UNDERSTANDING THE ROLE OF EMOTION REGULATION IN DATING VIOLENCE DURING ADOLESCENCE

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A THESIS SUBMITTED TO

THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF ARTS

GRADUATE PROGRAM IN CLINICAL DEVELOPMENTAL PSYCHOLOGY

YORK UNIVERSITY

TORONTO, ONTARIO

July 2015

Abstract

The current study used cross-sectional and longitudinal designs to examine if emotion regulation strategies, cognitive reappraisal and expressive suppression, while controlling for relationship quality, were associated with dating violence perpetration in current romantic relationships and eight months later. The sample consisted of 339 adolescents (112 boys, mean age 16.21) from Time 1 and 50 adolescents (9 boys, mean age 17.02) who were followed up with eight months later at Time 2. Results indicated that cognitive reappraisal was significantly associated with physical aggression perpetration in current romantic relationships (Time 1), whereas, expressive suppression was found to be predictive of changes in physical aggression perpetration from Time 1 to Time 2. These findings were not extended to emotional/verbal aggression. The current study lends support to the importance of emotion regulation strategies in romantic relationships, specifically in relation to physical violence perpetration.

Acknowledgements

Foremost, I wish to express my sincere gratitude to my supervisor, Dr. Jennifer Connolly, for her continuous encouragement, expert guidance, and support during the entire process of my thesis. I look forward to continuing to complete interesting and impactful research with her during my doctorial studies.

I would also like to thank my committee member, Dr. Jennine Rawana for her continued mentorship during my Masters studies. Her support and insightful feedback has been instrumental to the completion of my thesis.

My sincerest thanks also extends to the rest of my thesis committee: Dr. Mary Desrocher and Dr. Hala Tamim for their interest in my research as well as their support, insightful comments and questions.

I would also like to acknowledge that financial support was provided to me by the Canadian government through the Social Sciences Research Council Scholarship as well as by the LaMarsh Centre through the LaMarsh Research Award.

Lastly, I would like to thank my family and friends for their support and encouragement throughout my studies as well as my partner who has motivated me on good days and bad and is always cheering me on.

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Romantic relationships are one of the defining features of adolescence with nearly 50% of youth in late adolescence currently in relationships (Zimmer-Gembeck, Hughes, Kelly, & Connolly, 2012). Research on adolescent romantic relationships indicates that they are important to youth across the globe in terms of social and emotional development and creating a foundation for intimacy in adulthood (Connolly, Friedlander, Pepler, Craig, & Laporte, 2010). However, adolescent dating also presents a range of challenges that youth have limited experience with, including solving conflict with the opposite sex, intimacy pressures, and the struggle of dividing attention between a partner, friends and family. Unfortunately, many adolescent relationships involve more severe challenges including aggressive and violent behaviours (Connolly et al., 2010).

Dating violence is defined as aggressive behaviours occurring within the context of a current or former romantic relationship. These aggressive behaviours are used with the intent to harm the other person and are often described as physical aggression (e.g., pushing, slapping, or shoving) and emotional/verbal aggression also called psychological aggression (e.g., humiliating, verbally abusive) (Connolly & Josephson, 2007; Foshee, Reyes, & Wyckoff, 2009). The perpetration of emotional/verbal aggression is the most common type of dating violence (Foshee & Matthew, 2007; Foshee et al., 2009a) with an estimated prevalence of 43%, while physical aggression occurs in about 7% of adolescent romantic relationships (Foshee et al., 2009a). Unlike gender differences in adult intimate partner violence, dating violence perpetration among adolescents is reported as nearly the same for men and women (Hamby, 2009; Molidor & Tolman, 1998) or greater in women than men (Archer, 2000; Foshee, 1996; Hines & Saudino, 2003; Hokoda, DelCampo, Ulloa, 2012; Katz, Kuffel, & Coblentz, 2002; Windle & Mrug, 2009).

Literature on dating violence illustrates the robust finding that adolescents who engage in dating violence in the teen years are more likely to engage in intimate partner violence in adulthood (Connolly & Josephson, 2007), making dating violence among adolescents a significant public health concern to investigate.

The high prevalence and negative trajectory of teen dating violence has sparked research in uncovering risk factors in hopes to apply this knowledge in the prevention and intervention of dating violence. It is recognized that understanding the antecedent circumstances that may put youth at risk for perpetrating dating violence is important for guiding these initiatives (Maldonado, Dilillo, & Hoffman, 2015). Furthermore, although social and cultural variables are important considerations in the prevention of dating violence, person-level variables that are proximal to episodes of dating violence are important to understand (Bogat, Levendosky, & von Eye, 2005) and address (Madonaldo et al., 2015). Poor emotion regulation is one such person-level variable that has been implicated as antecedent to aggression and dating violence (Roberton, Daffern, & Bucks, 2012; Sullivan, Helms, Kliewer, & Goodman, 2010; Shorey, Brasfield, Febres, & Stuart, 2011). Additionally, relationship quality has been explored as antecedent to dating violence, insofar as romantic relationships that contain frequent conflicts and anatognism engender a negative relationship quality and puts the couple at risk for dating violence to occur (Menesini, Nocentini, Ortega-Rivera, Sanchez, & Ortega, 2011; Orpinas, Hsieh, Song, Holland, & Nahapetyan, 2013). The current study examines the relationship between two emotion regulation strategies, specifically cognitive reappraisal and expressive suppression strategies, and dating violence, while controlling for relationship quality, in a sample of high school students who were studied both cross-sectionally and longitudinally.

Emotion Regulation Strategies

Emotions arise in situations that are important to us. They begin with an emotional-cue being attended to and processed, after which point a series of emotional responses are activated, some of which are primitive in nature (for example, flight or fight response to fear) while others are tendencies based on prior experience with these emotional cues (for example, a familiar song on the radio from childhood induces happy emotions). When emotional response tendencies are activated, they can be controlled, inhibited, or modified in different ways via emotion regulation strategies (Gross & John, 2003). In general, emotion regulation refers to all conscious and unconscious strategies used to control which emotions we feel, when we feel them, as well as how we respond to and express our emotions (Gross, 2002; Gross, 2001). Being able to effectively regulate our emotions is necessary when the emotional response tendency is not consistent with our immediate goals (for example, expressing anger by yelling is not appropriate when speaking with a teacher) (Gross, 2002).

Various emotion regulation frameworks have been proposed, however the process model of emotion regulation is one of the most commonly referenced models (Gross, 1998). This particular model distinguishes two particular processes on a temporal continuum; antecedent-focused processes and response-focused processes. Within each of these processes, many emotion regulation strategies have been suggested (Gross, 1998). Two particular strategies in this model have been operationalized and utilized in research on emotion regulation, namely cognitive reappraisal and expressive suppression (John & Gross, 2004). Cognitive reappraisal is an antecedent-focused strategy, which takes place prior to a behavioural response being fully activated and ultimately changes the emotional response trajectory. It involves reinterpreting an emotionally charged situation to illicit a different emotional response and reduce distress (John & Gross, 2004; Gross, 1998). The use of cognitive reappraisal is generally associated with

adaptive outcomes, such as positive well-being and good distress management (Aldao, Nolen-Hoeksema & Schweizer, 2010; Gross & John, 2003). Expressive suppression is functionally different from cognitive reappraisal, as it is a response-focused strategy employed after an emotional response is fully activated and requires more cognitive control when managing emotional responses. It involves inhibiting or minimizing an emotionally expressive response and experience (Gross & John, 2003; Gullone, Hughes, Kind, & Tonge, 2010). Utilizing expressive suppression is described as a maladaptive response to an emotional stressor, and is associated with depression, anxiety, low tolerance for distress, and substance use (Gross & John, 2003; Haga, Kraft, & Corby, 2009).

