affective, and behavioural components of self-injury, in addition to its functions and addictive features. This questionnaire consists of both quantitative (dichotomous, categorical, and continuous) and qualitative (open-ended) items. One item from the OSI was used to measure engagement in self-injurious behaviours over the last six months (i.e., '*How often in the last 6 months have you actually injured yourself without the intention to kill yourself?*'), and a second item was used to assess engagement in self-injurious thoughts over the last six months (i.e., '*How often in the last 6 months have you thought about injuring yourself without the intention to kill yourself?*'). A five-point Likert-type response format is used to indicate the frequency of occurrences of self-injurious thoughts and behaviours. Responses include: "not at all," "1-5 times," "monthly," "weekly," and "daily." Each response category was coded with the score: 0, 1, 2, 3, and 4, respectively. Response categories were then collapsed dichotomously to represent 1) the presence (i.e., at least one incident of self-injury during the past six months) and 2) absence of self-injurious thoughts and behaviours (i.e., no self-injury). Self-injurious thoughts and behaviours were examined dichotomously in order to maintain consistency between the statistical design employed in Study I. In the present study, engagement in self-injurious behaviours and thoughts was analyzed separately in order to individually examine these two phenomena. Recent studies attest to the psychometric properties of the OSI, and it is considered an appropriate tool for assessing self-injurious thoughts and behaviours

experienced among young adults (i.e., Bureau et al., 2010; Cloutier & Nixon, 2003; Martin et al., 2013). The authors reported that this measure demonstrates adequate test-retest reliability (Cloutier & Nixon, 2003), and good internal consistency scores (Martin et al., 2013).

Results

Preliminary Analyses and Assumptions

All statistical analyses were conducted using SPSS Version 20. Prior to testing the hypotheses, the data were screened in accordance with guidelines presented by Tabachnick and Fidell (2013) to ensure that they satisfy the assumptions required for conducting the principal analyses. A total of 271 participants participated in this study. Of these participants, 16 did not complete the questionnaire package, and were therefore excluded from the analyses conducted. Data from the remaining 255 participants included in the analyses were screened for missing values. All missing values were random and none had more than 5% of data missing per item. Therefore, all missing values were estimated using the expectation maximization algorithm (Tabachnick & Fidell, 2013).

The assumption of normality was determined by identifying univariate outliers (cut-off value of $Z = 2.58$) and examining histograms for skewness and kurtosis. Seven predictor variables contained univariate outliers, which were Winsorized by replacing extreme values with $Z = 2.58$ for each variable. As formal inference tests are not recommended for use with large sample sizes ($n > 200$), (Tabachnick & Fidell, 2007), the skewness and kurtosis of the distribution were determined by examining the shape of the distribution. Avoidance of intimacy indicated slight positive skew, while caregiving proximity and controlling caregiving indicated slight negative skew. These distributions all fall within an acceptable range ($\pm 1.5 SD$), thus indicating only minor deviations from normality that do not require transformation. The outcome

variables (self-injurious thoughts, self-injurious behaviours) demonstrated positive skew, with most individuals reporting no self-injury. This is not unexpected, as the sample was recruited from a non-clinical population and as such, should not follow a normal distribution. As such, no transformations were performed for these variables. A test of Mahalanobis distance revealed that the dataset contained seven multivariate outliers. Such outlying cases were retained, considering they all represented self-injuring participants, and their scores were not the result of data entry errors or otherwise impossible values. In accordance with the hypotheses proposed, the experiences of the participants who self-injure are expected to differ from that of the majority of the overall sample, which consisted largely of non-self-injuring individuals. As such, these cases were not transformed or deleted given that their values are different from the remainder of the largely non-self-injuring sample. The assumption of linearity was determined by examining bivariate scatterplots, which revealed linear relationships among all pairs of predictor variables.

Box's test indicated that predictor variables did not meet the assumptions of equality of variance-covariance matrices ($p = .011$). Subsequent analysis revealed no differences in the correct rate of classification between analyses using separate and pooled covariance matrices, indicating that the heterogeneity of variance-covariance matrices was mild and did not affect the classification results in the principal analyses. The absence of multicollinearity was confirmed, as none of the variables indicated a tolerance level below .2. Finally, the sample size requirement for conducting the principal analyses was satisfied, as the sample size of the smallest group (19 participants endorsed self-injurious behaviours) exceeded the number of predictor variables included in the analyses (8 variables) (Green & Salkind, 2013).

Potential covariates. The potential confounding influences of participant age, sex, and current living arrangements ("Where do you currently live?") were explored, based on the

previously-established links between these variables and self-injury (e.g., Barrocas, Hankin, Young, & Abela, 2012; Bureau et al., 2010; Nixon, Cloutier, & Jansson, 2008; Nock, 2010). No significant associations were found between these variables and the outcome variables (i.e., self-injurious thoughts, self-injurious behaviours), thus no covariates were included in the analyses.

Correlational analyses. Point-biserial correlations were computed in order to examine preliminary relations between primary study variables and outcome variables (see Table 2.1). Both dimensions of insecure attachment (attachment anxiety and avoidance), as well as compulsive and controlling caregiving, were positively associated with self-injurious thoughts. Sexual satisfaction (self-focused satisfaction) was negatively associated with self-injurious thoughts. In contrast, only attachment anxiety was positively correlated with self-injurious behaviours.

Principal Analyses

Direct linear discriminant analyses (LDA) were conducted to determine the relative contribution of each predictor variable to self-injurious thoughts and behaviours. This statistical approach can be used to discover and interpret linear combinations of predictor variables that best separate two or more groups. LDA is considered a statistically robust and powerful method that produces classification models with strong accuracy when its assumptions of normality are met (Green & Salkind, 2013; Pohar, Blas, & Turk, 2004; Tabachnick & Fidell, 2013).

With regard to the present study, two separate LDAs were performed. The first model examined the associations between attachment theory's three behavioural systems (as measured by two dimensions of romantic attachment, four dimensions of romantic caregiving, and two dimensions of sexual satisfaction) and self-injurious thoughts (LDA Model 1), while the second model examined their relations to self-injurious behaviours (LDA Model 2). For both models

examined, the direct LDA method was implemented in order to assess the contributions of all three behavioural systems simultaneously. The two-group method was selected, as self-injury was measured dichotomously in both models [i.e., Model 1: participants who did not endorse self-injury (no thoughts and no behaviours) coded as '0', participants who endorsed thoughts (but not behaviours) were coded as '1'; Model 2: participants who did not endorse self-injury coded as '0', participants who endorsed behaviours (and thoughts) coded as '2'].

With respect to self-injurious thoughts ($N = 236$) (LDA Model 1), the overall Wilk's Lambda was significant ($\Lambda = .83$, $\chi^2(8) = 42.83$, $p = < .001$), indicating that the predictors as a set differentiated participants endorsing self-injurious thoughts from participants who did not endorse self-injury. In addition, the predictors as a set accounted for 17% of the between group variability ($R^2 = .17$). The structure (loading) matrix of correlations was used to assess the incremental contributions of each variable in the prediction of self-injurious thoughts (see Table 2.2). Loadings greater than .30 were considered significant to the LDA model (Hair, Black, Babin, Anderson, & Tatham, 2006), and as such, only significant loadings were interpreted. In order of importance, the significant predictors of self-injurious thoughts are attachment anxiety (.67, $r^2 = .45$), caregiving compulsivity (.63, $r^2 = .39$), controlling caregiving (.40, $r^2 = .16$), attachment avoidance (.35, $r^2 = .12$), and self-focused sexual satisfaction (-.31, $r^2 = .10$). Participants endorsing self-injurious thoughts experienced greater attachment anxiety than those not reporting thoughts, greater compulsive caregiving, greater controlling caregiving, and greater attachment avoidance. Participants endorsing self-injurious thoughts also experienced less self-focused sexual satisfaction. The group means and standard deviations are presented in Table 2.3. Finally, in order to overcome potential bias in the group allocation matrix, a jackknife (one case at a time deleted) quadratic classification procedure was used. Results

indicate that for the total usable sample of 234 participants, 199 (85%) were classified correctly, compared with 174 (75%) who would be correctly classified by chance alone.

A second LDA was then conducted (LDA Model 2) to examine the associations between the behavioural systems and self-injurious behaviours ($N = 220$). Results indicated that the overall model was not significant, as the group of predictor variables as a set were not significantly related to self-injurious behaviours ($\Lambda = .95$, $\chi^2(8) = 11.30$, $p = .185$, $R^2 = .05$). Indeed, the correlational analyses indicated that of the predictor variables examined, only attachment anxiety was significantly related to self-injurious behaviours (see Table 2.1).

Discussion

The present study aimed to examine links between attachment theory's three behavioural systems (i.e., the romantic attachment system, the romantic caregiving system, and the sexual system) and young adult self-injury. In order to investigate these relations, dimensions of romantic attachment (i.e., attachment anxiety and attachment avoidance), caregiving (caregiving proximity, caregiving sensitivity, controlling caregiving, and compulsive caregiving), and sexual satisfaction (self-focused sexual satisfaction and partner-focused satisfaction) were examined simultaneously within one model. The unique associations between each of the systems and self-injurious thoughts and behaviours were examined. Further, the relative contributions of each system were also compared in order to determine the dimensions of the behavioural systems that best predict self-injurious thoughts and behaviours. The results of the present study partially support the hypotheses proposed. Findings indicate that the functioning of each of the systems may predict self-injurious thoughts among young adults, and that the three systems may differ in their relative contributions. In contrast, findings indicate that the functioning of the behavioural systems do not significantly predict self-injurious behaviours.

The Attachment Theory's Behavioural Systems and Self-Injurious Thoughts

Dimensions of romantic attachment. Results confirmed expectations that participants who endorsed self-injurious thoughts would report experiencing greater attachment insecurity (both attachment anxiety and attachment avoidance) than participants who did not report thoughts. Such results both complement and contrast with those reported by Levesque and colleagues (2010), whose findings indicated a link between attachment anxiety (but not attachment avoidance) and self-injurious thoughts. As such, this study is the first to provide support for the role held by both attachment anxiety and attachment avoidance in the use of self-injurious thoughts. Taken together, findings from the present study, and from that of Levesque and colleagues (2010), provide preliminary indication that attachment anxiety may be a more consistent predictor of self-injurious thoughts than attachment avoidance. When in a state of hyperactivation, anxiously attached individuals tend to engage in attention-oriented emotion regulation strategies (Pascuzzo, Cyr, & Moss, 2013), and may rely on the comfort garnered by thoughts of self-injuring as a means to draw attention and comfort from their partners (for a detailed description of the interpersonal-positive reinforcement functions of self-injury, see Nock, 2009). Conversely, avoidantly attached individuals tend to rely on deactivating strategies when distressed, and attempt to self-regulate through the suppression of upsetting thoughts and feelings (Fraley & Shaver, 1997; Mikulincer & Shaver, 2016). Such individuals are considered to have missed early opportunities for learning effective emotion regulation (Pascuzzo et al., 2013), as it has been demonstrated that they are more likely to have had emotions minimized or ignored by rejecting attachment figures (Cassidy, 1994). When attempts to self-regulate through suppression are not successful, individuals may then engage in thoughts of self-injury in an attempt to self-regulate. As such, anxiously attached individuals may more readily engage in

thoughts of self-injury to self-regulate, as suggested by the finding that attachment anxiety was linked to self-injurious thoughts in both the present study and in that of Levesque and colleagues (2010). In contrast, avoidantly attached individuals may use self-injurious thoughts as a secondary emotion regulation strategy when initial attempts at suppression are not successful, thus providing a potential explanation for why attachment avoidance was linked to self-injurious thoughts in the present study, but not in that of Levesque and colleagues (2010). Further research examining the links between attachment anxiety, attachment avoidance, and self-injurious thoughts is needed in order to support or refute this possibility.

Dimensions of romantic caregiving behaviours. In line with the hypotheses proposed, the analyses revealed that participants endorsing self-injurious thoughts reported greater use of both compulsive and controlling caregiving behaviours than those who did not endorse thoughts. This result suggests that individuals experiencing a hyperactivated romantic caregiving system (e.g., becoming overinvolved in a partner's problems) may encounter difficulties effectively attending to and resolving their own emotionally-distressing experiences. This finding may be explained by the theoretical notion that maladaptive or suboptimal functioning of the romantic caregiving system, as marked by an inability to offer care that is appropriately contingent on one's partner's needs, is considered to reflect deficits to one's ability to alleviate one's own distress in healthy ways (Collins & Ford, 2010; Collins et al., 2006). The link between romantic caregiving behaviours and maladaptive coping is further supported by findings documented by Mikulincer and Shaver (2012). Their results demonstrated that negative caregiving behaviours expressed to one's partner were associated with greater emotion regulation difficulties. Conversely, low caregiving sensitivity and low proximity did not emerge as significant (negative) predictors of self-injurious thoughts. According to a theoretical framework proposed

by Collins and Ford (2010), romantic caregiving dynamics are modulated by emotion regulation resources as well as by one's skills and abilities in this area (i.e., caregiving expectations, beliefs, and action tendencies). As such, it is possible that the young adults endorsing low sensitivity and proximity in the present study may lack the knowledge and abilities regarding appropriate provision of adequate care to a partner, and may not necessarily have a deactivated caregiving system per se (i.e., overt dismissal of one's partner's needs). As such, future research is needed to determine the potential links between caregiving deactivation and emotion regulation strategies such as self-injury.

