

PERCEIVE ME, PERCEIVE YOU: THE MEDIATING ROLE  
OF ATTRIBUTIONAL BIASES BETWEEN ATTACHMENT AND  
RELATIONAL AGGRESSION

A Thesis Submitted to the Committee of Graduate Studies in Partial Fulfillment of the  
Requirements for the Degree of Master of Science in the Faculty of Arts and Science

TRENT UNIVERSITY

Peterborough, Ontario, Canada

© Copyright by Ghinwa El-Ariss 2019

Psychology MSc Graduate Program

September 2019

## **ABSTRACT**

Perceive Me, Perceive You: The Mediating Role of Attributional Biases Between

Attachment and Relational Aggression

Ghinwa El-Ariss

The use of threats to feelings of intimacy and belonging, also known as relational aggression, has been previously explained using attachment representations and attributions in childhood. However, the combined role of attachment representations and attributions in explaining relational aggression in adult peer and romantic relationships has been unexplored. This study tested the associations between attachment, attributions, and relational aggression with a specific focus on the mediating role of attributions. A final sample of 258 undergraduate university students completed self-report surveys and vignettes to measure the variables of interest. Results suggested that attachment predicted relational aggression but, with one exception, attributions did not explain unique variance in relational aggression after controlling for attachment. Interestingly, hostile attributions mediated the relationship between dismissing attachment to romantic partners and romantic relational aggression. Therefore, individuals' attachment representations directly influenced their levels of relational aggression in relationships regardless of their attributions.

Key words: attachment, attributions, relational aggression, mediation, adulthood

## **Acknowledgements**

I would like to start by thanking my supervisor and mentor, Dr. Elaine Scharfe, for her constant support and guidance throughout the duration of my graduate studies. I would not be writing this acknowledgements section had it not been for Dr. Scharfe's belief in my potential as a graduate student. Before being admitted into the graduate program, it was my dream to present research material at a conference. Thanks to the opportunities presented to me by Dr. Scharfe, I have now accomplished my dream three times.

I would also like to thank my committee member, Dr. Geoff Navara, for his insights during our committee meetings.

I would also like to thank the Department of Psychology and the School of Graduate Studies at Trent University for funding my research through the Graduate Teaching Assistant program.

Last but certainly not least, I would like to thank my parents, my sister, and my grandmother for their constant support throughout my university years. I would not have made it this far in my academic career had it not been for their constant support in every way.

## Table of Contents

Abstract .....	ii
Acknowledgements .....	iii
Table of Contents .....	iv
List of Figures .....	vi
List of Tables .....	vii
List of Appendices .....	viii
Introduction.....	1
Relational Aggression .....	1
The Four Category Model of Attachment .....	5
Attachment and Relational Aggression.....	10
Attributional Biases.....	11
Attachment, Attributional Biases, and Relational Aggression.....	13
The Present Study.....	15
Hypotheses .....	18
Method .....	21
Participants .....	21
Procedure.....	23
Measures.....	24
Results.....	30

Correlation Analyses .....	32
Mediation Analyses.....	34
Attachment, Hostile Attributions, and Relational Aggression (SRASBM) .....	36
Attachment, Benign Attributions, and Relational Aggression (SRASBM) .....	39
Attachment, Hostile Attributions, and Relational Aggression (SIP-AEQ).....	40
Attachment, Benign Attributions, and Relational Aggression (SIP-AEQ).....	45
Discussion .....	47
Peer Attachment and Proactive Relational Aggression .....	47
Peer Attachment and Reactive Relational Aggression.....	49
Romantic Partner Attachment and Romantic Relational Aggression .....	50
The Role of Dismissing Attachment in Romantic Relationships.....	53
Comparing the SRASBM and the Follow-Up Questions after the SIP-AEQ.....	53
Extension of Previous Research.....	56
Limitations and Future Directions.....	58
Appendices.....	72

## List of Figures

Figure	Description
1	The four category model of attachment (Bartholomew, 1990).....6
2	Attributional biases as a mediator of the relationship between attachment and relational aggression. ....19