Gender differences in emotion regulation strategies reveal that men engage more frequently in expressive suppression, while there are no such differences for cognitive reappraisal (Gullone et al., 2010; Gross & John, 2003; Haga et al., 2009). The gender discrepancy for expressive suppression is found among adolescents and adults, and thought to be representative of gender roles in western culture expecting men to conceal their emotions more than women (Gross & John, 2003; Underwood, Coie, & Herbsman, 1992).

Emotion Regulation Among Adolescents

In the transition from childhood to adolescence, the ability to regulate emotions increases. This change has been attributed to the evolving relationship between the adolescent with their parents and peers (Fuchs, & Thelen, 1988; Zeman, Cassano, Perry-Parrish, & Stegall, 2006), insofar as adolescents begin to make decisions about which emotions to express to parents versus peers. Moreover, emotions such as shame and pride are intensified during adolescence as the acceptance of others becomes increasingly important (Zeman et al., 2006). The heightened self-consciousness that ensues may impact adolescents' expression of emotion, in that adolescents

may avoid displays of emotional outbursts and other dysregulated emotional behaviour to avoid the negative social consequences (Elkind & Bower, 1979). However, research suggests that adolescents experience more frequent and intense emotions than individuals at other stages of development (Larson & Lampman-Petraitis, 1989), which may be a product of the vast physical, hormonal, and neurological changes that take place during this developmental period. Furthermore, when adolescents are emotionally labile and have poor skills in managing these emotions, they are at risk for adverse social and emotional outcomes. Despite developmental concerns of intense, fluctuating emotions during adolescence, previous research has primarily utilized early childhood and adult samples (Gullone et al., 2010).

Emotion Regulation Strategies and Dating Violence

Emotion regulation has been long identified as a fundamental milestone in development, allowing individuals to cope with strong negative emotions and stressors in an adaptive way (Gratz, Paulson, Jakupcak, & Tull, 2009; Southam-Gerow & Kendall, 2002). When this milestone is not achieved, maladaptive ways of coping with distress ensue and can continue throughout development. While emotion dysregulation has been investigated as a potential risk factor for dating violence perpetration in adults (Gratz et al., 2009; Finkel, 2008; McNulty & Hellmuth, 2008), less research has examined which emotion regulation strategies are associated with dating violence perpetration and virtually no research as examined this relationship in adolescent samples.

Romantic relationships during adolescence are the source of frequent intense and new emotions such as jealousy and despair, which adolescents have little experience in managing (Larson, Clore, & Wood, 1999), making effective emotion regulation skills important to acquire. The strategies by which emotions are regulated are especially critical in the moments preceding

possible dating violence episodes, as they impact whether aggressive impulses are endorsed or suppressed (Finkel, 2008). Some research has begun to implicate cognitive reappraisal and expressive suppression as having important, while differing roles in violence perpetration in adult romantic relationships (Madonaldo et al., 2015; Roberton et al., 2012; Tull, Jakupcak, Paulson, & Gratz, 2007).

As previously mentioned, cognitive reappraisal is well known as an adaptive emotion regulation strategy. Likewise, it is associated with positive interpersonal outcomes (Gross, 2002; Maldonado et al., 2015) including experiencing and expressing less negative affect (Gross & John, 2003) and less desire to respond aggressively (Barlett & Anderson, 2011). In terms of aggression perpetration, it has been suggested that engaging in cognitive reappraisal essentially reduces the desire to be aggressive by decreasing the experience of negative emotions (Roberton et al., 2012). In contrast, expressive suppression is an over-regulation strategy that involves continual cognitive effort to suppress emotional-expressive behavior. For example, an individual engaging in expressive suppression may conceal expressions of anger during a conflict with a partner. Although the goal of expressive suppression is to inhibit emotional-expressive behavior (e.g., aggression), the internal experience of emotion is not inhibited. In fact, research has demonstrated that expressive suppression increases the physiological and emotional experience of negative affect (Gross, 2001; Gross & John, 2003; John & Gross, 2004) including anger (Szasz, Szentagotai, & Hofmann, 2011). Moreover, suppressing negative emotions has been suggested to reduce inhibitions and impede rational problem solving against aggression perpetration (Baumeister, 1990). Insofar as the short-term focus of expressive suppression coupled with the cognitively taxing effort to conceal immediate expressions of negative emotions restrict access to an individual's long-term goals and values (e.g., to not behave aggressively)

that may normally be activated in decision making against aggression. Thus, although individuals may engage in expressive suppression to inhibit aggressive responses to anger in the current moment, the costs of suppression including; increased internal experiences of negative emotion, poor rapid decision- making, and reduced inhibitions to aggression, may eventually compel the individual to exhibit aggressive behavior. Given previous research is limited to adult samples only, it is unknown whether the association between emotion regulation strategies and violence perpetration exists among adolescents. The current study addresses this gap by using an adolescent sample to explore how cognitive reappraisal and expressive suppression affect aggressive behaviours within romantic relationships.

Relationship Quality and Dating Violence

The relationship quality in which conflict arises is another factor that has been identified as important when understanding the circumstances preceding violence perpetration. Relationship quality is often conceptualized in terms of conflict, support, and power (Furman & Buhrmester, 2009) and describes the climate of interpersonal relations between the couple. Furthermore, poor relationship quality has been hypothesized to explain the escalation from conflict to violence (Menesini et al., 2011). In fact, several researchers have been able to demonstrate that poor relationship quality is associated with dating violence in adolescents (Orpinas et al., 2013) and young adults (Hettrich & O'Leary, 2007; Kaura & Lohman, 2007). Specifically, romantic relationships that encompass high imbalances in power, lower levels of support and frequent conflicts are more likely to contain episodes of violence (Menesini et al., 2011). Taken together, relationship quality is a well-established indicator of unhealthy relationship qualities putting adolescents at risk for dating violence. For this reason, the current study controls for relationship quality when examining the relationship between emotion

regulation strategies and dating violence.

Gaps in the Literature

Previous research has begun to illuminate associations between emotion regulation and dating violence. Yet, there are some major limitations that need to be addressed. First, previous research on emotion regulation and dating violence is limited to samples of college students and adults and the putative role of emotion regulation have not yet been explored in adolescent populations (e.g., Madonaldo et al., 2015; McNulty & Hellmuth, 2008; Shorey et al., 2011). Due to the frequency of intense emotions during adolescence, particularly in romantic relationships, it is likely that emotion regulation plays a vital role in dating violence at this time. The objectives of the current study are to examine whether emotion regulation strategies of cognitive reappraisal and expressive suppression in adolescents are associated with dating violence behaviours.

Second, previous studies have not examined the specific strategies, by which emotion dysregulation influences aggressive behaviour in romantic relationships. Rather, general categories of good emotion regulation and poor emotion regulation are used (e.g., Gratz et al., 2009; Gratz & Roemer, 2004; Shorey et al., 2011). However, by using these general categories we do not know which emotion strategies are adaptive or maladaptive in romantic relationships. Specifically, in understanding which strategies are associated with greater versus lower rates of dating violence. The current study addresses this limitation by examining the relationship between two important emotion regulation strategies; cognitive reappraisal and expressive suppression, and dating violence perpetration.

Lastly, previous research studies use cross sectional data and are therefore limited to conclusions of association (e.g., McNulty & Hellmuth, 2008; Shorey et al., 2011). Given the trajectory of dating violence from adolescence to adulthood, it is important to understand

whether the use of poor emotion regulation strategies, namely expressive suppression, is antecedent to or an outcome of dating violence. The current study seeks to address this limitation by using cross sectional data to examine the correlations between emotion regulation strategies and dating violence, as well as longitudinal data to explore the causal nature of these relationships.