Dimensions of sexual satisfaction. Findings revealed that participants endorsing self-injurious thoughts reported less self-focused sexual satisfaction (i.e., dissatisfaction with one's personal experience and sensations felt) than participants who did not endorse thoughts. This result provides preliminary evidence of ties between the functioning of the sexual system and the use of self-injurious thoughts and also lends support to adult attachment theory, which maintains that maladaptive functioning of the sexual system is related to emotion regulation difficulties (Mikulincer & Shaver, 2012; Birnbaum et al., 2014). Ongoing sexual dissatisfaction is considered to result in hyperactivation (i.e., mentally preoccupying worries about one's sexual desirability) or deactivation (i.e., dismissal of one's sexual needs and interests) of the sexual system, which, in turn, may compromise one's ability to cope with distressing experiences. This result is also consistent with previous findings documenting associations between sexual dissatisfaction and emotion regulation difficulties (Rellini et al., 2010; Rellini et al., 2012). In contrast, low partner/activity-focused satisfaction (i.e., dissatisfaction with one's partner's behaviours and sexual activity in general) did not emerge as a significant predictor of self-injurious thoughts. This suggests that dissatisfaction with one's own sexual experience (e.g.,

negative feelings after sex) may be more closely tied to one's coping abilities than dissatisfaction with one's partner's behaviours (e.g., partner's sexual creativity), and may trigger the hyperactivating and/or deactivating strategies that have been linked to the disruption of healthy, resourceful coping abilities (e.g., Rellini et al., 2010; Rellini et al., 2012).

Relative Contributions of the Behavioural Systems to Self-Injurious Thoughts

The second objective of the present study was to explore the relative contributions of the three attachment systems in the prediction of self-injury. As described above, the LDA loadings indicated that variables intended to represent facets of each system significantly predicted self-injurious thoughts, and such variables are differentially linked to the use of self-injurious thoughts. Based on the within-groups correlation coefficients (see Table 2.2), attachment anxiety demonstrates the strongest relationship with self-injurious thoughts, followed by dimensions of negative caregiving behaviours (compulsive caregiving and controlling caregiving). Attachment avoidance and self-focused sexual satisfaction were also revealed to have significant, but relatively less strong, relationships to thoughts. These results suggest that hyperactivation of the attachment (anxiety) and caregiving systems (controlling and compulsive caregiving) play an important role in determining the emotion regulation strategies that young adults may employ when distressed, and may be a valuable indicator of risk for engagement in self-injurious thoughts. As described above, individuals experiencing a hyperactivated attachment or caregiving system energetically seek means of garnering attention from their romantic partners when distressed (Mikulincer & Shaver, 2012). When hyperactivated, such individuals may be particularly inclined to soothe themselves by thoughts of self-injury in order to elicit attention and sympathy from their partners.

In addition to the relations between attachment anxiety and dimensions of negative caregiving behaviours and self-injurious thoughts, attachment avoidance was also revealed as a significant predictor. These results suggest that while both forms of insecure romantic attachment are linked to self-injurious thoughts, individuals with an avoidant attachment orientation may be somewhat less likely to engage in self-injurious thoughts than those with an anxious attachment. As described above, this finding may be attributed to avoidantly-attached individuals engaging in self-injurious thoughts as a secondary coping strategy utilized when attempts at suppression of thoughts and emotions are unsuccessful. A second explanation may be found in the differences between the models of self and others held by anxious and avoidantly-attached individuals. Attachment anxiety involves a negative model of the self as unworthy and defective, often coupled with a pedestalized view of others. Alternately, attachment avoidance involves a positive model of the self, but a negative view of others as untrustworthy and unreliable (Mikulincer, 2006). Within this context, it is possible that anxiously attached individuals may be more apt to envision harming themselves when distressed than would an avoidantly-attached individual who may have a greater penchant for self-preservation.

Finally, LDA loadings demonstrated that self-focused sexual satisfaction was also significantly linked to self-injurious thoughts, although this relationship was the least strong. This suggests that while all three systems are linked to self-injurious thoughts, the functioning of the romantic attachment and romantic caregiving systems may more strongly predict the coping strategies utilized by young adults. This finding may be attributed to the developmental processes underpinning each of the systems. The romantic attachment and romantic caregiving systems owe their roots to childhood experiences, as the functioning of these systems in young adulthood and beyond are partially shaped by interactions with one's primary caregivers in

infancy (e.g., Kuncie & Shaver, 1994; Fraley & Roisman, 2015). These systems— and the early experiences that lead to their development—are considered to hold crucially important roles with regard to the formation of an individual's emotion regulation strategies (Mikulincer, Shaver, & Pereg, 2003; Mikulincer & Shaver, 2011). While it appears that the sexual system is also linked to emotion regulation abilities (e.g., Mikulincer & Shaver, 2012; Rellini et al., 2010; Rellini et al., 2012), this system is continually emerging and developing throughout young adulthood (e.g., Birnbaum, 2015; Johnson, Lafontaine, & Dalgleish, 2015). For young adults, it may not be as centrally tied to one's emotion regulation strategies as the attachment and caregiving systems, which rest upon longstanding foundations stemming from childhood.

The Attachment Theory's Behavioural Systems and Self-Injurious Behaviours

Finally, while results indicated that dimensions of all three systems are significantly related to self-injurious thoughts, similar results were not demonstrated with respect to self-injurious behaviours. This finding appears to suggest that the maladaptive functioning of the interrelated systems may be especially implicated in self-injurious thoughts. Further, this result may reflect an area in which the correlates for self-injurious thoughts and behaviours diverge. While recent findings indicate that self-injurious thoughts and behaviours share a similar set of correlates pertaining to adverse childhood experiences (Martin et al., 2011), it may be possible that romantic relationship factors are particularly uniquely linked to the occurrence of self-injurious thoughts. As such, it may be possible that distress resulting from upsetting attachment, caregiving, or sexual experiences may be more frequently alleviated through thinking about harming oneself, rather than actual engagement in self-injurious behaviours. Despite this interpretation, this finding is in contrast to existing literature indicating a link between romantic attachment and self-injurious behaviours (i.e., Braga & Gonçalves, 2014; Fitzpatrick et al., 2013;

Fung, 2008; Levesque et al., 2010). With the exception of Fung's (2008) utilization of a clinical sample, participant sociodemographic profiles between existing studies and the present study sample are similar (i.e., community-based young adults), as are mean scores across measures of attachment (see Braga & Gonçalves, 2014; Fitzpatrick et al., 2013; Fung, 2008; Levesque et al., 2010, for respective mean scores). As such, this inconsistency between existing literature and the present study results is likely to be a result of the relatively fewer participants endorsing self-injurious behaviours in the current overall sample. As a smaller proportion of participants reported engaging in self-injurious behaviours in the present study ($n = 25$) than in the samples utilized in previous studies (i.e., Braga & Gonçalves, 2014: $n = 84$; Levesque et al., 2010: $n = 39$; Fitzpatrick et al., 2013: $n = 90$; Fung, 2008: $n = 40$), such a potential effect may not have been detectable.

Limitations and Future Directions

In addition to the explanations provided for the results of the present study, its methodological limitations also merit discussion. First, the functioning of the three attachment theory's systems was measured using self-report questionnaires. While participants' scores on the constructs measured were intended to reflect the functioning of the three systems, the actual systems themselves were not directly measured per se. As such, it is possible that such constructs do not actually reflect the functioning of the systems. In order to reduce such a potential limitation, well-validated questionnaires, which have been widely used in the literature to measure the functioning of the three systems, were used. Second, although findings suggest that the functioning of the three systems may influence the use of self-injurious thoughts, the correlational nature of the study does not permit us to infer causality regarding these associations, despite the hypothesized directionality between the constructs examined. Indeed,

the correlational nature of the study does not allow us to ascertain that the directionality of the associations are not actually reverse, being that engaging in self-injurious thoughts could impact the functioning of one's romantic attachment systems. Further, given the sensitive content investigated in the present study (e.g., sexual satisfaction, self-injurious thoughts and behaviours), participants may have felt reticent to accurately and honestly disclose their experiences. Thus, it is possible that participants may have been biased to overreporting perceived positive characteristics or attributes (e.g., positive caregiving behaviours), whilst underreporting perceived negative characteristics (e.g., use of self-injurious behaviours). However, the information letter provided to participants outlined the anonymous nature of the study, thus decreasing the potential for bias. Finally, although recruitment efforts were aimed at both males and females, males were underrepresented in the overall sample. As such, findings may not accurately represent the experiences of young adult males.

Researchers may be interested in replicating the present study with a larger sample of participants engaging in self-injurious behaviours in order to clarify whether the functioning of the three systems is predictive of both thoughts—as evidenced in the present study—as well as actions. Moreover, although the present study sample was appropriate to examine associations between the behavioural systems and self-injury among community-based young adults, researchers may be interested in testing the present model with other populations such as clinical samples or adults engaging in self-injury, in order to examine the generalizability of the present findings. In addition, longitudinal research examining the behavioural systems and their links to emotion regulation abilities would be helpful in determining the relations between these constructs across the lifespan. Finally, contextual romantic relationship variables such as

relationship satisfaction and dyadic trust should be analyzed in order to study links between important dimensions of romantic relationship functioning and self-injury.

Implications and Conclusions

This study holds valuable implications for both research and treatment endeavours, in addition to conceptual-level implications for attachment theory as an explanatory framework for young adult self-injury. Generally speaking, the results of the present study suggest that the functioning of all three behavioural systems hold implications for the coping strategies undertaken by young adults during periods of distress. Those individuals experiencing maladaptive functioning of the romantic attachment, caregiving, or sexual systems may be at greater risk for engaging in self-injurious thoughts when faced with overwhelming or emotionally laden experiences.

This study extends existing research into the role of romantic attachment in the prediction of self-injury, as it constitutes the first investigation to indicate a link between both dimensions of insecure romantic attachment and self-injurious thoughts. In addition, the present study fills certain gaps in research by examining the roles held by the romantic attachment system's complementary systems in the prediction of self-injury. Findings may hold implications for theoretical conceptualizations of the processes whereby adverse attachment experiences lead to self-injury. Current theory (i.e., Yates, 2009) maintains that there is a strong association between attachment and self-injury, but largely focuses on links to childhood attachment experiences. This study's findings suggest that consideration be placed on expanding such a theoretical framework to also place emphasis on the roles of insecure romantic attachment, unresponsive caregiving, and sexual dissatisfaction.

Findings may also hold valuable clinical implications, as they indicate that the quality of young adult romantic relationships should be considered in the assessment and treatment of self-injury. As demonstrated in the present study, individuals engaging in self-injurious thoughts may experience poorer functioning of the three behavioural systems. As such, process-experiential therapy approaches effective at improving the quality of individuals' attachment, caregiving, and sexual experiences, such as Emotion-Focused Therapy (Greenberg, 2002) and Emotionally Focused Couple Therapy (Johnson, 2004), may prove useful in reducing the risk of engagement in self-injurious thoughts. Considering that self-injurious thoughts often lead to self-injurious behaviours (Nock et al., 2009), treating the precipitant factors underlying thoughts through such modalities of therapy may also be an effective means of preventing engagement in harmful self-injurious behaviours. Continued research may eventually lead to a more nuanced and complete understanding of the role held by romantic attachment and its related systems in young adult self-injury.

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Table 2.1

Correlations between Primary Study Variables and Outcome Variables

	Self-Injurious Thoughts (Model 1, $N = 236$)	Self-Injurious Behaviours (Model 2, $N = 220$)
Attachment Avoidance	.148*	.082
Attachment Anxiety	.295**	.176**
Caregiving Proximity	-.063	-.105
Caregiving Sensitivity	-.067	-.039
Controlling Caregiving	.175**	.064
Compulsive Caregiving	.271**	.058
S Sexual Satisfaction	-.131*	-.058
P Sexual Satisfaction	-.065	-.056

Note. Point-biserial correlations between primary study variables and outcome variables for Model 1 and Model 2. S Sexual Satisfaction = self-focused sexual satisfaction, P Sexual Satisfaction = partner-focused sexual satisfaction.

* $p < .05$, ** $p < .01$

Table 2.2

Structure Matrix Table for Discriminant Analysis of Self-Injurious Thoughts

Predictor Variables	Correlations of Predictor Variables with Discriminant Function
Attachment Anxiety	.67
Compulsive Caregiving	.63
Controlling Caregiving	.40
Attachment Avoidance	.35
Self-Focused Sexual Satisfaction	-.31
Caregiving Proximity	-.18
Other-Focused Sexual Satisfaction	-.15
Caregiving Sensitivity	-.13

Note. Pooled within-groups correlations between predictor variables and the standardized canonical discriminant function. The variables are ordered by size of correlation.