## List of Tables

Table	Description
1	Participant Demographic Information .....22
2	Means, Standard Deviations, Reliability Coefficients, and z-scores of the T-RSQ (peer and romantic partner), SRASBM, and SIP-AEQ.....26
3	Correlations between the T-RSQ, SRASBM, and SIP-AEQ.....31
4	Hostile Attributions as a Mediator between Attachment and Relational Aggression (measured using the SRASBM).....37
5	Benign Attributions as a Mediator between Attachment and Relational Aggression (measured using the SRASBM).....41
6	Hostile Attributions as a Mediator between Attachment and Relational Aggression (measured using the SIP-AEQ vignettes) .....42
7	Benign Attributions as a Mediator between Attachment and Relational Aggression (measured using the SIP-AEQ vignettes) .....46

## List of Appendices

Appendix	Description	
A	Information and Consent Form.....	72
B	Demographic Questionnaire .....	74
C	Trent Relationship Scales Questionnaire (Peer) .....	75
D	Trent Relationship Scales Questionnaire (Romantic Partner) .....	77
E	Self-Report of Aggression and Social Behavior Measure .....	79
F	Social Information Processing-Attribution and Emotional Response Questionnaire .....	81
G	Participant Feedback Form .....	89

## **Introduction**

Bowlby (1969) proposed that early relationships with parental figures form individuals' attachment representations. These attachment representations distort the way that individuals process information in their social environment, which ultimately impacts their behaviour (Bowlby, 1980, 1988). Dodge (2006) proposed that early attachment representations may shape the trajectory of future attributions, which may in turn influence the incidence of aggressive behaviour. Specifically, secure attachment to responsive parental figures aids individuals in learning how to explain the behaviour of others in a benevolent manner (i.e., make benign attributions), which is likely to decrease the incidence of aggressive behaviour. In contrast, insecure attachment to parental figures may lead individuals to explain the behaviour of others in an unfriendly manner (i.e., make hostile attributions), which is likely to increase the incidence of aggressive behaviour (Dodge, 2006). Correspondingly, in adulthood, hostile attributions have been consistently used to explain relational aggression (e.g., Bailey & Ostrov, 2008; Chen, Coccaro, & Jacobson, 2012; Coccaro, Fanning, & Lee, 2017; Coccaro, Noblett, & McCloskey, 2009). However, to my knowledge, the role of attachment to peers and romantic partners (who are increasingly important social partners in adulthood; Dahlen, Czar, Prather, & Dyess, 2013) in shaping attributions and influencing relational aggression has not been explored. In this study, I investigated these associations with a specific focus on whether attributions mediated the association between attachment and relational aggression in adulthood.

## **Relational Aggression**

Relational aggression involves causing harm to other individuals by

manipulating or damaging, or threatening to manipulate or damage, their social relationships (Crick & Grotpeter, 1995). Researchers have identified three subtypes of relational aggression in adulthood — peer-directed proactive, peer-directed reactive, and romantic (Murray-Close, Ostrov, Nelson, Crick, & Coccaro, 2010). Peer-directed proactive relational aggression consists of planned aggressive behaviours that are used to fulfill a desired goal, whereas peer-directed reactive relational aggression consists of aggressive behaviours that are impulsive, hostile, and reactions to perceived threats (Crick & Dodge, 1996; Murray-Close et al., 2010). Romantic relational aggression occurs in romantic relationships and, similar to the peer-directed subtypes, could be driven by proactive and reactive functions (Murray-Close et al., 2010). Despite these different functions, romantic relational aggression is typically measured as one construct (e.g., Goldstein, Chesir-Teran, & McFaul, 2008; Linder, Crick, & Collins, 2002; Murray-Close et al., 2010). In all of its subtypes, relational aggression consists of behaviours that threaten feelings of belonging in social relationships (Murray-Close et al., 2010).