The Current Study

The current study explores the relationships between emotion regulation strategies and dating violence while controlling for relationship quality using cross sectional and longitudinal designs. The following hypotheses were examined:

1) Low endorsements of Cognitive Reappraisal will be significantly associated with greater rates of both physical and emotional/verbal dating violence, over and above Positive and Negative Relationship Quality, within and across time.
2) High endorsements of Expressive Suppression will be significantly associated greater rates of both physical and emotional/verbal dating violence over and above Negative Relationship Quality, within and across time.

Methods

Participants

Participants in the current study were recruited during a high school visiting day at York University for local high schools within the GTA and York Regions. The current study utilizes cross-sectional and longitudinal designs. Time 1 (cross-sectional) pools two cohorts of participants, Cohort 1 was recruited in fall 2013 and Cohort 2 was recruited in fall 2014. Time 2 data (longitudinal) was comprised of a subset of Cohort 1 that was followed-up eight months later (Time 2). Cohort 1 and 2 were compared using independent t-tests on age, ethnicity and a

chi-square test was computed to explore differences in gender composition. No significant differences were found.

Time 1 sample initially included 753 adolescents (boys, n = 225). Inclusion criteria for the current study required that participants had to have been in a romantic relationship at the time of the survey or at any time during high school. Based on this, 414 participants were excluded from the study. The final Time 1 sample consisted of 339 adolescents (boys = 112) ages 14 to 18 (M_{age} = 16.21, SD_{age} = 0.74). Specifically, Cohort 1 consisted of 194 adolescents (boys, n = 58) ages 14 to 18 (M_{age} = 16.08, SD_{age} = 0.80) and Cohort 2 consisted of 145 adolescents (boys, n = 54) ages 15 to 18 (M_{age} = 16.39, SD_{age} = 0.60). The Time 1 sample was ethnically diverse with 18.6% born outside of Canada (see Table 1 for Time 1 sample demographics)

An electronic follow-up survey was administered to 165 students in Cohort 1 who had previously consented to participate. Of these, 16 participants did not fill out the survey after having given consent. Follow- up surveys were thus collected on 149 students. Inclusion criteria for Time 2 required a) participants to have been in a relationship at the time of the survey or at anytime during high school, b) participants had to have been included in the Time 1 sample and c) participants had filled out the CADRI. Based on this, 99 participants were excluded from the study. The final Time 2 sample (longitudinal sample) consisted of 50 participants, (boys, n = 9) ages, 15 to 18 (M_{age} = 17.02, SD_{age} = 0.74). The Time 2 sample was ethnically diverse with 20% born outside of Canada (see Table 1 for Time 2 sample demographics).

Procedures

Ethics approval was obtained from the York University Human Participants Research Council. Consent forms were sent home to parents and returned to the teacher prior to the high school visit session. Parents of students were contacted to obtain verbal consent if the hardcopy

of the consent form was not handed in during the visit. Likewise, students provided assent for their participation, however, if an assent form was not handed in, survey completion was considered passive consent for participation.

As part of an introduction to university life, students (Cohort 1) participated in a Mental Health Seminar at York University and filled out a twenty-minute pencil-and paper survey about their relationships. At that time, students were given the option to participate in a follow-up study eight months later. At the follow-up, students were contacted via email or telephone by a research assistant and invited to complete a ten-minute online confidential survey (via SurveyMonkey). Data collection was limited to a 60-day window. To encourage participation, participants who filled out the survey were entered in a draw for one of five $20.00 gift cards to Cineplex Theatres.

In a second university introduction session one year later, a second sample of high school students (Cohort 2) were surveyed at York University. Data from the two cohorts were pooled to provide a larger cross sectional sample. Similar procedures as in Cohort 1 were used with the exception that no follow-up data was collected on this sample.

Measures

Demographics. A demographic questionnaire was included to ask participants about their gender, age, ethnic background, and dating status.

Adolescent Dating Violence. Dating violence was measured by an abbreviated 48-question version of the Conflict in Adolescent Dating Relationships Inventory (CADRI; Wolfe et al., 2001) assessing emotional/verbal and physical aggression. Response choices were never (1); seldom: this has happened only 1 to 2 times (1); sometimes: this has happened about 3-5 times (2); and often: this has happened 6 times or more (3). Each question was applicable to boy and

girl respondents by including both gender pronouns (e.g., My boyfriend/ girlfriend gave reasons for his/her side of the argument). A study by Wolfe and colleagues (2001) revealed good psychometric properties of the CADRI including acceptable test-retest reliability, partner agreement, and observer ratings. The current study uses two mean scores (total number of endorsed items) of dating violence experiences across physical aggression and emotional/verbal aggression items. The internal consistency for the CADRI was Cronbach's α = .91 (Time 1) and Cronbach's α = .91 (Time 2). The internal consistency for the Physical Aggression subscale for Cronbach's α = .86 (Time 1) and Cronbach's α = .67 (Time 2). The internal consistency for the Emotional/Verbal Aggression subscale for Cronbach's α = .80 (Time 1) and Cronbach's α = .81 (Time 2).

Emotion Regulation. The Emotion Regulation Scale (ERS; Gross & John, 2003) consists of 10 questions that measure two emotion regulation strategies, namely, cognitive reappraisal and expressive suppression. The ERS dedicates six questions to the reappraisal subscale (e.g., "I control my emotions by changing the way I think about the situation I'm in") and four questions to the suppression subscale (e.g., "When I am feeling negative emotions, I make sure not to express them"). All items are rated on a Likert scale from one (strongly disagree) to seven (strongly agree). Total subscale scores for cognitive reappraisal and expressive suppression were calculated as means of subscale items in their respective subscales, with higher scores on a subscale representing more engagement in the emotion regulation strategy of that subscale. Gross and John (2003) demonstrated good psychometric properties with acceptable internal consistency and test-retest reliability for both expressive suppression and cognitive reappraisal subscales. The internal reliability for the ERS was Cronbach's α = .69 (Time 1) and Cronbach's α = .70 (Time 2). Internal reliability for the Cognitive Reappraisal

subscale was Cronbach's α = .80 (Time 1) and Cronbach's α = .84 (Time 2). Internal reliability for the Expressive Suppression subscale was Cronbach's α = .69 (Time 1) and Cronbach's α = .69 (Time 2).

Relationship Quality. Dating relationship quality was measured by the Network Relationships Inventory (NRI; Furman & Buhrmester, 1985). The measure included 15 questions that assess five relationship qualities that comprise two subscales, positive relationship quality and negative relationship quality. The three positive qualities included: companionship, reliable alliance, intimate disclosure. For example, "I feel sure that this relationship with my romantic partner will last in spite of fights". The two negative qualities included: conflict, and antagonism. For example, "My boyfriend/girlfriend and I disagree and quarrel". Items were rated on a Likert scale from one (Almost never or never true) to five (Almost always true). A study examining the psychometric properties of the NRI demonstrated high internal consistency for all scales and summary scores and moderately high stability over one year (Furman & Buhrmester, 2009). In the current study, the three positive quality items and two negative items were combined into two mean scores, positive relationship quality (positive interactions) and negative relationship quality (negative interactions) respectively. Internal consistency for the relationship quality scale was Cronbach's α = .85 (Time 1) and Cronbach's α = .76 (Time 2). The internal consistency for the positive relationship quality subscale was Cronbach's α = .89 (Time 1) and Cronbach's α = .83 (Time 2) and internal consistency for the negative relationship quality subscale was Cronbach's α = .90 (Time 1) and Cronbach's α = .90 (Time 2).

Results

Data Management

Prior to analyses, variable distributions were screened for normality and both Physical

Aggression and Emotional/Verbal CADRI composite scores for Time 1 and Time 2 data were log transformed to correct for skewness. The data was also screened for multicollinearity and the presence of outliers. Multicollinearity among variables was not present in both Time 1 and Time 2 data sets, as the variance inflation factors and condition indices were within normal limits. Leverage and Cook's Distance were examined to identify outliers and influential cases in the Time 1 and Time 2 data. There were a total of 11 outliers in the Time 1 sample and two outliers in the Time 2 sample; however Cook's Distance values were all less than one, indicating they were not influencing the analysis.