Table 2.3

Within-Group Means and Standard Deviations

Group	Predictors	<i>M</i>	<i>SD</i>
No Self-Injurious Thoughts or Behaviours Endorsed (<i>n</i> = 201)	Attachment Avoidance	2.25	1.12
	Attachment Anxiety	3.52	1.43
	Caregiving Proximity	42.01	5.59
	Caregiving Sensitivity	37.75	6.44
	Controlling Caregiving	32.90	7.93
	Compulsive Caregiving	28.20	6.54
	S Sexual Satisfaction	39.40	8.05
	P Sexual Satisfaction	40.22	7.90
Self-Injurious Thoughts Endorsed (<i>n</i> = 35)	Attachment Avoidance	2.76	1.27
	Attachment Anxiety	4.72	1.37
	Caregiving Proximity	40.75	5.71
	Caregiving Sensitivity	36.64	6.85
	Controlling Caregiving	33.84	7.74
	Compulsive Caregiving	29.19	7.70
	S Sexual Satisfaction	36.10	8.55
	P Sexual Satisfaction	38.63	9.86

Note. S Sexual Satisfaction = self-focused sexual satisfaction, P Sexual Satisfaction = partner-focused sexual satisfaction. Range of scores: attachment avoidance, attachment anxiety: 1-7; caregiving proximity, caregiving sensitivity, controlling caregiving, compulsive caregiving: 8-48; self-focused sexual satisfaction, partner-focused sexual satisfaction: 10-50.

General Discussion

General Discussion

Summary of Objectives, Key Findings, and Strengths

Associations between dimensions of romantic relationships and young adult self-injury were the overarching focus of the present thesis, and were examined in two studies. Given the theoretical associations between romantic attachment relationships and self-injury, contrasted against a stark paucity of research in this domain, the present thesis sought to explore central romantic relationship dimensions in order to shed light on their ties to the use of young adult self-injury. Specifically, the first major aim was to propose and evaluate a novel conceptual model exploring the links between child maltreatment, intimate violence victimization, and the use of self-injurious thoughts and behaviours. The second major aim was to investigate the role of the functioning of the three interrelated romantic behavioural systems (i.e., romantic attachment, romantic caregiving, and sexual systems) in the use of self-injurious thoughts and behaviours.

The first study was focused on exploring the mediating role of intimate violence victimization on the established link between child maltreatment and the use of self-injurious thoughts and behaviours among a sample of community-based young adults. Results partially supported the model put forth, and indicated that intimate violence victimization partially mediated the effect of child maltreatment on self-injurious behaviours but did not mediate the association between child maltreatment and self-injurious thoughts. Overall, findings demonstrate the strong role held by adverse relational experiences in the use of young adult self-injury, and emphasize that this troubling phenomenon may be best understood through the lens of both distal and proximal correlates. In particular, findings suggest that self-injurious thoughts and behaviours may be precipitated by a history of child maltreatment, and that the use of

behaviours may be maintained by the presence of intimate violence victimization. Furthermore, findings indicate that individuals who have experienced both forms of family violence may be particularly vulnerable to engaging in self-injurious behaviours. This study encompasses noteworthy theoretical, methodological, and empirical strengths, as it offers an explanatory framework for understanding the links between child maltreatment, intimate violence victimization, and self-injury. This framework is mounted upon a robust data analysis procedure applied to a considerably difficult-to-reach population, as participants endorsing child maltreatment, intimate violence victimization, and self-injury encompass a minority subgroup of the larger population of young adults in the community. Findings also offer insight into the differing relational backgrounds of young adults who engage in self-injurious thoughts but not behaviours, and advance existing knowledge of the role of exposure to both forms of family violence in the use of self-injury.

As previously mentioned, the second study aimed to examine relations between the romantic behavioural systems and the use of self-injurious thoughts and behaviours among a sample of community-based young adults. Further, the relative contributions of each system were also compared in order to determine the dimensions of the behavioural systems that best predict self-injurious thoughts and behaviours. Results revealed that dimensions of all three systems significantly predicted self-injurious thoughts. In contrast, results indicated that the behavioural systems did not predict self-injurious behaviours. Hence, findings suggest that dimensions of the three interrelated behavioural systems hold unique roles in understanding self-injurious thoughts, and that the relationship dimensions that predict thoughts may differ from those that may predict behaviours. Results similarly indicate that distress resulting from the poor functioning of the behavioural systems may be effectively buffered through thinking of harming

oneself, as opposed to actually engaging in acts of self-injury. This study has a number of strengths, as it serves to advance our current understanding of shared and differing correlates of self-injurious thoughts and behaviours, and provides support for the value in conceptualizing and examining such phenomena as distinct, albeit interrelated, constructs. While the inception of the study owes itself to the tenets of attachment theory, its findings may give back to the theoretical framework from which it was informed. Specifically, attachment theory is often used in the literature as a lens through which to understand the aetiology of self-injury, but is most commonly applied to the role of childhood attachment experiences. The study's results provide evidence indicating that in addition to parent-child attachment, adult attachment theory also offers important insights into the underpinnings of young adult self-injury. Study hypotheses were tested through the use of robust data analysis procedures applied to a sufficiently-sized sample of participants to warrant examining self-injurious thoughts and behaviours separately. From an empirical standpoint, this study fills gaps in the existing literature, as it is the first to examine and establish links between all three behavioural systems and self-injury. Findings provide preliminary indication that in addition to the role of romantic attachment, as indicated in the existing literature, the functioning of the romantic caregiving and sexual systems also contribute to the use of self-injurious thoughts.

Collective Implications across Studies

Taken together, the two studies comprising the present thesis offer a meaningful contribution to the existing literature, as their findings offer novel insight into the role of a largely unexplored facet of relationship-level correlates of self-injury, namely romantic relationship functioning. The findings presented are highly relevant to the professional community of researchers and clinicians who are in pursuit of a more comprehensive

understanding of the relationship experiences that may serve to precipitate or maintain the use of self-injury among young adults, as the present findings help to break trail in a new direction of research possibilities. Moreover, the studies were designed upon solid theoretical bases, and were conducted with careful methodological and statistical procedures. Altogether, the findings of the studies cast light upon the role of romantic relationship functioning in the use of self-injury, and provide a credible argument that the quality of young adults' couple relationships should be considered an important factor in understanding the phenomenology of self-injury.

By amalgamating the findings of the two studies, important implications are revealed. Comparing the results across studies illustrates that romantic relationship dimensions may contribute to self-injurious thoughts and behaviours in unique ways. Study I indicated that intimate violence victimization was linked only to the use of self-injurious behaviours, and not thoughts. In contrast, findings from Study II revealed that the functioning of the three romantic behavioural systems was linked only to the use of self-injurious thoughts, and not behaviours. This suggests that thinking of harming oneself may serve a sufficiently effective emotion regulation function to cope with distress resulting from the poor functioning of the behavioural systems. For example, fears of rejection resulting from an anxious attachment orientation may be effectively soothed by envisioning acts of self-injury without requiring one to act upon such thoughts to experience distress reduction. Furthermore, findings also provide indication that while engaging in self-injurious thoughts (but not behaviours) may prove sufficient for coping with distress resulting from the suboptimal functioning of the behavioural systems, thoughts may not deliver a strong enough emotional regulation function to reduce distress resulting from more deeply troubling or upsetting stressors, namely intimate violence victimization. As such, individuals exposed to relationship violence may be more likely to pursue physical acts of self-

injury, rather than remain in the relatively less harmful realm of self-injurious thoughts only. This notion is in line with existing literature that suggests that the severity of self-injury sits upon a continuum, and moves toward greater frequency and more severe methods in response to increased levels of distress (e.g., Nock, Prinstein, & Sterba, 2009; Saraff & Pepper, 2014). In this way, comparing the findings across the two studies sheds light on how distinct romantic relationship dimensions may differentially predict self-injurious thoughts and behaviours, indicating that the severity of dysfunction or distress within a couple may be linked to the severity of self-injury used to cope with such distress.

Findings accrued from the two studies also hold valuable implications for clinical intervention efforts. At present, there is no gold standard treatment approach, and empirical support for the effectiveness of psychological treatment for self-injury remains scarce (Stanley, Fineran, & Brodsky, 2014). While self-injury is most often approached through the use of cognitive-behavioural therapy (CBT) and dialectical behavioural therapy (DBT) interventions, the utility of such therapeutic modalities for self-injury recovery among community populations remains undetermined, as most outcome research is focused on clinical samples (Stanley et al., 2014). The findings of the thesis studies underscore the key role of romantic relationship functioning in the use of self-injury, and thus suggest that applying therapeutic approaches effective at improving the quality of individuals' attachment, caregiving, and sexual experiences and enhancing the emotional safety within couple relationships—such as Emotion-Focused Therapy (Greenberg, 2002) and Emotionally Focused Couple Therapy (Johnson, 2004)—may be a helpful cornerstone of effective treatment for this perplexing problem. Moreover, many young adults who self-injure are reluctant to seek professional help, and are often ambivalent about recovery (Kress & Hoffman, 2008). Thus, in addition to the need for efficacious treatment

approaches, it is equally critical that effective prevention efforts be established for young adults at risk of engaging in self-injury. The findings of the present thesis indicate the value of educating young adults on the importance of healthy romantic relationships, as teaching such varied relationship concepts as communicating attachment needs and leaving an abusive relationship, may ultimately contribute to the prevention or cessation of self-injurious thoughts and behaviours.

Limitations and Directions for Future Research

Despite the strengths and contributions of the present thesis, it also encompasses limitations that could be addressed by future research endeavours. First, both studies comprising the thesis relied on self-report questionnaires as the data collection method used. Such measures have been demonstrated to be susceptible to response bias, which refers to the tendency to respond to test or questionnaire items based on some factor other than the particular content intended to be measured by the assessment tool. This results in responses that do not align with respondents' true attitudes, thoughts, or beliefs (McGrath, Mitchell, Kim, & Hough, 2010). One of the most common types of response bias is social desirability bias, which refers to the tendency for individuals to provide socially-accepted responses that contrast with one's true feelings or experiences, whilst underreporting perceived undesirable behaviours or characteristics (Dalton & Ortegren, 2011; Zerbe & Paulhus, 1987).

Past literature also indicates that females are more likely to respond in socially-desirable ways (e.g., Bernardi & Guptill, 2008; Dalton & Ortegren, 2011). Since the majority of participants in the two studies were female, the results reported may have been biased toward underreporting both the relationship constructs examined (e.g., attachment insecurity, child maltreatment, intimate violence victimization), as well as the use of self-injurious thoughts and

behaviours. Alternately, it is equally possible that findings may have been biased by negative impression management, which involves over-reporting indicators of negative attributes (McGrath et al., 2010). As the information letter provided to participants at the beginning of the questionnaire package detailed that its contents included measures examining a number of adverse experiences (e.g., child maltreatment, use of self-injurious thoughts and behaviours), it is possible that the studies may have drawn the interest of participants who may endorse an exaggerated or overly negative response style. Despite their hindrances, self-report measures are considered a valid method of assessment that hold considerable advantages, including straightforward administration and scoring, quantifiable results, and efficiency in time and resources. The mean participant scores for the variables examined, in addition to the prevalence rates for self-injurious thoughts and behaviours reported in the present thesis studies, are comparable to those documented widely in the literature, and thus reduce concern that response bias influenced the findings reported. Researchers interested in conducting self-report studies may wish to minimize the risk of response bias by incorporating a social desirability scale, such as the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960), into their questionnaire packages. Alternately, researchers may also be interested in utilizing measures with embedded response bias indicators, such as the Minnesota Multiphasic Personality Inventory (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989; Hathaway & McKinley, 1967) and the Personality Assessment Inventory (Morey, 1991).

Second, the present thesis utilized cross-sectional, correlational research designs, and thus no conclusions can be drawn pertaining to causality/directionality among the significant associations found. While it is hypothesized that the romantic relationship correlates examined function to exert an effect on the use of self-injurious thoughts and behaviours, such

hypothesized causal relationships cannot be confirmed. Despite this limitation, the directionality of the predicted links is informed by existing theory and past research. While conclusions of causality cannot be made within this correlational context, such findings provide a necessary first step toward understanding the links between the romantic relationship correlates examined and self-injurious thoughts and behaviours, and indicate that research should continue to build upon and expand the foundation offered by the present thesis. Specifically, researchers may be interested in conducting prospective longitudinal cohort studies, as such research designs would strongly aid in studying the hypothesized temporal sequence between the variables examined in the present thesis. Prospective designs would permit researchers to verify the occurrence of incidents of child maltreatment and intimate violence victimization, rather than rely on retrospective self-report. Additionally, such designs would permit in-depth investigation of the predicted directional pathways or mechanisms whereby such adverse experiences may lead to both the onset and maintenance of self-injury.

Third, the samples examined in the present thesis consisted of a largely homogenous group of participants, and as such, findings may offer limited external validity. The samples included within the respective studies tended to consist of primarily females of European descent pursuing post-secondary education. Thus, it is possible that the findings presented may not be generalizable to broader populations of young adults who engage in self-injury. Replicating the models tested amongst varied samples (e.g., non-students, males, and individuals of diverse ethno-cultural backgrounds) is first required to determine the applicability of the present results to more heterogeneous samples. In a similar vein, the participants tested all identified as heterosexual, and were involved in heterosexual couple relationships. Future research should be aimed at examining the romantic relationship correlates of self-injury among lesbian, gay,

bisexual, and transgender (LGBT) individuals. Emerging literature indicates that the prevalence of self-injury is higher among sexual minority-identified young adults (e.g., Muehlenkamp, Hilt, Ehlinger, & McMillan, 2015; Tsypes, Lane, Paul, & Whitlock, 2016), thus indicating that particular attention should be paid to identifying risk factors and correlates relevant to such individuals.