Researchers have consistently cited relationship-threatening behaviours such as social exclusion, spreading rumours, and purposely ignoring others (typically used to describe relational aggression in childhood; Crick & Grotpeter, 1995) to describe relational aggression in adult peer relationships (e.g., Loudin, Loukas, & Robinson, 2003; Murray-Close et al., 2010; Werner & Crick, 1999). Werner and Crick (1999) provided the first evidence of the negative social and psychological impacts of relational aggression in peer relationships in adulthood. Using self-report surveys and peer-nomination measures in a sample of college students, they found relational

aggression to be positively associated with peer rejection, impulsivity, antisocial behaviours, and unfavourable relationships. Subsequent research has identified social and psychological factors that may perpetuate relational aggression in adulthood.

Due to the interpersonal nature of relational aggression, past research has emphasized the importance of feelings about the self and others as precursors of this form of aggression. For example, college students who reported feeling positive about themselves and feeling valued by their peers engaged in less relational aggression (Weber & Kurpius, 2011). Conversely, college students who reported using high levels of relational aggression in their peer relationships also reported lower self-esteem and not feeling valued by their peers (Weber & Kurpius, 2011). Similarly, young adults who feared negative evaluations from their peers reported engaging in high levels of relational aggression in their peer relationships (Loudin et al., 2003). It may be that individuals who feared negative evaluations used relational aggression to exclude peers who were likely to negatively evaluate them from their social circle (Loudin et al., 2003). These findings present some of the factors that may influence the incidence of relational aggression. However, it is unclear if the findings would have changed had the different subtypes of aggression been measured.

In addition to the peer-directed subtypes of relational aggression, romantic relationships have been targets of relational aggression in adulthood (Linder et al., 2002). Romantic relational aggression is characterized by shaming or deceiving the romantic partner (Bagner, Storch, & Preston, 2007; Carroll et al., 2010), flirting with other individuals to make the partner jealous, cheating on the partner as a form of revenge (Goldstein et al., 2008), threatening the partner's inclusion in the dyad or in

other social relationships (Oka, Sandberg, Bradford, & Brown, 2014), or as a strategy to adjust the level of intimacy in the relationship (Carroll et al., 2010; Goldstein et al., 2008). Carroll et al. (2010) proposed that romantic relational aggression may also involve love withdrawal (i.e., the refusal to be physically, emotionally, or sexually intimate with the partner as a form of harm) and social sabotage (i.e., spreading rumours about the partner). Interestingly, researchers have suggested that relational aggression may be fairly common in romantic relationships (Carroll et al., 2010), and may be more common in romantic relationships than in peer relationships in adulthood (Goldstein, 2011).

Due to the importance of both peer and romantic relationships in young adults' lives, Goldstein (2011) studied variables that may predict relational aggression in these relationship contexts. Individuals who reported using relational aggression also reported being in exclusive peer and romantic relationships (i.e., relationships in which individuals report feeling bothered when their social partners are involved in other social relationships) and reported believing that relational aggression was acceptable. Goldstein's (2011) results supported the findings of previous empirical studies: Female college students who reported using reactive relational aggression in their peer relationships favoured exclusivity in those relationships (cf. Lento-Zwolinski, 2007). Similarly, young adults who reported using romantic relational aggression reported being clingy, low on trust, and favoured exclusivity and closeness in romantic relationships (cf. Linder et al., 2002). Accordingly, similar variables predicted relational aggression in peer and romantic relationships (Goldstein, 2011).