Variables central to the analyses were explored for missing data. Low percentages of missing data were found for all variables at Time 1 and Time 2. Specifically, Dating Aggression Perpetration had missing data of 2.9% at Time 1 and 2% at Time 2, Emotion Regulation had missing data of 3.5% at Time 1 and 2% at Time 2, and Relationship Quality had missing data of 3.5% at Time 1 and 2% at Time 2.

Preliminary Analyses

All analyses were conducted using IBM SPSS 21.0. Simple descriptive analyses of means, standard deviations were conducted for all variables at Time 1 and Time 2 (see Table 2). In both Time 1 and Time 2, Emotional/Verbal Aggression had the highest rates (94.7% and 90% respectively) and Physical Aggression had the lowest rates (18.9% and 10% respectively). Independent samples t-tests were conducted to compare Dating Violence Perpetration (Physical, and Emotional/Verbal) and Emotion Regulation Strategies (Cognitive Reappraisal and Expressive Suppression) in adolescent girls and boys (see Table 3). In Time 1 and Time 2, girls reported perpetrating significantly more dating violence than boys on both Physical and Emotional/Verbal Aggression subscales. No gender differences were found for emotion

regulation strategies; Cognitive Reappraisal and Expressive Suppression, at both time points.

Correlations were computed to explore the relationships amongst all variables within and across time (see Tables 4 and 5 respectively). Correlations among Time 1 variables revealed, Physical Aggression and Emotional/Verbal Aggression were significantly correlated with each other. Negative Interactions (Negative Relationship Quality) was significantly correlated with both Physical and Emotional/Verbal subtypes of Dating Violence, in that the more negative relationship quality reported, the more dating violence reported. Cognitive Reappraisal was negatively correlated with Physical Aggression only, where higher endorsement of Cognitive Reappraisal was associated with less Physical Aggression. Cognitive Reappraisal had a significant positive correlation with Positive Interactions (Positive Relationship Quality), whereas Expressive Suppression had a significant negative correlation with Positive Interactions.

Correlations were computed to explore relationships among variables across time, between Time 1 and Time 2. Correlations of dating violence variables revealed both Physical Aggression and Emotional/Verbal Aggression were stable across Time 1 and Time 2. Correlations of relationship quality variables revealed Positive and Negative interactions were stable across both time points. Lastly, correlations of emotion regulation variables revealed Expressive Suppression to be stable over time, while Cognitive Reappraisal was not.

Cognitive Reappraisal and Dating Violence Association at Time 1

Hierarchical multiple linear regression analyses were conducted to determine whether Cognitive Reappraisal was associated with adolescent's current Dating Aggression Perpetration (Physical and Emotional/Verbal) at Time 1 while controlling for Positive and Negative Interactions. In order to evaluate gender differences in Dating Violence perpetration, gender was included both as a main effect and as a moderator. In Step 1, Positive Interactions, Negative

Interactions and gender were entered. In Step 2, Cognitive Reappraisal was entered as a predictor variable. In Step 3, the interactions between gender and Cognitive Reappraisal, gender and Positive Interaction, gender and Negative Interaction, Cognitive Reappraisal and Positive Interaction, as well as Cognitive Reappraisal and Negative Interaction, were entered.

As seen in Table 6, when Physical Aggression was entered as the outcome variable, gender, Positive Interactions and Negative Interactions contributed significantly to the regression model $F(3, 317) = 10.21$, $p<.001$ and accounted for 8.8% of the variance in Physical Aggression. Both gender ($\beta = -.16$, $p < .01$) and Negative Interactions emerged as main effects ($\beta = .25$, $p < .001$). Cognitive Reappraisal was also a main effect in Step 2 ($\beta = -.11$, $p = .04$), with gender and Negative Interactions maintaining significance. The addition of Cognitive Reappraisal explained 1.2% of variation in Physical Aggression, this change in R^2 was significant $F(4, 316) = 8.80$, $p< .001$. The interaction variables were not significantly associated with Physical Aggression.

When Emotional/Verbal Aggression was entered as the outcome variable, gender, Positive Interactions and Negative Interactions contributed significantly to the regression model $F(3, 318) = 52.32$, $p<.001$ and accounted for 33% of the variance in Emotional/Verbal Aggression. Negative Interactions emerged as a main effect ($\beta = .57$, $p < .001$). The interaction variables were not significantly associated with Physical Aggression.

Expressive Suppression and Dating Violence Association at Time 1

Hierarchical multiple linear regression analyses were conducted to determine whether Expressive Suppression was associated with adolescent's current Dating Aggression Perpetration (Physical and Emotional/Verbal) at Time 1 while controlling for Negative Interactions. In order to evaluate gender differences in Dating Violence perpetration, gender was included both as a main effect and as a moderator. In Step 1, Negative Interactions and gender were entered. In

Step 2, Expressive Suppression was entered as a predictor variable. In Step 3, the interactions between gender and Expressive Suppression, gender and Negative Interactions, as well as Expressive Suppression and Negative Interactions were entered.

As seen in Table 7, Negative Interactions and gender contributed significantly to the regression model F (2, 320) = 14.34, p< .001 and accounted for 8.2% of the variance in Physical Aggression. Both gender (β = -.15 p < .01) and Negative Interactions (β = .24 p < .001) were main effects. Expressive Suppression and interaction variables were not significantly associated with Physical Aggression.

In a regression with Emotional/Verbal Aggression as the outcome variable, gender and Negative Interactions contributed significantly to the regression model (F (2, 321) = 47.89, p< .001) and accounted for 30.5% of the variance. Negative Interactions emerged as the only main effect (β = .55 p < .001).

Cognitive Reappraisal at Time 1 Predicting Dating Violence at Time 2

Hierarchical multiple linear regression analyses were conducted to determine whether Cognitive Reappraisal at Time 1 predicts adolescent's Dating Aggression Perpetration (Physical and Emotional/Verbal) at Time 2 while controlling for Positive Interactions at Time 1. In order to evaluate gender differences in Dating Violence perpetration, gender was included both as a main effect and as a moderator. In Step 1, Positive Interactions (Time 1), Negative Interactions (Time 1) and gender were entered. In Step 2, Cognitive Reappraisal (Time 1) was entered as a predictor variable. In Step 3, the interactions between gender and Cognitive Reappraisal, gender and Positive Interaction, gender and Negative Interaction, Cognitive Reappraisal and Positive Interaction, as well as Cognitive Reappraisal and Negative Interaction, were entered.

As seen in Table 8, when Physical Aggression was entered as the outcome variable, no

significant main effects or interactions were found for Physical Dating Violence Perpetration.

In a regression with Emotional/Verbal Aggression as the outcome variable, gender, Negative Interactions, and Positive Interactions contributed significantly to the regression model (F (3, 45) = 2.93, p= .04) and accounted for 16.3% of the variance. Negative Interactions emerged as the only main effect (β = .39 p < .01).

Expressive Suppression at Time 1 Predicting Dating Violence at Time 2

Hierarchical multiple linear regression analyses were conducted to determine whether Expressive Suppression at Time 1 predicts adolescent's Dating Aggression Perpetration (Physical and Emotional/Verbal) at Time 2 while controlling for Negative Interactions at Time 1. In order to evaluate gender differences in Dating Violence perpetration, gender was included both as a main effect and as a moderator. In Step 1, Negative Interactions (Time 1) and gender were entered. In Step 2 Expressive Suppression (Time 1) was entered as a predictor variable. In Step 3, the interactions between gender and Expressive Suppression, gender and Negative Interactions, as well as Expressive Suppression and Negative Interactions were entered.