Fourth, self-injurious thoughts and behaviours were examined through the use of single-item dichotomous outcome variables in the present thesis, with response categories being collapsed into binary categories of ‘0’ and ‘1’ to indicate the presence or absence of thoughts and behaviours throughout the past six months. While this enhanced the ease of interpretability of findings across the two studies, dichotomizing the outcome variables may have reduced the power of the analyses conducted. Thus, it is possible that the results presented may offer a more modest representation of the strengths of the links between the dimensions studied and self-injurious thoughts and behaviours. Moreover, as presence-absence response items were used as the outcome variables, the wide scope of research possibilities presented in the OSI was not fully explored in the present thesis. Specifically, examining self-injurious thoughts and behaviours from a presence-absence dichotomous perspective yields limited information of how the relationship dimensions examined relate to nuanced facets of self-injury, such as duration, intensity, or frequency of thoughts and behaviours. Despite this hindrance, the use of the presence-absence outcome variables was considered most suitable, as it allowed the research questions of the thesis to be addressed whilst offering the advantage of parsimonious statistical models in both studies.

Furthermore, there exists vast heterogeneity among people who self-injure, as individuals may range from engaging in “mild” forms of self-injury to severe and atypical forms of self-

injury (e.g., atypical body parts injured such as breasts and genitals, atypical methods of self-injury such as foreign body ingestion) (e.g., Martin, Bureau, Yurkowski, & Lafontaine & Cloutier, 2015; Hamza & Willoughby, 2013). In the present thesis, the spectrum of people who self-injure was amalgamated into one group in order to preserve necessary statistical power. However, this precludes investigation of how the links examined may relate to different types or profiles of people who self-injure. Although the present thesis findings cannot offer a complete picture of the entire constellation of potential links between the relationship dimensions examined and all facets of self-injury, results nonetheless provide an important and helpful step toward establishing the role of romantic relationship constructs in the use of self-injury. Future research examining romantic relationship correlates of self-injury amongst different profiles of people who self-injure would constitute an important next step toward deepening our understanding of the associations between romantic relationship functioning and self-injury among diverse groups of people who self-injure.

Finally, the novel findings of the present thesis open avenues for future research, and serve to highlight a number of important questions that remain to be investigated. As the thesis is intended to serve as a preliminary exploration of the role of romantic relationship functioning in the use of young adult self-injury, the investigations conducted were limited to the examination of a discrete number of correlates (i.e., romantic attachment, romantic caregiving behaviours, sexual satisfaction, and intimate violence victimization). As the functioning of a couple relationship encompasses a vast number of moving parts—parts of ourselves that flow into and blend, meld, or collide with those of our partners—there are a number of relationship constructs that were not examined within the scope of the present thesis. Thus, whether there are other romantic relationship constructs associated with the use of self-injury remains largely unknown.

Future research aimed at investigating such romantic relationship constructs as romantic perfectionism, dyadic trust, and dyadic communication patterns would be helpful in developing a more thorough understanding of the role of couple relationships in the use of self-injury.

As the present thesis aimed to enhance knowledge regarding how people who self-injure experience couple relationships, only the subjective experience of the person who self-injured was examined. However, future studies may seek to extend this knowledge by conducting dyadic data analysis by employing Actor-Partner Interdependence Models. Such research would allow for the examination of how both partners' own relationship dimensions (e.g., each partner's attachment orientation or romantic caregiving behaviours) may interact, impacting the relations between romantic relationship functioning and self-injury. Furthermore, trauma research conducted among partners of survivors of childhood maltreatment indicate that the trauma of one partner can significantly affect the other, resulting in a "trauma contagion" marked by high levels of distress and impaired coping abilities (e.g., Maltas & Shay, 1995; Nelson & Wampler, 2000). As such, it is plausible that child maltreatment may not only increase vulnerability to engagement in maladaptive coping strategies among the survivor, but may also impact the coping strategies utilized by the partner. Implementing dyadic research designs would contribute significantly to our understanding of how couple relationship processes and experiences—such as a partner's history of maltreatment—may impact the coping strategies undertaken by young adults.

Lastly, an equally important and prospective area of research that was not addressed in the present thesis is the empirical investigation of the clinical implications of the findings presented. As the results of both studies indicate that the quality and functioning of romantic relationships are tied to the use of self-injury, future research may seek to explore whether the

relationship dimensions examined may serve as important points of intervention in the treatment of self-injury. Specifically, clinical researchers may be interested in investigating whether working with clients in psychotherapy to enhance the functioning of the romantic behavioural systems as well as treating and preventing relationship violence victimization are worthwhile interventions that should be incorporated into a broader self-injury treatment protocol. The implementation of such a potential study would open an innovative clinical research avenue that may advance existing knowledge of best practices in the treatment of young adult self-injury.

Conclusion

In summary, the thesis studies presented significantly contributes to existing insights concerning the role of romantic relationship functioning in the use of self-injury among young adults. In addition to its valuable implications for both theoretical conceptualizations and empirical knowledge of this troubling phenomenon, the findings of the present thesis open a number of interesting and important avenues for future research efforts that may hold the capacity to significantly further our understanding of the relationship climates that may foster engagement in self-injury, or serve to hold young adults locked in a perennial pattern of relying on such maladaptive and dangerous coping strategies. These findings may also aid in the assessment and treatment of self-injury. Moreover, these findings suggest that emphasis should be placed on gathering relevant information on the quality of young adults' romantic relationships in the assessment phase of therapy, and that romantic relationship quality may be a fruitful avenue worth pursuit in the ongoing search for effective intervention points in the context of therapy for the treatment of self-injury. In conclusion, may the findings of the present thesis represent but a small fragment of the progress yet to be made toward better understanding the

relationship-level correlates of young adult self-injury, as a comprehensive conceptualization of self-injury is fundamental to effectively helping young adults affected by self-injury.

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Appendix A

University of Ottawa Health Sciences and Science Research Ethics Board Ethics Approval

Certificate

File Number: H08-14-03		Date (mm/dd/yyyy): 09/08/2014	
Université d'Ottawa Bureau d'éthique et d'intégrité de la recherche	University of Ottawa Office of Research Ethics and Integrity		
Ethics Approval Notice			
Health Sciences and Science REB			
Principal Investigator / Supervisor / Co-investigator(s) / Student(s)			
<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Marie-France	Lafontaine	Social Sciences / Psychology	Principal Investigator
Jean-François	Bureau	Social Sciences / Psychology	Co-investigator
File Number: H08-14-03			
Type of Project: Professor			
Title: The Influence of Romantic Relationships on Negative Coping Strategies			
Approval Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type	
09/08/2014	09/07/2015	1a	
(1a: Approval, 1b: Approval for initial stage only)			
Special Conditions / Comments: N/A			

1

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Ottawa (Ontario) K1N 6N5 Canada
(613) 562-5387 • Téléc./Fax (613) 562-5338

550 Cumberland Street, room 154
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www.recherche.uottawa.ca/deontologie/
www.research.uottawa.ca/ethics/

File Number: H08-14-03

Date (mm/dd/yyyy): 09/08/2014



Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

This is to confirm that the University of Ottawa Research Ethics Board identified above, which operates in accordance with the Tri-Council Policy Statement (2010) and other applicable laws and regulations in Ontario, has examined and approved the ethics application for the above named research project. Ethics approval is valid for the period indicated above and subject to the conditions listed in the section entitled "Special Conditions / Comments".

During the course of the project, the protocol may not be modified without prior written approval from the REB except when necessary to remove participants from immediate endangerment or when the modification(s) pertain to only administrative or logistical components of the project (e.g., change of telephone number). Investigators must also promptly alert the REB of any changes which increase the risk to participant(s), any changes which considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project and safety of the participant(s). Modifications to the project, including consent and recruitment documentation, should be submitted to the Ethics Office for approval using the "Modification to research project" form available at: <http://www.research.uottawa.ca/ethics/forms.html>.

Please submit an annual report to the Ethics Office four weeks before the above-referenced expiry date to request a renewal of this ethics approval. To close the file, a final report must be submitted. These documents can be found at: <http://www.research.uottawa.ca/ethics/forms.html>.

If you have any questions, please do not hesitate to contact the Ethics Office at extension 5387 or by e-mail at: ethics@uOttawa.ca.

Appendix B

Participant Information Letter – English Version

Title: The Influence of Romantic Relationships on Negative Coping Strategies

Dear Participant,

Thank you for choosing to participate in our research using the Integrated System for Participation in Research (ISPR). This project is being conducted by Dr. Marie-France Lafontaine and Dr. Jean-François Bureau at the University of Ottawa, and has been approved by the University of Ottawa Research Ethics Board.

Your participation will contribute to our knowledge of the influences of romantic relationships in predicting different coping strategies in young adults.

Participation in the study will include the completion of these online questionnaires using Survey Monkey. Topics addressed by the questionnaires include your background information, your caregiving behaviours in your romantic relationship, your relationship adjustment, your coping in your relationship, your past and/or current self-injuring behaviors, your risk-taking behaviors, your trust in your relationship, your empathy in your relationship, your romantic intimacy, your sexual satisfaction and dimensions pertaining to your sexuality, your psychological functioning, your self-esteem, your romantic attachment style, your childhood experiences, and your emotion regulation. It is important that these questionnaires express only your opinion; please respond independently, without assistance from others. Please note that sensitive questions about exposure to childhood abuse will be asked.

Completion of the questionnaires will take approximately 120 minutes. When responding to the questions it is important to answer as honestly and accurately as possible. We also encourage you to not leave items unanswered; instead we ask that you select the response that most closely describes your thoughts and feelings about the particular question. However, you are not required to answer any items with which you are uncomfortable. Your participation in this research is entirely voluntary, and you are free to withdraw from answering the questionnaires at any time during your participation. By beginning to complete the following questionnaires, you are implying your consent to participate in the study. Once your responses have been submitted, you will be unable to withdraw from the study, as your responses are anonymous and we have no way of determining which answers are yours to remove.

We would like to remind you that this survey will take 120 minutes to complete. We suggest that you work at a time when you will not be distracted. However, should you be interrupted, know that you can close your browser and finish completing your survey at another time by using the link that was provided to you in the description of the study, in the ISPR website. Your answers will be saved until you submit your survey, at the end.

If someone else is going to use the same computer to participate (partner, friend, family, etc.), be sure you have submitted your survey beforehand. This way, a new survey will appear, and your answers will remain private.

Responses on all questionnaires will be kept anonymous. The data uploaded from Survey Monkey will be saved in password protected computer files on the computers of the principal researcher. The researchers cannot guarantee the confidentiality of the data collected via Survey Monkey given that it is an American-based software and subject to the Patriot Act. No hard copies of the data will be created. Data will be stored under the 5-digit code assigned to you by ISPR, and no individual identifiers (i.e., student number, email address, IP address) will be linked with your data. The data from all participants will be kept for a period of 10 years after the study's completion in 2015; all saved files of the data will be deleted in a secure manner from the computer at this time. The electronic data saved on Survey Monkey will be deleted from the Survey Monkey server at the end of each University semester, after the data has been uploaded from the server.

You may experience some discomfort when responding to select questions. These discomforts are likely to be small and will likely last no more than a few minutes. Of course, you are not obligated to answer any specific questions if you do not feel comfortable doing so.

As compensation for your time, you will be awarded two credit points toward your final course grade after submission of the online questionnaires (PSY 1101 and PSY 1501 only).

Should you have any questions or concerns regarding the study arise, please feel free to contact us at the emails and/or phone numbers listed below. **Should you wish to obtain assistance regarding any issues addressed in the questionnaires you may contact the Ottawa Distress Center (613-238-3311) or the Centre for Psychological Services at the University of Ottawa (613-562-5289). You may also refer to www.ementalhealth.ca for a comprehensive list of mental health resources available in the Ottawa region.** For any further information regarding your rights as a research participant please contact the Protocol Officer for Ethics in Research, 550 Cumberland Street, Room 154, (613) 562-5387 or ethics@uottawa.ca.

Please print a copy of this letter for your records before proceeding.

Thank you for your participation in our research.

Sincerely,

The Research Team

Appendix C

Participant Information Letter - French Version

Titre : L'influence des relations amoureuses sur les stratégies d'adaptation négatives

Cher/Chère participant(e)s,

Merci d'avoir accepté de participer à cette recherche par le biais du Système intégré de participation à la recherche (SIPR). Ce projet est dirigé par Dre Marie-France Lafontaine et Dr Jean-François Bureau de l'Université d'Ottawa. Ce projet a été approuvé par le Comité d'éthique de la recherche de l'Université d'Ottawa. S'il-vous-plaît noté que cette étude sera uniquement en anglais. On vous invite à participer à la cette étude si vous êtes confortable à répondre aux questionnaires dans la langue anglaise.