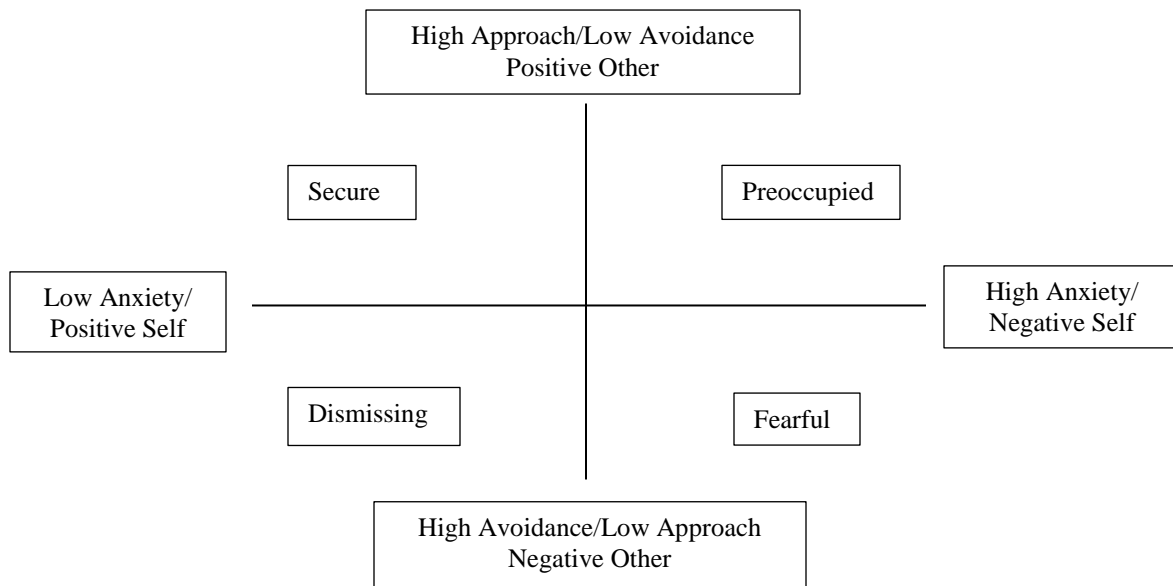
In addition to feelings about the self and social partners in peer and romantic

relationships, individuals' parental relationships were found to influence the use of relational aggression in adult romantic relationships (Linder et al., 2002). Individuals who reported feeling angry at their mothers and not feeling understood or given enough attention by their mothers, and individuals who reported being over-involved with their fathers, reported using romantic relational aggression in their romantic relationships. The researchers proposed that these individuals may have used relational aggression to adjust the intimacy levels in their romantic relationships because they did not learn to efficiently communicate intimacy needs in childhood. This is a plausible explanation since early interactions with parents have been found to predispose individuals to think and act in certain ways in their future social relationships (Bowlby, 1969).

### **The Four Category Model of Attachment**

Bowlby (1969/1988) demonstrated the universality of infants' tendency to form close relationships with their caregivers. The importance of these relationships is especially pronounced when infants feel threatened by internal (e.g., disease, hunger) or external (e.g., strangers, noise) factors. The quality of early relationships provides the basis for the development of internal working models of self and others (Bowlby, 1969, 1988). Favourable interactions with parents allow infants to see themselves as worthy of love and care (positive model of self) and may help them see others as responsive and trustworthy (positive model of others). Conversely, unfavourable interactions with parents may instill beliefs that the self is unworthy of love or care (negative model of self) and that others may be unresponsive and not trustworthy (negative model of others). The working models of self and others are likely to persist

into adulthood and influence the way that individuals think and behave in their social relationships. Based on the quality of close relationships, Bartholomew (1990) combined the internal working models to form four attachment styles — secure, fearful, preoccupied, and dismissing (see Figure 1).



*Figure 1.* The four category model of attachment (Bartholomew, 1990).

Secure attachment is characterized by high social competence in close relationships (Adamczyk & Pilarska, 2012). Secure individuals have positive models of self (low anxiety) and others (low avoidance) which enable them to skillfully balance intimacy and independence in their relationships (Bartholomew & Horowitz, 1991). Accordingly, secure individuals typically report low levels of jealousy (Wegner, Roy, Gorman, & Ferguson, 2018) and high levels of satisfaction in romantic relationships (Collins & Feeney, 2004; Marrero-Quevedo, Blanco-Hernández, & Hernández-Cabrera, 2018). Furthermore, secure individuals report feeling safe in their relationships and are capable of constructively dealing with their romantic partner's

negative emotions (Feeney & Noller, 1996). Specifically, secure individuals reported using constructive strategies and avoiding destructive strategies in response to their partner's transgressions (Scharfe & Bartholomew, 1995). During times of relational conflict, secure individuals reported compromising and supporting their partners (Feeney, Noller, & Callan, 1994). Therefore, secure attachment may act as a buffer which reduces individuals' need to become defensive after receiving negative interpersonal feedback (Foster, Kernis, & Goldman, 2007; Mikulincer & Shaver, 2005).