As seen in Table 9, Negative Interactions (β = .27 p < .05) and Expressive Suppression (β = .37 p < .05) emerge as main effects in Step 2 in predicting Physical Aggression (F (3,45) = 4.01, p< .05). When Expressive Suppression is entered into the model, it explains an additional 1.1% of the variance in Physical Aggression. There were no significant interaction variables associated with the dependent variable.

Negative Interactions emerged as a main effect in predicting Emotion/Verbal Aggression at Time 2 (F (2, 46) = 4.01, p = .02).

Expressive Suppression at Time 1 Predicting Physical Aggression at Time 2 Controlling for Time 1 Physical Aggression

An additional hierarchical multiple regression analysis was conducted to examine whether Expressive Suppression at Time 1 predicted changes in adolescents' Physical Aggression Perpetration from Time 1 to Time 2 by controlling for initial rates of Physical Aggression at Time 1. In Step 1, Negative Interactions (Time 1), gender and Physical Aggression (Time 1) were entered. In Step 2, Expressive Suppression (Time 1) was entered. In Step 3, the interactions between gender and Expressive Suppression, gender and Negative Interactions, as well as Expressive Suppression and Negative Interactions were entered.

Results from this regression analysis revealed that Expressive Suppression was a main effect in predicting change in Physical Aggression from Time 1 to Time 2 (F (4, 44) = 4.39, $p <$ .01) after controlling for initial levels of Physical Aggression.

Discussion

The current study investigated whether the use of two emotion regulation strategies, cognitive reappraisal and expressive suppression, were associated with current and later dating violence perpetration in a cross-sectional and longitudinal sample of high school students. In partial support to the study hypotheses, cognitive reappraisal was significantly associated with physical aggression perpetration in current romantic relationships, whereas, expressive suppression was found to be predictive of changes in physical aggression perpetration from Time 1 to Time 2. However, these findings did not extend to emotional/verbal dating violence. Results from the study lend support to the importance of emotion regulation as a proximal person-level variable to physical aggression perpetration in adolescents.

Emotion Regulation Strategies and Dating Violence

The current study reports rates of dating violence that are consistent, yet elevated compared to previous research (Foshee & Matthew, 2007; Foshee et al., 2009b). The most

common type of dating violence reported in the cross-sectional sample was emotional/verbal aggression at 95% followed by physical aggression reported at 19%. Elevated rates may be due to the sensitivity of the measure used, or perhaps because the culturally diverse nature of the sample.

The current study was primarily interested in the relationship between emotion regulation and dating violence perpetration, while controlling for relationship quality, using a cross-sectional and longitudinal design. Multiple regression analyses of the cross-sectional data revealed that, after controlling for positive and negative relationship quality, low endorsement of cognitive reappraisal was associated with more physical aggression perpetration in current relationships. This finding is supported by the literature in that cognitive reappraisal is an antecedent-focused strategy, which takes place prior to a behavioural response tendency being fully activated. In changing the emotional response to a negative emotion-eliciting situation, good distress management and less aggressive behaviour are a result (Aldao et al., 2010; Gross & John, 2003). Thus, when cognitive reappraisal is not used in a conflict with a romantic partner and negative emotions (e.g., anger) are high, engaging in physical aggression is a potential outcome. However, this finding did not extend to emotional/verbal aggression, suggesting this association is unique to physical aggression specifically. In addition, the multiple regression analyses indicated that cognitive reappraisal was only a significant predictor within time and not across time, suggesting that it is not predictive of future physical aggression perpetration. While it is difficult to make speculations regarding why cognitive reappraisal did not emerge as a predictor of later physical aggression, simple correlations revealed cognitive reappraisal to be instable from Time 1 to Time 2, which may suggest that the use of cognitive reappraisal as an emotion regulation strategy may be relationship dependent rather than a fixed strategy used

across relationships. Since the number of relationships were not measured between Time 1 and Time 2 in the current study, it was not possible to explore this option; however it is a hypothesis that should be explored in future research.

While the use of expressive suppression was not associated with current dating violence perpetration in the cross-sectional data, high endorsements of expressive suppression predicted an increase in physical aggression eight months later in the longitudinal data. This association did not extend to emotional/verbal aggression, suggesting this association is unique to physical aggression. This finding supports existing literature that suggests while expressive suppression may be effective in inhibiting immediate emotional expressions; it is less effective in reducing both emotional reactions and physiological arousal over the long-term (John & Gross, 2004). One possible explanation in understanding expressive suppression as an antecedent to dating violence in adolescents is supported by the marital literature. The literature describes a phenomenon known as "stonewalling" in which, the continual suppression of emotions builds up tension in the relationship and contributes to unhealthy conflict resolution strategies on behalf of the regulator and the partner (Butler et al., 2003; Gross, 2001). These continual disruptions to interpersonal communication within the couple dynamic during "stonewalling" can plausibly lead to aggression perpetration in the future as tension builds and negative emotions fester.

Overall, the longitudinal findings must be cautiously interpreted given the small sample size of mostly girls. Moreover, given the current study did not record adolescents' dating histories within the eight month period between data collection points, we are unable to discern whether the use of expressive suppression overtime has negative effects across multiple relationships or if the use of expressive suppression provokes "stonewalling" in long-term relationships, as previously discussed. Therefore another possible explanation can be explored.

Developmentally, it is understood that adolescents date more as they get older (Connolly & Josephson, 2007), so it is conceivable that adolescents who use expressive suppressive strategies early in their dating experience, will have difficulties in adaptively mitigating conflict in their later romantic relationships when these emotion regulation strategies become entrenched. Future research should further example the longitudinal link between expressive suppression and physical aggression in adolescence especially given our understanding of the trajectory of dating violence from adolescence to adulthood.

Relationship Quality Associations with Dating Violence and Emotion Regulation

As previously discussed, the climate (or quality) of the romantic relationship is important in fostering positive or negative conflict resolution strategies in adolescents. In the current study, multiple hierarchical regressions revealed that negative relationship quality, including conflict and antagonism, was associated with both physical and emotional/verbal aggression in the cross-sectional sample and longitudinal data. Essentially, poorer relationship quality was associated with dating violence perpetration. This finding replicates previous research that has shown that poor relationship qualities such as high imbalances in power, low support, and frequent conflicts are associated with dating violence in adolescents (Menesini et al., 2011; Orpinas et al., 2013).

To date, there is no previous research examining the direct association between emotion regulation strategies and relationship quality. While, this was not the primary focus of the current study, simple correlations revealed that engaging in cognitive reappraisal was associated with greater positive relationship quality, whereas engaging in expressive suppression was associated with less positive relationship quality. Together, these findings support previous literature in describing cognitive reappraisal to be an adaptive emotion regulation strategy and expressive suppression to be maladaptive (Gross & John, 2003), particularly in romantic

relationships.

Gender Differences in Dating Violence and Emotion Regulation Strategies

Consistent with previous research, gender differences were found across physical and emotional/verbal aggression in the cross-sectional sample. Specifically, adolescent girls reported perpetrating physical and emotional/verbal aggression more than boys. Previous research has suggested that girls are more often perpetrators of dating violence as it is more social acceptable than boys perpetrating aggression against girls. Likewise, boys may be underreporting given the social sanctions of violence against women (Sears, Byers, Whelan, & Saint-Pierre, 2006). In the current study, while gender emerged as a main effect on the rate of physical aggression perpetration in current romantic relationships, it did not have a moderating effect on the association between emotion regulation strategy and dating violence perpetration.