Cette étude contribuera aux connaissances portant sur l'influence des relations amoureuses dans l'explication de différentes stratégies d'adaptation chez les jeunes adultes.

Votre participation implique de remplir des questionnaires en ligne par l'entremise de Survey Monkey. Plus précisément, les sujets abordés dans ces questionnaires incluent vos renseignements généraux, vos comportements d'offre de soutien dans votre relation amoureuse, votre ajustement dyadique, vos stratégies d'adaptation dyadique, vos comportements d'automutilation passés et/ou actuels, vos comportements de prise de risques, votre niveau de confiance et votre empathie au sein de votre relation, votre intimité amoureuse, votre satisfaction sexuelle ainsi que des dimensions portant sur votre sexualité, votre fonctionnement psychologique, votre estime de soi, votre modèle d'attachement amoureux, vos expériences lors de l'enfance et votre régulation des émotions. Il est important que ces questionnaires reflètent seulement votre opinion; veuillez répondre aux questions individuellement, sans consulter quelqu'un de votre entourage. Veuillez noter que des questions au contenu sensible, tel que l'exposition à l'abus durant l'enfance vous seront posées.

La complétion des questionnaires prendra environ 120 minutes. Nous vous demandons de remplir votre questionnaire en répondant à toutes les questions, sans exception, aussi honnêtement et précisément que possible, sans passer trop de temps à réfléchir. Nous vous encourageons à ne pas laisser de questions sans réponse; au lieu de cela, nous vous demandons de sélectionner la réponse qui décrit le mieux vos pensées et vos sentiments au sujet de la question particulière. Cependant, vous n'êtes pas obligés de répondre aux questions avec lesquelles vous n'êtes pas à l'aise. Votre participation à cette recherche est entièrement volontaire et vous êtes libres de cesser de répondre aux questionnaires à n'importe quel moment. En commençant à répondre aux questionnaires, vous consentez implicitement à participer à cette étude. Dès que vos réponses seront soumises, vous ne pourrez plus vous retirer de l'étude puisque vos réponses sont anonymes et que nous ne sommes pas en mesure de déterminer qu'elles sont vos réponses.

Nous vous rappelons que vous devriez pouvoir répondre aux questionnaires à l'intérieur d'une

période d'environ 120 minutes. Nous vous suggérons d'y travailler à un moment où vous ne serez pas distraits. Par contre, si vous êtes interrompus, vous pouvez fermer le serveur et remplir les questionnaires à un autre moment en utilisant le lien indiqué dans la description de l'étude sur le site du SIPR. Vos réponses seront sauvegardées jusqu'à ce que vous ayez soumis tous les questionnaires.

Si quelqu'un d'autre doit utiliser cet ordinateur afin de participer à l'étude (partenaire, amis, famille, etc.), assurez-vous d'avoir soumis les questionnaires avant. De cette façon, une copie vierge des questionnaires apparaîtra et vos réponses resteront confidentielles.

Les réponses de tous les questionnaires seront gardées confidentielles et anonymes. Les données téléchargées à partir de Survey Monkey seront sauvegardées dans des fichiers protégés sur l'ordinateur du chercheur principal. Les chercheurs ne peuvent pas assurer la confidentialité des données collectées sur Survey Monkey puisque celui-ci est un logiciel Américain et assujetti à la loi Patriot Act. Aucune copie papier des données ne sera créée. Les données seront appariées à votre code de 5 chiffres qui vous a été assigné par le SIPR et aucun identifiant personnel (numéro étudiant, adresse électronique, adresse IP) ne sera relié à vos données. Les données de tous les participants seront gardées pour une période de 10 ans après la complétion de l'étude en 2015. Tous les fichiers sauvegardés des données seront ensuite détruits de façon sécuritaire de l'ordinateur. Les données électroniques sauvegardées sur Survey Monkey seront effacées du serveur à chaque fin de session universitaire, après que les données aient été téléchargées du serveur.

Vous pouvez vivre de l'inconfort lorsque vous répondez à certaines questions. Par contre, ces inconforts seront probablement minimes et ne dureront pas plus que quelques minutes. Bien sûr, vous n'êtes pas obligé de répondre des questions spécifiques si vous n'êtes pas confortable à le faire.

En compensation de votre temps, nous ajouterons deux points à votre note de cours finale lorsque vous aurez soumis les questionnaires en ligne (seulement PSY 1101 et PSY 1501).

Si vous avez des questions ou des inquiétudes concernant l'étude, veuillez nous contacter par courriel et/ou par téléphone aux numéros énumérés ci-dessous. **Si vous souhaitez obtenir de l'aide concernant certains problèmes abordés dans les questionnaires, vous pouvez contacter le Centre de détresse d'Ottawa (613-238-3311) ou le Centre des services psychologiques de l'Université d'Ottawa (613-562-5289). Vous pouvez aussi consulter le www.esantementale.ca pour une liste détaillée des ressources disponibles sur la santé mentale dans la région d'Ottawa.** Pour de plus amples informations concernant vos droits en tant que participant(e) à une recherche, veuillez contacter le Responsable de la déontologie en recherche au 550 rue Cumberland, pièce 154, (613) 562-5387 ou ethics@uottawa.ca. Veuillez imprimer une copie de cette lettre pour vos dossiers avant de procéder. Nous vous remercions de votre participation à cette recherche.

Sincèrement,

L'équipe de recherche

Appendix D

List of Available Resources

Crisis Call Centers

Ottawa Distress Centre
(www.dcottawa.on.ca)
613-238-3311
613-722-6914
24-hr general crisis intervention.

Mental Health Crisis Line
(www.crisisline.ca)
613-722-6914 (in Ottawa)
1-866-996-0991
24-hr mental health crisis line serving individuals 16 years and older.

Ottawa Rape Crisis Centre Crisis Line
(www.orcc.net)
613-562-2333
24-hr crisis line for women experiencing current or past sexual abuse and/or assault, including childhood sexual abuse and ritual abuse.

Tel-Aide Outaouais
(www.tel-aide-outaouais.org)
613-741-6433 (Ottawa/Gatineau)
1-800-567-9699(rural)
24-hr crisis line for Francophones living in Ottawa/Gatineau region. Services available to all ages.

Le Centre d'Aide
(www.pierre-janet.qc.ca/centre24_7.htm)
819-595-9999
24-hr French distress line for Outaouais region.

Mental Health & Social Service Resources

www.ementalhealth.ca
A comprehensive online list of mental health resources available in the Ottawa-Carleton region.

Centre for Psychological Services (University of Ottawa)
613-562-5289
Offers individual therapy for adolescents and adults, couple therapy and child and family services.

University of Ottawa Student Academic Success Counselling Services

(www.sass.uottawa.ca/personal)

613-562-5800

Offers personal counselling regarding topics such as depression, anxiety, stress, self-esteem, relationships, and sexual harassment to students registered at the University of Ottawa.

Sandy Hill Community Health Centre

(www.sandyhillchc.on.ca/)

613-789-1500

Offers free individual, couple, marital and family counselling, and crisis intervention to residents of Sandy Hill.

Somerset West Community Health Centre

(www.swchc.on.ca)

613-238-8210

Offers free crisis intervention, individual counselling, women's counselling, and educational and support groups.

Centretown Community Health Centre

(www.centretownchc.org)

613-233-4443

Offers free counselling and social support services to residents of Old Ottawa South, the Glebe, and Centretown.

Family Services Ottawa

(www.familyservicesottawa.org)

613-725-3601

Offers individual, family and couples counselling, as well as support groups for women survivors of abuse.

Ottawa Academy of Psychologists

(www.ottawa-psychologists.org)

613-235-2529

Comprehensive list of registered psychologists and their specialties in the Ottawa area

Physical/Partner Abuse Support & Counselling Resources**Eastern Ottawa Resource Centre**

(www.eorc-gloucester.ca)

613-745-4818 (crisis)

613-741-6025 (business)

Women and relationship violence program, information, support, crisis and long-term counselling and referrals.

Assaulted Women's Help Line

(www.awhl.org)

1-866-863-0511 (English)

1-877-336-2433 (French)

24-hour crisis line for women in abusive situations.

Appendix E

Measure Used in Study I & II: Sociodemographic Information

SOCIO DEMOGRAPHIC INFORMATION (SD)

The following questionnaire involves gathering information with respect to your sociodemographic background. For each question, please indicate the appropriate answer.

SD1. Indicate your sex.

1 = Male

2 = Female

3= You don't have an option that applies to me.

I identify as (please specify)

_____.

SD2. What is your age, in years and months?

_____ years and _____ months

SD3a. What is your racial or ethnic background (circle as many as apply)?

1 = White/Caucasian

6 = Middle Eastern

2 = Black

7 = Native Canadian/First nations/Métis

3 = Asian

8 = Other, specify (SD3b):

4 = Latino or Hispanic

5 = Pacific Islander

SD4a. How many years have you lived in Canada?

1 = All my life

2 = Number of years _____ and months: _____ (SD4b)

SD5. Indicate the highest educational degree you have received.

1 = Primary school

3 = College

2 = High school

4 = University

SD6a. What is your main daily occupation?

1 = Blue collar (construction, factory worker, manual work, etc.)

3 = Business owner or self-employed

4 = Unemployed

5 = Student

2 = White collar (administrator, lawyer, director, office worker, salesperson, etc.)

6 = Homemaker

7 = Other, specify: _____ (SD6b)

SD7. What is your monthly personal gross revenue (before tax and deductions)?

SD8. How often (do you/does your family) have problems paying for basic necessities (like food, clothing or rent)?

1 = Never
2 = Sometimes

3 = Often
4 = Don't know

SD11a. Where do you currently live?

1 = At home with my parents
(**Skip to question SD17**)
2 = In rented accommodations
with roommates

3 = In rented accommodations with a romantic
partner
4 = In a rented accommodation by yourself
5 = In a university residence
6 = Other, please specify _____ (SD11b)

In the past year, have you consulted a mental health professional (psychologist, social worker, psychiatrist, etc.)...

SD26. ...alone?

1 = Yes
2 = No (**skip to question SD28**)

SD27. Duration of services (e.g., 1 year and 2 months):

_____ years _____ months

SD28. ...with your partner?

1 = Yes 2 = No (**skip to question SD30**) 3 = Not applicable (**skip to question SD30**)

SD29. Duration of services:

_____ years _____ months

SD30. ...with your family?

1 = Yes
2 = No (**skip to question SD32**)

SD31. Duration of services:

_____ years _____ months

SD32. Are you currently seeing a mental health professional?

1 = Yes
2 = No

SD33. Have you ever needed help from one or more Centres for partners presenting violent behaviours or one or more shelters for domestic violence victims?

1 = Yes
2 = No

SD34. At the present time, what sexual orientation would best describe you?

1 = Homosexual (man or lesbian) 3 = Bisexual
2 = Heterosexual 4 = Uncertain

SD35. Are you currently involved in a romantic relationship?

1 = Yes

2 = No

If you are not in a romantic relationship at the present time, you are not eligible for this study.

SD36. If your answer to the previous question was « yes », please specify which type of relationship best describes your current relationship.

1 = Same-sex (homosexual)

2 = Other-sex (heterosexual)

SD37. How long have you been in the current relationship, in years and months?
_____ years and _____ months

SD38. Are you currently living with your romantic partner?

1 = Yes

2 = No (**skip to question SD40a**)

SD39. If your answer to the previous question was « yes », how long have you been living with your partner, in years and months?
_____ years and _____ months

SD40a. What is your marital status?

1 = Married (**go to SD40b**)

2 = Common law

3 = Separated

4 = Divorced

5 = Single

6 = Widowed

SD40b. How long have you been married to your partner?

_____ years and _____ months

SD42. Have you and your current partner separated in the past 12 months because of conflicts in the relationship?

1 = Yes

2 = No (**skip to question SD44**)

SD43. If your answer to the previous question was « yes », evaluate the consequences of this separation on your relationship when the event occurred.

1 = extremely harmful

5 = slightly beneficial

2 = moderately harmful

6 = moderately beneficial

3 = slightly harmful

7 = extremely beneficial

4 = no consequence

In the past 12 months, have you or your partner experienced the following events? If your answer is “yes”, please indicate the person who experienced the event. Also, for each event experienced, evaluate its consequences on your romantic relationship when it occurred using the following scale.