Fearful individuals have negative models of self (high anxiety) and others (high avoidance) which characterize their lack of trust in themselves and others (Fitzpatrick & Lafontaine, 2017). Accordingly, fearful individuals maintain emotional distance from others due to fear of rejection; hence, they are unlikely to seek their social partners even when distressed (Bartholomew, 1990; Bartholomew & Horowitz, 1991). As a result of the lack of balance in their relationship dynamics, fearful individuals were found to occupy a submissive role in their friendships and romantic relationships (Bartholomew & Horowitz, 1991). When dealing with a romantic partner's negative behaviour, fearful attachment was associated with the use of destructive strategies and the inhibition of constructive strategies (Scharfe & Bartholomew, 1995). In addition to reporting feelings of jealousy in their romantic relationships, fearful individuals reported using jealousy-provoking behaviours: The intention was to punish a partner for not meeting their needs or to move on from the relationship before the partner does (Wegner et al., 2018). As demonstrated in previous research, fearful individuals exhibit low levels of emotional sensitivity in

their romantic relationships due to their focus on their own attachment fears and their disregard of their romantic partner's feelings (Adamczyk & Pilarska, 2012; Mikulincer & Shaver, 2007).

Preoccupied individuals resemble fearful individuals in their negative view of self (high anxiety). Unlike fearful individuals, preoccupied individuals have a positive view of others (low avoidance) which explains their obsessive desire for and pursuit of intimacy (Bartholomew & Horowitz, 1991). Consequently, preoccupied individuals determine their self-worth based on how much other individuals accept them. This increases their anxiety about being abandoned and increases their need to seek closeness in their social relationships (Bartholomew & Horowitz, 1991). Preoccupied individuals typically make their social needs known to others (e.g., elaborately self-disclose thoughts and express emotions) and seek support from their social partners during times of distress (Bartholomew & Horowitz, 1991). Due to the demonstrated importance of intimate relationships for their well-being, preoccupied individuals are typically hypervigilant to potential threats to their relationships and have strong reactions to those threats (Bartholomew & Horowitz, 1991). As a result, preoccupied individuals reported perceiving the presence of conflict despite their social partners' favourable behaviour (Campbell, Simpson, Boldry, & Kashy, 2005). Moreover, preoccupied individuals reported experiencing feelings of jealousy and engaging in jealousy-provoking behaviours in their romantic relationships (Wegner et al., 2018). The goal of jealousy-provoking behaviours was to boost self-esteem, test the strength of the relationship, seek revenge from the partner, or control the partner (Mattingly, Whitson, & Mattingly, 2012). During times of conflict, preoccupied attachment was

found to be positively associated with active confrontational responses and negatively associated with neglect of conflict (Scharfe & Bartholomew, 1995).

Reducing the emphasis on intimate relationships, dismissing individuals value their independence and neither desire nor pursue intimacy — this can be explained by their positive model of self (low anxiety) and negative model of others (high avoidance; Bartholomew, 1990; Bartholomew & Horowitz, 1991). Dismissing individuals were rated as high in hostility by their peers; the hostility that manifested in peer relationships was suggested to be an anger outlet resulting from unsatisfied attachment needs (Bartholomew, 1990; Kobak & Sceery, 1988). Furthermore, self-reports and peer-reports demonstrated that dismissing attachment was associated with being emotionally cold and unexpressive (Bartholomew & Horowitz, 1991). In addition to reporting being uninvolved in their romantic relationships (Bartholomew & Horowitz, 1991), dismissing individuals reported not experiencing jealousy in their relationships (Wegner et al., 2018) and withdrew from their partners during conflict (Wilson, Gardner, Brosi, Topham, & Busby, 2013).