Gender differences in emotion regulation strategies were also explored. Consistent with previous literature, the current study found that men and women do not differ on their use of cognitive reappraisal. However, while previous studies show that men more frequently engage in expressive suppression, in the current study boys and girls were comparable in their use of expressive suppression. Previous research exploring gender differences in emotion regulation strategies have utilized adult or early adolescent samples (Gross & John, 2003; Gullone et al., 2010; Haga et al., 2009). It is possible this inconsistent finding is age or relationship experience specific, in that boys and girls are more similar in their use of expressive suppression during mid-adolescence (i.e., 16 years of age) as romantic relationships develop, conflicts are frequent, and hormones peak and then diverge in adulthood with more relationship experience and less emotion fluctuation. The current study adds to the literature by suggesting that in terms of expressive suppression, adolescent boys and girls engage in this form of emotion regulation more

similarly than previously thought.

Limitations and Future Directions

Findings from the current study should be considered in the context of certain limitations. The self-report questionnaires were administered in a group setting at a high school field trip to a local university and students were seated next to their peers. The study relied on the students' honesty and willingness to answer personal questions while sitting next to their peers and potentially their romantic partners. In particular, they were required to answer questions about their perpetration of dating violence, which could have been subjectively biased. However, the rates of dating violence reported from this study are consistent but elevated compared with other research on adolescent dating violence (Foshee & Matthew, 2007; Foshee et al., 2009). These elevated rates could be due to the sensitivity of the CADRI in measuring dating violence or because adolescents filled out the survey after receiving a presentation on healthy relationships, which may have primed their memory to particular unhealthy or aggressive behaviours in their relationship. Due to restraints with school board ethics, we were unable to measure perpetration of sexual aggression, which may have contributed to the gender differences found in the data. Previous research has found that men perpetrate more sexual aggression, while women perpetrate more emotional/verbal aggression (Sears et al., 2006), therefore it would have been helpful to have a more inclusive measure of dating violence in order to achieve true gender rates of dating violence in the sample. An additional limitation is the way emotion regulation was measured in the present study, whereby measuring strategies rather than general categories of "good" and "poor" emotion regulation limits study conclusions insofar as expressive suppression is the only considered maladaptive strategy that could contribute to dating violence. Moreover, measuring two strategies of emotion regulation negates the possibility that adolescents may use

other emotion regulation strategies not measured. In addition, the current study did not include questions that would permit record keeping of which relationship adolescents' were reporting about in the Time 1 and follow-up questionnaires. It is possible that the number of romantic partners within that year and the length of each relationship influenced the emotion regulation strategies adolescents' engaged in as well as the perpetration of dating violence. Finally, conducting the follow-up data online was not ideal in recruiting the necessary sample size for the longitudinal data. Low sample size and unequal distribution of adolescent boys and girls in the longitudinal sample was a limitation for statistical power, thus caution interpreting the results was needed.

With these limitations in mind several future directions are recommended. It is recommended that future studies examining dating violence perpetration administer the survey in a more private setting, such as a school classroom or at the participant's home. Future studies should include a more general measure of emotion regulation that can examine the link between good and poor emotion regulation or multiple emotion regulation strategies and dating violence perpetration, such as, the Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004) or the Regulation of Emotions Questionnaire (Phillips & Power, 2007). It is also recommended that future studies include a question about the length of the current relationship and track which partner the student is responding about at each time point. In doing so, it will be better understood how the use of cognitive reappraisal and expressive suppression function in the same relationship versus multiple relationships over the same period of time, as it is possible that the association between emotion regulation strategies and dating violence perpetration is dependent on the relationship.

Conclusion

The current study contributes to the literature in providing support for emotion regulation strategies, namely cognitive reappraisal and expressive suppression, contributing to dating violence perpetration in adolescent relationships. Specifically, an absence of cognitive reappraisal is associated with more physical aggression in adolescents' current relationships, while engaging in more expressive suppression predicts an increase in physical aggression perpetration eight months later. Consistent with previous findings, being involved in a relationship that possesses frequent conflict and antagonism predicts dating violence perpetration. Lastly, consistent with some previous research, girls perpetrate more dating violence than boys in the current sample, while gender differences were not found in the use of cognitive reappraisal and expressive suppression.

Dating violence continues to be a profound concern for adolescents across the globe, increasing risk for mental illness, injury, and violence in adult intimate relationships. Targeting skills and strategies in effectively regulating emotions in adolescence, when emotions are frequent and intense, may help reduce rates of dating violence in adolescence and curb the trajectory of violence to adulthood.

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Appendix A: Tables

Table 1. *Demographic Characteristics of Time 1 Data (N=339) and Time 2 Data (N=50)*

	Time 1				Time 2	
	Cohort 1		Cohort 2		Cohort 1	
	n(%)	SD	n(%)	SD	n(%)	SD
Gender						
Boys	58(29.9)		54(37.2)		9(18)	
Girls	136(70.1)		91(62.8)		41 (82)	
Ethnicity						
European-Canadian	90(46.4)		36(24.8)		26(52)	
Native –Canadian	1(.5)		1(.7)		1(2)	
Asian-Canadian	44(22.7)		25(17.2)		10(20)	
African/Caribbean Canadian	6(3.1)		23(15.9)		1(2)	
South Asian-Canadian	26(13.4)		29(20.0)		7(14)	
Latin American-Canadian	2(1)		4(2.8)		1(2)	
Other or mixed	25(12.9)		25(17.2)		4(8)	
Age	16.08	.80	16.39	.60	17.02	.74

Note. N varies for each individual variable due to missing data.

Table 2. *Means and Standard Deviations for Time 1 and Time 2 Variables*

	Time 1				Time 2			
	M	*SD*	*N*	%	*M*	*SD*	*N*	%
Dating Aggression Perpetration								
Physical Aggression	1.16	0.45	64	18.9	1.06	0.19	5	10
Emotional/Verbal Aggression	1.88	0.57	321	94.7	1.75	0.51	45	90
Relationship Quality								
Positive Interactions	3.48	0.86			3.65	0.84		
Negative Interactions	3.44	0.90			3.40	0.92		
Emotion Regulation								
Cognitive Reappraisal	4.86	1.10			4.65	0.88		
Expressive Suppression	3.87	1.25			4.24	1		

Note. N varies for each individual variable due to missing data. Valid percentages are reported.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 3. *Comparing Emotion Regulation Strategies And Dating Violence Perpetration Among Girls And Boys*

	Boys		Girls		
	Mean	SD	Mean	SD	*t*-test
Time 1					
Physical Aggression	.02	.08	.06	.12	2.93***
Emotional/Verbal Aggression	.24	.12	.26	.13	1.10*
Time 1					
Cognitive Reappraisal	4.91	1.06	4.83	1.11	-.59
Expressive Suppression	3.74	1.23	3.93	1.26	1.31
Time 2					
Physical Aggression	.00	.00	.02	.06	1.15**
Emotional/Verbal Aggression	.23	.08	.26	.14	.56*
Time 2					
Cognitive Reappraisal	4.37	1.21	4.99	1.19	1.41
Expressive Suppression	2.97	1.08	4.28	1.22	2.96

*p<.05., **p<.01., *** p<.0001

Table 4. *Time 1 Correlations Among Dating Violence, Emotion Regulation Strategies, And Relationship Quality Subtypes*

	1.	2.	3.	4.	5.
Dating Violence					
1. Physical Aggression	--				
2. Emotional and Verbal Aggression	.40***				
Relationship Quality					
3. Positive Interactions	- .03	.05			
4. Negative Interactions	.24***	.54***	.09		
Emotion Regulation					
5. Cognitive Reappraisal	-.12*	-.01	.13*	.00	
6. Expressive Suppression	-.06	-.06	-.15**	-.02	-.03

*p<.05., **p<.01., *** p<.0001

Table 5. *Correlations Among Time 1 and Time 2 Dating Violence, Emotion Regulation Strategies, And Relationship Quality Subtypes Variables*