		Extremely harmful 1	Moderately harmful 2	Slightly harmful 3	No consequence 4	Slightly beneficial 5	Moderately beneficial 6	Extremely beneficial 7
Consequences on your relationship								
SD44.	Pregnancy	1 = Yes	2 = No					
			Me ____	1	2	3	4	5 6 7
			My partner ____					
SD45.	Miscarriage	1 = Yes	2 = No					
			Me ____	1	2	3	4	5 6 7
			My partner ____					
SD46.	Abortion	1 = Yes	2 = No					
			Me ____	1	2	3	4	5 6 7
			My partner ____					
SD47.	Our Marriage	1 = Yes	2 = No	1	2	3	4	5 6 7
SD48.	Our Engagement	1 = Yes	2 = No	1	2	3	4	5 6 7
SD49.	Serious illness or accident	1 = Yes	2 = No					
			Me ____	1	2	3	4	5 6 7
			My partner ____					
			Children ____					
			Other ____					
SD50.	An affair	1 = Yes	2 = No					
			Me ____	1	2	3	4	5 6 7
			My partner ____					
SD51.	Previous Relationship Divorce	1 = Yes	2 = No					
			Me ____	1	2	3	4	5 6 7
			My partner ____					
SD52.	Death of a relative or close friend	1 = Yes	2 = No					
			Me ____	1	2	3	4	5 6 7

My partner ____							
Extremely harmful 1	Moderately harmful 2	Slightly harmful 3	No consequence 4	Slightly beneficial 5	Moderately beneficial 6	Extremely beneficial 7	
Consequences on your relationship							
SD53.	Mental Health Difficulties	1 = Yes	2 = No				
			Me ____	1	2	3	4
			My partner ____				
			Children ____				
			Other ____				
SD54.	Physical Health Difficulties	1 = Yes	2 = No				
			Me ____	1	2	3	4
			My partner ____				
			Children ____				
			Other ____				
SD55.	Chronic Pain	1 = Yes	2 = No				
			Me ____	1	2	3	4
			My partner ____				
SD56.	Other major event in past 12 months? _____	1 = Yes	2 = No				
			Me ____	1	2	3	4
			My partner ____				
			Children ____				
			Other ____				

Appendix F

Measure Used in Study I: Comprehensive Child Maltreatment Scale

COMPREHENSIVE CHILD MALTREATMENT SCALE (CCMS)

Before the age of 13, how frequently did you experience any of the following behaviours?

Please rate the frequency with which the behaviours were directed toward you by your mother, father, or other adult using the following response scale:

Never or almost never		Occasionally					Sometimes					Frequently					Very frequently				
1		2					3					4					5				
Behaviours directed to you by:		Your mother					Your father					Another adult*									
CCMS1.	Yelling at you	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5					
CCMS2.	Ridiculing, embarrassing, using sarcasm (making you feel guilty, silly or ashamed)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5					
CCMS3.	Provoking, making you afraid, using cruelty	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5					

* (any other older person, such as a step-parent, a relative, family friend, stranger, etc.)

CCMS4.	Before the age of 13, how frequently did you witness any of these behaviours listed in the previous question directed toward <u>others</u> in the family?	
	1 = Never or almost never	4 = Frequently
	2 = Occasionally	5 = Very frequently
	3 = Sometimes	

Before the age of 13, how frequently did you experience any of the following behaviours?

Please rate the frequency with which the behaviours were directed toward you by your mother, father, or other adult using the following response scale:

Never or almost never 1		Occasionally 2	Sometimes 3	Frequently 4	Very frequently 5
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Behaviours directed to you by:		Your mother					Your father					Another adult*				
CCMS5.	Physical punishment for wrongdoing (e.g., smacking, grabbing, shaking)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Never or almost never		Occasionally					Sometimes					Frequently				
1		2					3					4				
												5				

Behaviours directed to you by:		Your mother					Your father					Another adult*				
CCMS6.	Other use of violence (e.g., hitting, punching, kicking)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
CCMS7.	Severely hurting you (requiring medical attention)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

* (any other older person, such as a step-parent, a relative, family friend, stranger, etc.)

CCMS8.	Before the age of 13, how frequently did you witness any of these behaviours listed in the previous question directed toward <u>others</u> in the family?	
	1 = Never or almost never	4 = Frequently
	2 = Occasionally	5 = Very frequently
	3 = Sometimes	

Before the age of 13, how frequently did you experience any of the following behaviours?

Please rate the frequency with which the behaviours were directed toward you by your mother, father, or other adult using the following response scale:

Never or almost never	Occasionally	Sometimes	Frequently	Very frequently
1	2	3	4	5

Behaviours directed to you by:		Your mother					Your father					Another adult*				
CCMS9.	Not giving you regular	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

	meals or baths, clean clothes, or needed medical attention				
CCMS10.	Shutting you in a room alone for an extended period of time	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
CCMS11.	Ignoring your requests for attention; not speaking to you for an extended period of time	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	

Childhood sexual experiences: Many people report having had childhood sexual experiences with other children or with older people. The following questions relate only to sexual activities with older people. These 'older people' include someone who at the time was either:

- an adolescent (at least 5 years older than you); or
- an adult (18 years of age or over)

Before you turned 13, did an older person engage in any of the following types of sexual activity with you? Please rate the frequency of each type of sexual activity listed below that was directed toward you by your mother, your father, and other adults or older adolescents.

Never	Once	Twice	3 - 6 times	7 - 20 times	More than 20 times
0	1	2	3	4	5

	Behaviours directed to you by:	Your mother	Your father	Other adults or older adolescents*
CCMS12.	Requested you to do something sexual	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5
CCMS13.	Forced you to watch others having sex	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5
CCMS14.	Showed you his erect penis		0 1 2 3 4 5	0 1 2 3 4 5
CCMS15.	Touched your penis, vagina, or breasts	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5
CCMS16.	Made you touch his penis or her vagina or breasts	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5
CCMS17	Put his/her mouth/tongue on	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5

.	your penis or vagina				
CCMS18	Made you put your mouth or tongue on his penis/ her vagina	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	
CCMS19	Put his penis in your vagina or anus		0 1 2 3 4 5	0 1 2 3 4 5	
CCMS20	Put a finger in your vagina or anus	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	
CCMS21	Put other object in your vagina or anus	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	
CCMS22	Made you put your penis inside a vagina or anus	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	

* an adolescent (at least 5 years older than you); or an adult (18 years of age or over)

Used with the permission of D. J. Higgins (Higgins & McCabe, 2001).

Appendix G

Measure Used in Study I: Conflict Tactics Scales – Revised

RELATIONSHIP BEHAVIOURS (CTS2)

No matter how well a couple gets along, there are times when they disagree, get annoyed with one another, want different things from each other, or just have spats or fights because they are in a bad mood, are tired, or are upset for some other reason. Couples also have many different ways of trying to settle their differences. This is a list of things that might happen when you have differences. Some questions are about you and others are about your partner. Please indicate the response that describes how many times these things happened in the last six months, using the following rating scale. If one of these things did not happen in the last six months, but it happened before that, indicate “7”.

1 = Once in the last 6 months	5 = 11-20 times in the last 6 months
2 = Twice in the last 6 months	6 = More than 20 times in the last 6 months
3 = 3-5 times in the last 6 months	7 = Not in the last 6 months, but it happened before
4 = 6-10 times in the last 6 months	0 = This has never happened

CTS1.	I showed my partner I cared even though we disagreed.	1	2	3	4	5	6	7	0
CTS2.	<i>My partner</i> showed care for me even though we disagreed.	1	2	3	4	5	6	7	0
CTS3.	I explained my side of a disagreement to my partner.	1	2	3	4	5	6	7	0
CTS4.	<i>My partner</i> explained his or her side of a disagreement to me.	1	2	3	4	5	6	7	0
CTS5.	I insulted or swore at my partner.	1	2	3	4	5	6	7	0
CTS6.	<i>My partner</i> insulted or swore at me.	1	2	3	4	5	6	7	0
CTS7.	I threw something at my partner that could hurt.	1	2	3	4	5	6	7	0
CTS8.	<i>My partner</i> threw something at me that could hurt.	1	2	3	4	5	6	7	0
CTS9.	I twisted my partner's arm or hair.	1	2	3	4	5	6	7	0
CTS10.	<i>My partner</i> twisted my arm or hair.	1	2	3	4	5	6	7	0
CTS11.	I had a sprain, bruise, or small cut because of a fight with my partner.	1	2	3	4	5	6	7	0
CTS12.	<i>My partner</i> had a sprain, bruise, or small cut because of a fight with me.	1	2	3	4	5	6	7	0
CTS13.	I showed respect for my partner's feelings about an issue.	1	2	3	4	5	6	7	0
CTS14.	<i>My partner</i> showed respect for my feelings about an issue.	1	2	3	4	5	6	7	0

CTS15.	I made my partner have sex without a condom.	1	2	3	4	5	6	7	0
CTS16.	<i>My partner</i> made me have sex without a condom.	1	2	3	4	5	6	7	0
CTS17.	I pushed or shoved my partner.	1	2	3	4	5	6	7	0
CTS18.	<i>My partner</i> pushed or shoved me.	1	2	3	4	5	6	7	0

1 = Once in the last 6 months

5 = 11-20 times in the last 6 months

2 = Twice in the last 6 months

6 = More than 20 times in the last 6 months

3 = 3-5 times in the last 6 months

7 = Not in the last 6 months, but it happened before

4 = 6-10 times in the last 6 months

0 = This has never happened

CTS19.	I used force (like hitting, holding down, or using a weapon) to make my partner have oral or anal sex.	1	2	3	4	5	6	7	0
CTS20.	<i>My partner</i> used force to make me have oral or anal sex.	1	2	3	4	5	6	7	0
CTS21.	I used a knife or gun on my partner.	1	2	3	4	5	6	7	0
CTS22.	<i>My partner</i> used a knife or gun on me.	1	2	3	4	5	6	7	0
CTS23.	I passed out from being hit on the head by my partner in a fight.	1	2	3	4	5	6	7	0
CTS24.	<i>My partner</i> passed out from being hit on the head by me in a fight.	1	2	3	4	5	6	7	0
CTS25.	I called my partner fat or ugly.	1	2	3	4	5	6	7	0
CTS26.	<i>My partner</i> called me fat or ugly.	1	2	3	4	5	6	7	0
CTS27.	I punched or hit my partner with something that could hurt.	1	2	3	4	5	6	7	0
CTS28.	<i>My partner</i> punched or hit me with something that could hurt.	1	2	3	4	5	6	7	0
CTS29.	I destroyed something belonging to my partner.	1	2	3	4	5	6	7	0
CTS30.	<i>My partner</i> destroyed something that belonged to me.	1	2	3	4	5	6	7	0
CTS31.	I went to a doctor because of a fight with my partner.	1	2	3	4	5	6	7	0
CTS32.	<i>My partner</i> went to a doctor because of a fight with me.	1	2	3	4	5	6	7	0

CTS33.	I choked my partner.	1	2	3	4	5	6	7	0
	<i>My partner choked me.</i>	1	2	3	4	5	6	7	0
CTS34.									
CTS35.	I shouted or yelled at my partner.	1	2	3	4	5	6	7	0
	<i>My partner shouted or yelled at me.</i>	1	2	3	4	5	6	7	0
CTS36.									
CTS37.	I slammed my partner against a wall.	1	2	3	4	5	6	7	0
	<i>My partner slammed me against a wall.</i>	1	2	3	4	5	6	7	0
CTS38.									
CTS39.	I said I was sure we could work out a problem.	1	2	3	4	5	6	7	0
	<i>My partner was sure we could work it out.</i>	1	2	3	4	5	6	7	0
CTS40.									
CTS41.	I needed to see a doctor because of a fight with my partner, but I didn't.	1	2	3	4	5	6	7	0
	<i>My partner needed to see a doctor because of a fight</i>	1	2	3	4	5	6	7	0
CTS42.	<i>with me, but didn't.</i>								
1 = Once in the last 6 months 5 = 11-20 times in the last 6 months 2 = Twice in the last 6 months 6 = More than 20 times in the last 6 months 3 = 3-5 times in the last 6 months 7 = Not in the last 6 months, but it happened before 4 = 6-10 times in the last 6 months 0 = This has never happened									
CTS43.	I beat up my partner.	1	2	3	4	5	6	7	0
	<i>My partner beat me up.</i>	1	2	3	4	5	6	7	0
CTS44.									
CTS45.	I grabbed my partner.	1	2	3	4	5	6	7	0
	<i>My partner grabbed me.</i>	1	2	3	4	5	6	7	0
CTS46.									
CTS47.	I used force (like hitting, holding down, or using a weapon) to make my partner have sex.	1	2	3	4	5	6	7	0
	<i>My partner used force to make me have sex.</i>	1	2	3	4	5	6	7	0
CTS48.									
CTS49.	I stomped out of the room or house or yard during a disagreement.	1	2	3	4	5	6	7	0
	<i>My partner stomped out of the room or house or yard</i>	1	2	3	4	5	6	7	0
CTS50.	<i>during a disagreement.</i>								
	I insisted on sex when my partner did not want to (but	1	2	3	4	5	6	7	0

CTS51.	did not use physical force).								
CTS52.	<i>My partner</i> insisted that I have sex when I didn't want to (but did not use physical force).	1	2	3	4	5	6	7	0
CTS53.	I slapped my partner.	1	2	3	4	5	6	7	0
CTS54.	<i>My partner</i> slapped me.	1	2	3	4	5	6	7	0
CTS55.	I had a broken bone from a fight with my partner.	1	2	3	4	5	6	7	0
CTS56.	<i>My partner</i> had a broken bone from a fight with me.	1	2	3	4	5	6	7	0
CTS57.	I used threats to make my partner have oral or anal sex.	1	2	3	4	5	6	7	0
CTS58.	<i>My partner</i> used threats to make me have oral or anal sex.	1	2	3	4	5	6	7	0
CTS59.	I suggested a compromise to a disagreement.	1	2	3	4	5	6	7	0
CTS60.	<i>My partner</i> suggested a compromise to a disagreement.	1	2	3	4	5	6	7	0
CTS61.	I burned or scalded my partner on purpose.	1	2	3	4	5	6	7	0
CTS62.	<i>My partner</i> burned or scalded me on purpose.	1	2	3	4	5	6	7	0
CTS63.	I insisted my partner have oral or anal sex (but did not use physical force).	1	2	3	4	5	6	7	0
CTS64.	<i>My partner</i> insisted I have oral or anal sex (but did not use physical force).	1	2	3	4	5	6	7	0