As demonstrated in previous research, individuals with different attachment styles tend to behave differently in their social relationships (Feeney & Noller, 1996). Since attachment representations are especially pronounced during times of distress (Bowlby, 1969), they may help understand how individuals explain the behaviours of others during a relational provocation. Attachment representations may also help explain why some individuals use relationship-threatening behaviours during times of relational conflict. Interestingly, previous research has demonstrated that behaviours typically used to threaten individuals' feelings of inclusion in social relationships have

been found to threaten core attachment needs, such as acceptance, intimacy, and belonging (Carroll et al., 2010; Oka et al., 2014).

### **Attachment and Relational Aggression**

Secure attachment is typically associated with higher levels of psychological well-being and healthier social relationships than insecure attachment (Marrero-Quevedo et al., 2018). Secure individuals trust their partners, feel safe in their relationships, and believe that they are worthy of care and that their partners are responsive and trustworthy (Bartholomew, 1990; Bartholomew & Horowitz, 1991). Consequently, secure individuals are less likely to feel threatened by their romantic partners' negative behaviours and are more likely to deal with these behaviours in a constructive manner (Feeney & Noller, 1996). These constructive responses are likely to decrease the use of relational aggression in the relationship (Wilson et al., 2013). Conversely, insecure individuals are likely to feel threatened in their relationships (Bartholomew, 1990); as a result, they may react to perceived threats by using relational aggression towards their romantic partners (Wilson et al., 2013).

Empirical studies on romantic relationships have demonstrated that individuals who reported being insecurely attached to their romantic partners had a higher likelihood of engaging in relational aggression against their partners (e.g., Goldstein et al., 2008) and perceiving their partners as more relationally aggressive towards them (e.g., Oka, Brown, & Miller, 2016). Goldstein et al. (2008) measured the extent to which individuals were anxiously and avoidantly attached to their romantic partner using the Experiences in Close Relationships (ECR; Brennan, Clark, & Shaver, 1998), the exclusivity of the romantic relationship (higher exclusivity measured by higher

likelihood of individuals being bothered by their partner's participation in other social relationships), and the prevalence of romantic relational aggression. Interestingly, the perpetrators of romantic relational aggression reported being involved in exclusive relationships and described their relationships using anxious attachment terms (Goldstein et al., 2008). Oka et al. (2016) found that individuals who reported higher levels of insecure attachment to their romantic partners (measured using the ECR) reported perceiving their partners as more relationally aggressive towards them.

Research linking attachment to peers with relational aggression in adulthood is lacking. Most research on the correlates of relational aggression in peer relationships has emphasized the importance of social and psychological factors in explaining relational aggression. For example, peer-directed relational aggression was positively associated with anxiety (Dahlen et al., 2013; Storch, Bagner, Geffken, & Baumeister, 2004), loneliness (Storch et al., 2004), and a desire for exclusive (i.e., preference for one-on-one) social relationships (Goldstein, 2011). Fear of being negatively evaluated by peers was a predictor of peer-directed relational aggression (Loudin et al., 2003), whereas feeling valued by peers and having high self-esteem was negatively associated with peer-directed relational aggression (Weber & Kurpius, 2011). Despite the unchallenged importance of relationship dynamics in the incidence of relational aggression, no prior studies have explicitly assessed attachment to peers as a predictor of relational aggression in adulthood.

### **Attributional Biases**

Early attachment representations distort the way that individuals process social information (Bowlby, 1980, 1988) and make attributions about their social

environment (Dodge, 2006). This distortion may contribute to the persistence of universal attributions acquired at the beginning of life (i.e., hostile attributions) or to the learning and development of new attributions (i.e., benign attributions; Dodge, 2006). Secure attachment with a responsive caregiver aids individuals in developing a benign attributional bias in which they learn to consistently explain other individuals' behaviours in a benevolent manner (Dodge, 2006). Conversely, insecure attachment to a responsive adult may contribute to a failure in learning how to make benign attributions, which may aid in the persistence of hostile attributions (Dodge, 2006).