	Time 2 Variables					
Time 1 Variables	1.	2.	3.	4.	5.	6.
Dating Violence Perpetration						
1. Physical Aggression	.40***					
2. Emotional/Verbal Aggression	.30*	.52***				
Relationship Quality						
3. Positive Interactions	.10	.09	.50***			
4. Negative Interactions	.29*	.38**	.00	.34*		
Emotion Regulation						
5. Cognitive Reappraisal	.04	-.01	.02	.14	.09	
6. Expressive Suppression	.26	.16	.20	.01	.14	.51***

*p<.05., **p<.01., *** p<.0001

Table 6. *Hierarchical Regressions Predicting Relationship Aggression at Time 1 from Cognitive Reappraisal at Time 1 (N = 339)*

	Physical Aggression					*Emotional/Verbal Aggression*				
Variable	*B*	*SEB*	*β*	R^2	ΔR^2	*B*	*SEB*	*β*	R^2	ΔR^2
Step 1				.08***					.33***	
Gender	-.04	.01	-.16**			-.02	.01	-.05		
Negative Interactions	.03	.01	.25***			.08	.01	.57***		
Positive Interactions	-.01	.01	-.05			.00	.01	-.00		
Step 2				.09*	.01				.33	.00
Gender	-.04	.01	-.15**			-.02	.01	-.06		
Negative Interactions	.03	.01	.25***			.08	.01	.57***		
Positive Interactions	-.01	.01	-.04			.00	.01	-.00		
Cognitive Reappraisal	-.01	.01	-.11*			-.00	.01	-.02		
Step 3				.10	.02				.34	.01
Gender	-.06	.08	-.23			-.05	.08	-.17		
Negative Interactions	.02	.03	.17			.13	.03	.91***		
Positive Interactions	-.08	.04	-.60			.00	.04	.02		
Cognitive Reappraisal	-.03	.04	-.27			-.04	.03	-.36		
Gender X Cognitive Reappraisal	.00	.01	.02			.01	.01	.27		
Gender X Positive Interactions	.02	.02	.31			-.00	.01	-.02		
Cognitive Reappraisal X Positive Interactions	.01	.01	.59			-.00	.01	-.03		
Gender X Negative Interactions	-.02	.02	-.26			-.01	.02	-.12		
Cognitive Reappraisal X Negative Interactions	-.01	.01	-.35			.01	.01	.35		

*p<.05., **p<.01., *** p<.0001

Table 7. *Hierarchical Regressions Predicting Relationship Aggression at Time 1 from Expressive Suppression at Time 1 (N = 339)*

	Physical Aggression					*Emotional/Verbal Aggression*				
Variable	*B*	*SEB*	*β*	R^2	ΔR^2	*B*	*SEB*	*β*	R^2	ΔR^2
Step 1				.08***					.30***	
Gender	-.04	.01	-.15**			-.01	.01	-.05		
Negative Interactions	.03	.01	.24***			.08	.01	.55***		
Step 2				.08	.00				.31	.01
Gender	-.04	.01	-.15**			-.01	.01	-.04		
Negative Interactions	.03	.01	.24***			.08	.01	.55***		
Expressive Suppression	-.01	.01	-.05			-.01	.01	-.07		
Step 3				.09	.01				.31	.00
Gender	.01	.06	.03			.04	.06	.15		
Negative Interactions	.07	.03	.53*			.07	.03	.51**		
Expressive Suppression	.00	.02	.05			-.03	.02	-28		
Gender X Expressive Suppression	-.00	.01	-.09			-.01	.01	-.21		
Gender X Negative Interactions	-.01	.02	-.17			-.01	.02	-.21		
Expressive Suppression X Negative Interactions	-.01	.01	-.25			.00	.01	.12		

*p<.05., **p<.01., *** p<.0001

Table 8. *Hierarchical Regressions Predicting Relationship Aggression at Time 2 from Cognitive Reappraisal at Time 1 (N = 50)*

	Physical Aggression					*Emotional/Verbal Aggression*				
Variable	*B*	*SEB*	*β*	R^2	ΔR^2	*B*	*SEB*	*β*	R^2	ΔR^2
Step 1				.11					.16*	
Gender	-.02	.02	-.10			-.02	.04	-.06		
Negative Interactions	.02	.01	.29			.05	.02	.39**		
Positive Interactions	.01	.01	.12			.02	.02	.12		
Step 2				.11	.00				.16	.00
Gender	-.02	.02	-.10			-.02	.05	-.06		
Negative Interactions	.02	.01	.29			.05	.02	.39		
Positive Interactions	.01	.01	.12			.02	.03	.13		
Cognitive Reappraisal	.00	.01	.01			-.00	.02	-.02		
Step 3				.12	.01				.21	.05
Gender	.06	.20	.36			-.22	.39	-.68		
Negative Interactions	.05	.08	.73			-.00	.15	-.03		
Positive Interactions	.00	.09	.02			-.10	.18	-.55		
Cognitive Reappraisal	-.02	.07	-.46			.11	.14	1.03		
Gender X Cognitive Reappraisal	.00	.04	.11			-.06	.09	-1.05		
Gender X Positive Interactions	-.01	.06	-.29			.13	.12	1.64		
Cognitive Reappraisal X Positive Interactions	.01	.01	.47			-.01	.03	-.27		
Gender X Negative Interactions	-.02	.05	-.44			.01	.10	.08		
Cognitive Reappraisal X Negative Interactions	.00	.01	.12			-.01	.02	-.43		

Table 9. *Hierarchical Regressions Predicting Relationship Aggression at Time 2 from Expressive Suppression at Time 1 (N = 50)*

	Physical Aggression					*Emotional/Verbal Aggression*				
Variable	*B*	*SEB*	*β*	R^2	ΔR^2	*B*	*SEB*	*β*	R^2	ΔR^2
Step 1				.10					.15*	
Gender	-.02	.02	-.12			-.02	.04	-.07		
Negative Interactions	.02	.03	.23			.05	.02	.37**		
Step 2				.21	.11*				.19	.04
Gender	-.04	.02	-.26			-.05	.05	-.17		
Negative Interactions	.02	.01	.27*			.05	.02	.37**		
Expressive Suppression	.02	.01	.37*			.02	.01	.23		
Step 3				.25	.04				.24	.05
Gender	-.03	.09	-.17			-.20	.20	-.64		
Negative Interactions	.01	.05	.16			-.05	.10	-.41		
Expressive Suppression	.01	.03	.27			.01	.07	.07		
Gender X Expressive Suppression	.02	.02	.48			.02	.05	.31		
Gender X Negative Interactions	-.03	.04	-.59			.04	.08	.39		
Expressive Suppression X Negative Interactions	.01	.01	.77			.02	.01	.66		

*p<.05., **p<.01., *** p<.0001

Table 10. *Hierarchical Regressions Predicting a Change Physical Aggression at Time 2 from Expressive Suppression at Time 1 (N = 50)*

	Physical Aggression				
Variable	*B*	*SEB*	*β*	R^2	ΔR^2
Step 1				.16*	
Gender	-.01	.02	-.06		
Negative Interactions	.02	.01	.23		
Physical Aggression Time 1	.39	.15	.35*		
Step 2				.22	.07*
Gender	-.03	.02	-.19		
Negative Interactions	.02	.01	.27		
Physical Aggression Time 1	.32	.15	.29*		
Expressive Suppression	.01	.01	.30*		
Step 3				.21	.04
Gender	-.01	.10	-.05		
Negative Interactions	.00	.05	.06		
Physical Aggression Time 1	.32	.15	.29*		
Expressive Suppression	.00	.03	.07		
Gender X Expressive Suppression	.02	.02	.39		
Gender X Negative Interactions	-.03	.04	-.56		
Expressive Suppression X Negative Interactions	.01	.01	.82		

*p<.05

Appendix B: Measures

Demographics

ALL ABOUT ME

Please tell us a little about yourself and your family by answering the following questions.