1 = Once in the last 6 months

5 = 11-20 times in the last 6 months

2 = Twice in the last 6 months

6 = More than 20 times in the last 6 months

3 = 3-5 times in the last 6 months

7 = Not in the last 6 months, but it happened before

4 = 6-10 times in the last 6 months

0 = This has never happened

CTS65.	I accused my partner of being a lousy lover.	1	2	3	4	5	6	7	0
CTS66.	<i>My partner</i> accused me of being a lousy lover.	1	2	3	4	5	6	7	0
CTS67.	I did something to spite my partner.	1	2	3	4	5	6	7	0
CTS68.	<i>My partner</i> did something to spite me.	1	2	3	4	5	6	7	0

CTS69.	I threatened to hit or throw something at my partner.	1	2	3	4	5	6	7	0
CTS70.	<i>My partner</i> threatened to hit or throw something at me.	1	2	3	4	5	6	7	0
CTS71.	I felt physical pain that still hurt the next day because of a fight with my partner.	1	2	3	4	5	6	7	0
CTS72.	<i>My partner</i> still felt physical pain the next day because of a fight we had.	1	2	3	4	5	6	7	0
CTS73.	I kicked my partner.	1	2	3	4	5	6	7	0
CTS74.	<i>My partner</i> kicked me.	1	2	3	4	5	6	7	0
CTS75.	I used threats to make my partner have sex.	1	2	3	4	5	6	7	0
CTS76.	<i>My partner</i> used threats to make me have sex.	1	2	3	4	5	6	7	0
CTS77.	I agreed to try a solution to a disagreement my partner suggested.	1	2	3	4	5	6	7	0
CTS78.	<i>My partner</i> agreed to try a solution I suggested.	1	2	3	4	5	6	7	0

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Appendix H

Measure Used in Study I & II: Ottawa Self-Injury Inventory

OTTAWA SELF-INJURY INVENTORY (OSI)

Please answer the following questions according to the provided scale if requested.

How often in the past **month** have you:

	Not at all 0	At least once 1	Weekly 2	Daily 3
OSI1. Thought about injuring yourself without the intention to kill yourself?	0	1	2	3
OSI2. Actually injured yourself without the intention to kill yourself?	0	1	2	3

How often in the **past 6 months** have you:

	Not at all 0	1 – 5 times 1	Monthly 2	Weekly 3	Daily 4
OSI3. Thought about injuring yourself without the intention to kill yourself?	0	1	2	3	4
OSI4. Actually injured yourself without the intention to kill yourself?	0	1	2	3	4

How often in the **past year** have you:

	Not at all 0	1 – 5 times 1	Monthly 2	Weekly 3	Daily 4
OSI5. Thought about taking your life (Killing yourself)?	0	1	2	3	4
OSI6. Have you ever made an attempt on to take your life? 1 = Yes 2 = No (Skip to question OSI8)					
OSI7. If yes, please indicate the number of times : In the past month: _____ In the past year: _____ In the past 6 months: _____ Prior to the past year: _____					
OSI8. Have you been treated by a doctor after injuring yourself on purpose? (E.g. stitches, wound dressings, etc.) 1 = Yes 2 = No (Skip to question OSI10)					

OSI9. If yes, how often did a doctor treat you in the past year for hurting yourself on purpose?
_____ time(s)

OSI10. Have you been kept in hospital because of hurting yourself on purpose?
1 = Yes 2 = No (**Skip to question OSI13**)

OSI11. If yes, how many times in the past year did you stay overnight in emergency?
_____ time(s)

OSI12. If yes, how many times in the past year did you get admitted to a hospital unit?
_____ time(s)

If you have never thought about nor actually hurt yourself without the intent of killing yourself at any time, please skip to the next questionnaire.

If you have ever at any time thought about, but not actually hurt yourself without the intent of killing yourself please complete the following questions in this survey: OSI 15 to OSI 17, OSI 102, OSI 112, OSI 116 to OSI 120.

If you have ever at any time actually hurt yourself without the intent of killing yourself, please complete this entire questionnaire.

OSI13. How old were you when you started to self-injure?
_____ years and _____ months

OSI14. The first time you hurt yourself, where did you get the idea? (*please choose only one*)

1 = I <u>read</u> about it in a book or magazine	6 = I <u>read</u> about it on a Web blog
2 = I <u>read</u> about it on an Internet website	7 = I <u>saw</u> it happen in a movie or on TV
3 = I <u>saw</u> other people do it in a <u>non-hospital</u> setting	8 = I <u>heard</u> about it from other people in a <u>non-hospital</u> setting
4 = I <u>heard</u> about it from other people in a <u>hospital</u> setting	9 = I <u>saw</u> other people do it in a <u>hospital</u> setting
5 = It was my own idea	10 = Other : (please list) _____

When you get the urge to hurt yourself :

	Not at all 0	Very little 1	Somewhat 2	Quite a bit 3	Extremely 4
OSI15. The urge is distressing/upsetting	0	1	2	3	4
OSI16. The urge is comforting	0	1	2	3	4
OSI17. The urge is intrusive/invasive	0	1	2	3	4
OSI18. Do you only harm yourself taking drugs or alcohol?					

1 = Yes

2 = No

OSI19. Do you let other people know that you harm yourself?

1 = No one (**Skip to OSI21**)

2 = Some people

3 = Most people

OSI20. Who do you tell?

1 = Friends ____

5 = Telephone helpline ____

2 = Psychologist/psychiatrist ____

6 = Family member ____

3 = School counselor ____

7 = Family doctor ____

4 = Other Mental Health Professional ____

8 = Other : (please specify) _____

What areas of your body *did/do* you injure?*Please indicate **all areas** that apply and the area **most commonly injured**.*OSI21. When you **first started****OSI21a.**

All that apply

OSI21b.

Most frequent

1 = scalp

2 = eye(s)

3 = ear(s)

4 = face

5 = nose

6 = lips

7 = inside mouth

8 = neck/throat

9 = chest

10 = breast(s)

11 = back

12 = shoulder(s)

13 = abdomen

14 = hips/buttocks

15 = genitals

16 = rectum

17 = upper arm/elbow

18 = lower arm/wrist

19 = hand/finger(s)

20 = lower leg/ankle

21 = thigh/knee

22 = foot/toe(s)

23 = Other : _____

OSI22. **Currently** (past month if still self-injuring)**OSI22a.**

All that apply

OSI22b.

Most frequent

1 = scalp	—	—
2 = eye(s)	—	—
3 = ear(s)	—	—
4 = face	—	—
5 = nose	—	—
6 = lips	—	—
7 = inside mouth	—	—
8 = neck/throat	—	—
9 = chest	—	—
10 = breast(s)	—	—
11 = back	—	—
12 = shoulder(s)	—	—
13 = abdomen	—	—
14 = hips/buttocks	—	—
15 = genitals	—	—
16 = rectum	—	—
17 = upper arm/elbow	—	—
18 = lower arm/wrist	—	—
19 = hand/finger(s)	—	—
20 = lower leg/ankle	—	—
21 = thigh/knee	—	—
22 = foot/toe(s)	—	—
23 = Other :	—	—

How did/do you injure yourself (without the intention to kill yourself)?

Please indicate all areas that apply and the method most frequently used.

OSI23. When you **first started**

	OSI23a. All that apply	OSI23b. Most frequent
1 = cutting	—	—
2 = scratching	—	—
3 = interfering with wound healing	—	—
4 = burning	—	—
5 = biting	—	—
6 = hitting	—	—
7 = hair pulling	—	—
8 = severe nail biting and/or nail injuries	—	—
9 = piercing skin with sharp pointy objects	—	—
10 = piercing of body parts	—	—
11 = excessive use of street drugs	—	—
12 = excessive use of alcohol	—	—

13 = Trying to break bones	—	—
14 = headbanging	—	—
15 = taking too much medication		
16 = taking too little medication	—	—
17 = eating or drinking things that are not food	—	—
18 = Other : (please list)		

OSI24. **Currently** (past month if still self-injuring)

	OSI24a. All that apply	OSI24b. Most frequent
1 = cutting	—	—
2 = scratching	—	—
3 = interfering with wound healing	—	—
4 = burning	—	—
5 = biting	—	—
6 = hitting	—	—
7 = hair pulling	—	—
8 = severe nail biting and/or nail injuries	—	—
9 = piercing skin with sharp pointy objects	—	—
10 = piercing of body parts	—	—
11 = excessive use of street drugs	—	—
12 = excessive use of alcohol	—	—
13 = Trying to break bones	—	—
14 = headbanging	—	—
15 = taking too much medication	—	—
16 = taking too little medication	—	—
17 = eating or drinking things that are not food	—	—
18 = Other : (please list)	—	—

Why do you think you started and if you continue, why do you still self-injure (without the intention to kill yourself)?

Please indicate the number that best represents how much your self-injury is due to that reason according to the scale provided.

Why did you start?

Never a reason		Sometimes a reason		Always a reason
0	1	2	3	4

OSI25.	To release unbearable tension	0	1	2	3	4
OSI26.	To experience a “high” like a drug high	0	1	2	3	4
OSI27.	To stop my parents from being angry at me	0	1	2	3	4
OSI28.	To stop feeling alone and empty	0	1	2	3	4
OSI29.	To get care and attention from other people	0	1	2	3	4
OSI30.	To punish myself	0	1	2	3	4
OSI31.	To provide a sense of excitement that feels exhilarating	0	1	2	3	4
OSI32.	To relieve nervousness/fearfulness	0	1	2	3	4
OSI33.	To avoid getting in trouble for something I did	0	1	2	3	4
OSI34.	To distract me from unpleasant memories	0	1	2	3	4
OSI35.	To change my body image and/or appearance	0	1	2	3	4
OSI36.	To belong to a group	0	1	2	3	4
OSI37.	To release anger	0	1	2	3	4

		Never a reason Sometimes a reason Always a reason				
		0	1	2	3	4
OSI38.	To stop my friends/boyfriend/girlfriend from being angry with me	0	1	2	3	4
OSI39.	To show others how hurt or damaged I am	0	1	2	3	4
OSI40.	To show others how strong or tough I am	0	1	2	3	4
OSI41.	To help me escape from uncomfortable feelings or moods	0	1	2	3	4
OSI42.	To satisfy voices inside or outside me telling me to do it	0	1	2	3	4
OSI43.	To experience physical pain in one area, when the other pain I feel is unbearable	0	1	2	3	4
OSI44.	To stop people from expecting so much from me	0	1	2	3	4
OSI45.	To relieve feelings of sadness or feeling “down”	0	1	2	3	4
OSI46.	To have control in a situation where no one can influence me	0	1	2	3	4
OSI47.	To stop me from thinking about ideas of killing myself	0	1	2	3	4
OSI48.	To stop me from acting out ideas of killing myself	0	1	2	3	4

OSI49.	To produce a sense of being real when I feel numb and “unreal”	0	1	2	3	4
OSI50.	To release frustration	0	1	2	3	4
OSI51.	To get out of doing something that I don’t want to do	0	1	2	3	4
OSI52.	For no reason that I know about – it just happens sometimes	0	1	2	3	4
OSI53.	To prove to myself how much I can take	0	1	2	3	4
OSI54.	For sexual excitement	0	1	2	3	4
OSI55.	To diminish feelings of sexual arousal	0	1	2	3	4
OSI56.	I’m “addicted” to doing it	0	1	2	3	4
OSI57.	Other : (please list) _____	0	1	2	3	4

If you’re currently doing it, why are you still self-injuring yourself?

Never a reason		Sometimes a reason		Always a reason			
0	1	2	3	4			
OSI58.	To release unbearable tension	0	1	2	3	4	
OSI59.	To experience a “high” like a drug high	0	1	2	3	4	
OSI60.	To stop my parents from being angry at me	0	1	2	3	4	
OSI61.	To stop feeling alone and empty	0	1	2	3	4	
OSI62.	To get care and attention from other people	0	1	2	3	4	
OSI63.	To punish myself	0	1	2	3	4	
OSI64.	To provide a sense of excitement that feels exhilarating	0	1	2	3	4	
OSI65.	To relieve nervousness/fearfulness	0	1	2	3	4	
OSI66.	To avoid getting in trouble for something I did	0	1	2	3	4	
OSI67.	To distract me from unpleasant memories	0	1	2	3	4	
OSI68.	To change my body image and/or appearance	0	1	2	3	4	
OSI69.	To belong to a group	0	1	2	3	4	
OSI70.	To release anger	0	1	2	3	4	
OSI71.	To stop my friends/boyfriend/girlfriend from being angry with me	0	1	2	3	4	
OSI72.	To show others how hurt or damaged I am	0	1	2	3	4	
OSI73.	To show others how strong or tough I am	0	1	2	3	4	

OSI74.	To help me escape from uncomfortable feelings or moods	0	1	2	3	4
OSI75.	To satisfy voices inside or outside of me telling me to do it	0	1	2	3	4
OSI76.	To experience physical pain in one area, when the other pain I feel is unbearable	0	1	2	3	4
OSI77.	To stop people from expecting so much from me	0	1	2	3	4
OSI78.	To relieve feelings of sadness or feeling “down”	0	1	2	3	4
OSI79.	To have control in a situation where no one can influence me	0	1	2	3	4
OSI80.	To stop me from thinking about ideas of killing myself	0	1	2	3	4
OSI81.	To stop me from acting out ideas of killing myself	0	1	2	3	4
OSI82.	To produce a sense of being real when I feel numb and “unreal”	0	1	2	3	4
OSI83.	To release frustration	0	1	2	3	4
OSI84.	To get out of doing something that I don’t want to do	0	1	2	3	4
OSI85.	For no reason that I know about – it just happens sometimes	0	1	2	3	4
OSI86.	To prove to myself how much I can take	0	1	2	3	4
OSI87.	For sexual excitement	0	1	2	3	4
OSI88.	To diminish feelings of sexual arousal	0	1	2	3	4
OSI89.	I’m “addicted” to doing it.	0	1	2	3	4
OSI90.	Other : (please list) _____	0	1	2	3	4

Please answer question OSI91 according to the scale provided.

Never		Sometimes		Always
0	1	2	3	4

OSI91.	Do you feel relief after harming yourself?	0	1	2	3	4
--------	--	---	---	---	---	---

OSI92. If you do feel relief, how long does the relief last? (only choose one please)

1 = Less than 1 minute

4 = 31 to 60 minutes

2 = 1 to 5 minutes

5 = Hours

3 = 6 to 30 minutes

6 = Days

Self-injury is extremely helpful at :

Please answer question according to the scale provided.

Not at all helpful		Somewhat helpful		Extremely helpful
0	1	2	3	4

OSI104. Do you feel physical pain when you harm yourself?	0	1	2	3	4
---	---	---	---	---	---

Since you started to self-injure, have you found that:

	Never 0	1	Sometimes 2	3	Always 4
OSI105. The self-injurious behaviour occurs more often than intended?	0	1	2	3	4
OSI106. The severity in which the self-injurious behaviour occurs has increased (e.g., deeper cuts, more extensive parts of your body)?	0	1	2	3	4
OSI107. If the self-injurious behaviour produced an effect when started, you now need to self-injure more frequently or with greater intensity to produce the same effect?	0	1	2	3	4
OSI108. This behaviour or thinking about it consumes a significant amount of your time (e.g., planning and thinking about it, collecting and hiding sharp objects, doing it and recovering from it)?	0	1	2	3	4
OSI109. Despite a desire to cut down or control this behaviour, you are unable to do so?	0	1	2	3	4
OSI110. You continue this behaviour despite recognizing that it is harmful to you physically and/or emotionally?	0	1	2	3	4
OSI111. Important social, family, academic or recreational activities are given up or reduced because of this behaviour?	0	1	2	3	4

If you are trying to resist hurting yourself, what do you do instead?

*Please indicate all areas that apply and the **most helpful** thing you do to resist hurting yourself.*

OSI112.	OSI112a. All that apply	OSI112b. Most helpful
1. Never try to resist	—	—
2. Talk with someone	—	—
3. Exercise / sports	—	—
4. Reading writing, music, dance	—	—
5. Watch television, play video or computer games	—	—
6. Do things to relax (e.g., hot bath, yoga deep breathing)	—	—
7. Use alcohol and or street drugs	—	—
8. Do anything to keep hands busy	—	—
9. Other : (please list)	—	—

Please answer the question OSI113 according to the scale provided.

Not at all		Somewhat		Extremely
0	1	2	3	4

OSI113. How motivated are you at this time to stop self-injuring? 0 1 2 3 4

OSI114. What treatment(s) if any, have you received with the goal of reducing and/or eliminating your self-harm? (*choose all that apply*)

1 = I have not had a treatment
 2 = I declined treatment
 3 = Self help (e.g. self help books, Internet)
 4 = Individual therapy
 5 = School counselling
 6 = Group therapy

7 = Family therapy
 8 = Medication (please specify) :

9 = Other (please specify) :

OSI115. What treatment(s) if any, have you found the most helpful in reducing and/or eliminating Your self-harm? (*choose all that apply*)

1 = I have not had a treatment
 2 = I declined treatment
 3 = Self help (e.g. self help books, Internet)
 4 = Individual therapy
 5 = School counselling

6 = Group therapy
 7 = Family therapy
 8 = Medication (please specify) :_____

9 = Other (please specify) :_____

Please answer question OSI117 according to the scale provided

Strongly disagree		Somewhat		Strongly agree
0	1	2	3	4

OSI116. I feel that this questionnaire has fully described my experience of self injury. 0 1 2 3 4

OSI117. What information about self injury would be helpful to young people?
 for example: How to help a friend who self injures?, Where to get help? Information about self-injury from other young people?

OSI118. The best way to get information about self-injury to young people is through... (e.g., internet, school, doctors, friends, movies... etc

OSI119. Where do you get information about self-injury from?

OSI120. Is there anything else you would like to share with us regarding your self-injury behaviour?

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Appendix I

Measure Used in Study II: Short-Form Experiences in Close Relationships Questionnaire

EXPERIENCES IN CLOSE RELATIONSHIPS (ECR-12 E)

The following statements concern how you feel in romantic relationships. We are interested in how you generally experience romantic relationships, not just in what is happening in a current relationship. You can answer this questionnaire even if you're not currently in a romantic relationship. Respond to each statement by indicating how much you agree or disagree with it. Circle the number appropriate to your answer, using the following rating scale:

Strongly Disagree		Neutral/ mixed		Strongly Agree							
1	2	3	4	5	6	7					
ECR2.	I worry about being abandoned.				1	2	3	4	5	6	7
ECR6.	I worry that romantic partners won't care about me as much as I care about them.				1	2	3	4	5	6	7
ECR8.	I worry a fair amount about losing my partner.				1	2	3	4	5	6	7
ECR9.	I don't feel comfortable opening up to romantic partners.				1	2	3	4	5	6	7
ECR11.	I want to get close to my partner, but I keep pulling back.				1	2	3	4	5	6	7
ECR12.	I often want to merge completely with romantic partners, and this sometimes scares them away.				1	2	3	4	5	6	7
ECR14.	I worry about being alone.				1	2	3	4	5	6	7
ECR15.	I feel comfortable sharing my private thoughts and feelings with my partner.				1	2	3	4	5	6	7
ECR18.	I need a lot of reassurance that I am loved by my partner.				1	2	3	4	5	6	7
ECR24.	If I can't get my partner to show interest in me, I get upset or angry.				1	2	3	4	5	6	7
ECR25.	I tell my partner just about everything.				1	2	3	4	5	6	7
ECR27.	I usually discuss my problems and concerns with my partner.				1	2	3	4	5	6	7
ECR29.	I feel comfortable depending on romantic partners.				1	2	3	4	5	6	7
ECR31.	I don't mind asking romantic partners comfort, advice, or help.				1	2	3	4	5	6	7

Used with the permission of M.-F. Lafontaine (Lafontaine, Brassard, Lussier, Valois, Shaver, & Johnson, 2016).

Appendix J

Measure Used in Study II: Caregiving Questionnaire

CAREGIVING QUESTIONNAIRE (CG)

For each statement, circle the number that indicates how descriptive the statement is of you.

Not at all descriptive of me		Very descriptive of me					
1	2	3	4	5	6		
CG1.	I sometimes push my partner away when he/she reaches out for a needed hug or kiss.						1 2 3 4 5 6
CG2.	I can always tell when my partner needs comforting, even when he/she doesn't ask for it.						1 2 3 4 5 6
CG3.	I always respect my partner's ability to make his/her own decisions and solve his/her own problems.						1 2 3 4 5 6
CG4.	When my partner cries or is distressed, my first impulse is to hold or touch him/her.						1 2 3 4 5 6
CG5.	I help my partner without becoming overinvolved in his/her problems.						1 2 3 4 5 6
CG6.	Too often, I don't realize when my partner is upset or worried about something.						1 2 3 4 5 6
CG7.	When my partner is troubled or upset, I move closer to provide support and comfort.						1 2 3 4 5 6
CG8.	I'm good at knowing when my partner needs my help or support and when he/she would rather handle things alone.						1 2 3 4 5 6
CG9.	I feel comfortable holding my partner when he/she needs physical signs of support and reassurance.						1 2 3 4 5 6
CG10.	I'm not very good at 'tuning in' to my partner's needs and feelings.						1 2 3 4 5 6
CG11.	I tend to get overinvolved in my partner's problems and difficulties.						1 2 3 4 5 6
CG12.	I don't like it when my partner is needy and clings to me.						1 2 3 4 5 6
CG13.	I often end up telling my partner what to do when he/she is trying to make a decision.						1 2 3 4 5 6
CG14.	I sometimes miss the subtle signs that show how my partner is feeling.						1 2 3 4 5 6
CG15.	When necessary I can say 'no' to my partner's requests for help without feeling guilty.						1 2 3 4 5 6
CG16.	I tend to be too domineering when trying to help my partner.						1 2 3 4 5 6

CG17.	When it's important, I take care of my own needs before I try to take care of my partner's.	1	2	3	4	5	6
CG18.	I am very attentive to my partner's nonverbal signals for help and support.	1	2	3	4	5	6
CG19.	I can easily keep myself from becoming overly concerned about or overly protective of my partner.	1	2	3	4	5	6
Not at all descriptive of me		Very descriptive of me					
1		2		3		4	
		5		6			
CG20.	I'm very good about recognizing my partner's needs and feelings, even when they're different from my own.	1	2	3	4	5	6
CG21.	I can help my partner work out his/her problems without 'taking control'.	1	2	3	4	5	6
CG22.	I sometimes draw away from my partner's attempts to get a reassuring hug from me.	1	2	3	4	5	6
CG23.	I am always supportive of my partner's <i>own efforts</i> to solve his/her problems.	1	2	3	4	5	6
CG24.	I tend to take on my partner's problems – and then feel burdened by them.	1	2	3	4	5	6
CG25.	When my partner seems to want or need a hug, I'm glad to provide it.	1	2	3	4	5	6
CG26.	When I help my partner with something, I tend to want to do things 'my way'.	1	2	3	4	5	6
CG27.	I frequently get too 'wrapped up' in my partner's problems and needs.	1	2	3	4	5	6
CG28.	I sometimes 'miss' or 'misread' my partner's signals for help and understanding.	1	2	3	4	5	6
CG29.	When my partner is crying or emotionally upset, I sometimes feel like withdrawing.	1	2	3	4	5	6
CG30.	When my partner tells me about a problem, I sometimes go too far in criticizing his/her own attempts to deal with it.	1	2	3	4	5	6
CG31.	I create problems by taking on my partner's troubles as if they were my own.	1	2	3	4	5	6
CG32.	When helping my partner solve a problem, I am much more 'cooperative' than 'controlling'.	1	2	3	4	5	6

Used with the permission of P. R. Shaver (Kunce & Shaver, 1994).

Appendix K

Measure Used in Study II: New Sexual Satisfaction Scale

NEW SEXUAL SATISFACTION SCALE (NSSS)

Thinking about your sex life during the last six months, please rate your satisfaction regarding the following aspects:

Not at all satisfied	A little satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5

NSSS1. The intensity of my sexual arousal 1 2 3 4 5

NSSS2. The quality of my orgasms 1 2 3 4 5

NSSS3. My "letting go" and surrender to sexual pleasure during sex 1 2 3 4 5

NSSS4. My focused concentration during sexual activity 1 2 3 4 5

NSSS5. The way I sexually react to my partner 1 2 3 4 5

NSSS6. My body's sexual functioning 1 2 3 4 5

NSSS7. My emotional opening up during sex 1 2 3 4 5

NSSS8. My mood after sexual activity 1 2 3 4 5

NSSS9. The frequency of my orgasms 1 2 3 4 5

NSSS10. The pleasure I provide to my partner 1 2 3 4 5

NSSS11. The balance between what I give and receive in sex 1 2 3 4 5

NSSS12. My partner's emotional opening up during sex 1 2 3 4 5

NSSS13. My partner's initiation of sexual activity 1 2 3 4 5

NSSS14. My partner's ability to orgasm 1 2 3 4 5

NSSS15. My partner's surrender to sexual pleasure ("letting go")	1	2	3	4	5
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NSSS16. The way my partner takes care of my sexual needs	1	2	3	4	5
--	---	---	---	---	---

NSSS17. My partner's sexual creativity	1	2	3	4	5
--	---	---	---	---	---

NSSS18. My partner's sexual availability	1	2	3	4	5
--	---	---	---	---	---

NSSS19. The variety of my sexual activities	1	2	3	4	5
---	---	---	---	---	---

NSSS20. The frequency of my sexual activity	1	2	3	4	5
---	---	---	---	---	---

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