1. How old are you now? _____ (years)

2. When is your birthday? _____ (month) _____ (day) _____ (year)

3. Please indicate your gender (check one) ☐ BOY ☐ GIRL

4. Check the box that shows how you identify yourself by race.

   ☐ European-Canadian (White)
   ☐ Native-Canadian (e.g., Native Indian)
   ☐ African/Caribbean-Canadian (Black)
   ☐ other: _____
   ☐ Asian-Canadian (e.g., Chinese, Korean)
   ☐ South-Asian Canadian (e.g., East Indian, Pakistani)
   ☐ Latin American-Canadian (e.g., Hispanic)

5. Were you born in Canada? (check one) ☐ yes ☐ no

   If "NO": A) How long have you lived in Canada? _____ (years)

   B) What country were you born in? _____

Dating Aggression: Conflict in Adolescent Dating Relationships Inventory (Wolfe et al., 2001)

Please answer the following questions about your CURRENT relationship. If you do not have one right now but have had one in high school please answer about your most recent relationship. If you have NOT had a relationship in high school please skip to page 10.
Please circle the number that is your best estimate of how often these things have happened with your current or most recent boyfriend/girlfriend during an argument in the last 6 months. As a guide, use the following scale:
Are you talking about? ☐ **Current BOY/GIRLFRIEND RIGHT NOW**
☐ **Past BOY/GIRLFRIEND**
☐ **No BOY/GIRLFRIEND in highschool → please skip to page 10**

Never: this has never happened
Seldom: this has happened only 1-2 times
Sometimes: this has happened about 3-5 times
Often: this has happened 6 or more times

During a conflict or argument in the last 6 months….	**Never**	**Seldom**	**Some-times**	**Often**
1. I gave reasons for my side of the argument.	1	2	3	4
2. My boyfriend/girlfriend gave reasons for his/her side of the argument.	1	2	3	4
3. I did something to make him/her feel jealous.	1	2	3	4
4. He/She did something to make me feel jealous.	1	2	3	4
5. I destroyed or threatened to destroy something he/she valued.	1	2	3	4
6. He/She destroyed or threatened to destroy something I valued.	1	2	3	4
7. I told him/her that I was partly to blame.	1	2	3	4
8. He/She told me that he/she was partly to blame.	1	2	3	4

9.	I brought up something bad that he/she had done in the past.	1	2	3	4
10.	He/She brought up something bad that I had done in the past.	1	2	3	4
11.	I threw something at him/her.	1	2	3	4
12.	He/She threw something at me.	1	2	3	4
13.	I said things just to make him/her angry.	1	2	3	4
14.	He/She said things just to make me angry.	1	2	3	4
15.	I gave reasons why I thought he/she was wrong.	1	2	3	4
16.	He/She gave reasons why he/she thought I was wrong.	1	2	3	4
17.	I agreed that he/she was partly right.	1	2	3	4
18.	He/She agreed that I was partly right.	1	2	3	4
19.	I spoke to him/her in a hostile or mean tone of voice.	1	2	3	4
20.	He/She spoke to me in a hostile or mean tone of voice.	1	2	3	4
21.	I offered a solution that I thought would make us both happy.	1	2	3	4
22.	He/She offered a solution that he/she thought would make us both happy.	1	2	3	4
23.	I put off talking until we calmed down.	1	2	3	4
24.	He/She put off talking until we calmed down.	1	2	3	4
25.	I insulted him/her with put-downs.	1	2	3	4
26.	He/She insulted me with put-downs.	1	2	3	4

27. I discussed the issue calmly.	1	2	3	4
28. He/She discussed the issue calmly.	1	2	3	4
29. I ridiculed or made fun of him / her in front of others.	1	2	3	4
30. He/She made fun of me in front of others.	1	2	3	4
31. I told him/her how upset I was.	1	2	3	4
32. He/She told me how upset he/she was.	1	2	3	4
33. I kept track of who he/she was with and where he/she was.	1	2	3	4
34. He/She kept track of who I was with and where I was.	1	2	3	4
35. I blamed him/her for the problem.	1	2	3	4
36. He/She blamed me for the problem.	1	2	3	4
37. I kicked, hit or punched him/her.	1	2	3	4
38. He/She kicked, hit, or punched me.	1	2	3	4
39. I left the room to cool down.	1	2	3	4
40. He/She left the room to cool down.	1	2	3	4
41. I gave in, just to avoid conflict.	1	2	3	4
42. He/She gave in, just to avoid conflict.	1	2	3	4

43. I accused him/her of flirting with another boy or girl.	1	2	3	4
44. He/She accused me of flirting with another boy or girl.	1	2	3	4
45. I deliberately tried to frighten him/her.	1	2	3	4
46. He/She deliberately tried to frighten me.	1	2	3	4
47. I slapped him /her or pulled his/her hair.	1	2	3	4
48. He/She slapped me or pulled my hair.	1	2	3	4
49. I threatened to hurt him/her.	1	2	3	4
50. He/She threatened to hurt me.	1	2	3	4
51. I threatened to end the relationship.	1	2	3	4
52. He/She threatened to end the relationship.	1	2	3	4
53. I threatened to hit him/her or throw something at him/her.	1	2	3	4
54. He/She threatened to hit me or throw something at me.	1	2	3	4
55. I pushed, shoved, or shook him/her.	1	2	3	4
56. He/She pushed, shoved, or shook me.	1	2	3	4

Emotion Regulation Scale (Gross & John, 2003)

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. Based on the last **6 months**, please make a check mark in the column that describes you best:

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Not Applicable
	1	2	3	4	5	6	7	
1. When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.								
2. I keep my emotions to myself.								
3. When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.								
4. When I am feeling *positive* emotions, I am careful not to express them.								
5. When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.								
6. I control my emotions by *not expressing them*.								

7. When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.								
8. I control my emotions by *changing the way I think* about the situation I'm in.								
9. When I am feeling *negative* emotions, I make sure not to express them.								
10. When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.								

Dating Relationship Quality: Network of Relationship Inventory (Furman & Buhrmester, 1985)

Please answer the following questions about your CURRENT relationship. If you do not have one right now but have had one in high school please answer about your MOST RECENT relationship. If you have NOT had a relationship in high school please skip to PAGE 10.

	Never True	Seldom true	Sometimes true	Often true	Always True
1. I spend free time with my boyfriend/girlfriend.	1	2	3	4	5
2. My boyfriend/girlfriend and I get on each other's nerves.	1	2	3	4	5
3. I feel sure that this relationship with my romantic partner will last no matter what.	1	2	3	4	5
4. I play around and have fun with my romantic partner.	1	2	3	4	5
5. I get upset or mad at my boyfriend/girlfriend.	1	2	3	4	5
6. I feel sure that this relationship with my romantic partner will last in spite of fights.	1	2	3	4	5
7. I tell my boyfriend/girlfriend everything.	1	2	3	4	5
8. My boyfriend/girlfriend and I disagree and quarrel.	1	2	3	4	5
9. My boyfriend/girlfriend and I get annoyed with each other's behavior.	1	2	3	4	5

10. I share my secrets and private feelings with my boyfriend/girlfriend.	1	2	3	4	5
11. I feel sure that this relationship with my romantic partner will continue in the years to come.	1	2	3	4	5
12. I talk to my boyfriend/girlfriend about things that I don't want others to know.	1	2	3	4	5
13. I go places and do enjoyable things with my boyfriend/girlfriend.	1	2	3	4	5
14. My boyfriend/girlfriend and I argue with each other.	1	2	3	4	5
15. My boyfriend/girlfriend and I hassle or nag one another.	1	2	3	4	5