Despite the possibility that social interactions later in life may break the cycle of hostile attributions, once individuals begin to consistently rely on hostile attributions, these attributions are likely to reinforce themselves and become more stable with time (Dodge, 2006). Dodge, Bates, and Pettit (1990) found that hostile attributional biases (i.e., once individuals consistently explain other individuals' behaviours as having hostile intents; Dodge, 2006) predicted aggressive behaviours in children at different phases of a longitudinal study. Consequently, the role of hostile attributions in predicting aggressive behaviours in childhood has received considerable attention. Interestingly, when children were provoked by an imaginary peer in a series of vignettes, they used reactive aggression against that peer only when they made a hostile attribution about that peer's intent, but not when they made a benign attribution (Dodge et al., 2015).

Over the years, researchers have emphasized the importance of measuring hostile attributions when exploring aggressive behaviour in adulthood (Chen et al., 2012; Coccaro, Fanning, & Lee, 2017; Coccaro et al., 2009). Chen et al. (2012) found

that the hostile attributional bias (measured using vignettes) was positively associated with relational aggression in adulthood. Similarly, Bailey and Ostrov (2008) and Murray-Close et al. (2010) found that emerging adults' reports of peer-directed reactive relational aggression, but not proactive relational aggression, were associated with the hostile attributional bias (measured using vignettes) during relational conflicts. Correspondingly, in a sample of undergraduate students, Quan et al. (2019) found that hostile attributional biases predicted aggression at two different times. Since the measure of aggression used in Quan et al. (2019) did not assess relational aggression, the results for relational aggression remain unknown. The associations between hostile attributions and aggressive behaviour have been unchallenged, but the associations between benign attributions and aggressive behaviour in adulthood have been understudied despite evidence of the mitigating role of benign attributions on aggressive behaviour in childhood (e.g., Dodge et al., 2015).

### **Attachment, Attributional Biases, and Relational Aggression**

Crick and Dodge (1994) proposed that aggressive behaviours might be employed as a defense or as a form of retaliation against perceived threats. Since secure individuals are likely to have developed a benign attributional bias which inhibits hostile attributions, their likelihood of perceiving threats and reacting aggressively is reduced (Dodge, 2006). Conversely, insecure individuals are unlikely to have learned how to make benign attributions, which results in their reliance on the hostile attributional bias when explaining other individuals' behaviours; therefore, they are more likely to perceive threats and react aggressively to them (Dodge, 2006). Despite the importance of attachment to parental figures in childhood in shaping the

trajectory of future attributions (Dodge, 2006), it is unclear how these attributions may be influenced by attachment to peers and romantic partners who become increasingly important in adulthood.

Researchers proposed that biases in social information processing, which include hostile attributional biases, may plague certain social relationships but not others (e.g., parental, peer, or romantic relationships), or may manifest in all social relationships as a general way of forming attributions and reacting to other individuals' behaviours (Pettit, Lansford, Malone, Dodge, & Bates, 2010). However, theories about the development of attributional biases (e.g., Crick & Dodge, 1994; Dodge, 2006; Dodge et al., 2015) as well as specific measures of attributional biases (e.g., Coccaro et al., 2009) seem to view biases in social information processing as global to individuals' social relationships. Since attachment to parents early in life was proposed to shape future trajectories of attributional biases (Dodge, 2006) and play a pervasive role in shaping future relationship dynamics (Bowlby, 1969, 1980), it is theoretically sound to assume that the attribution trajectories set during early attachment relationships are likely to persist into future relationships (Pettit et al., 2010). However, since attachment relationships start to include other individuals, such as peers and romantic partners, later in life (Bowlby, 1988), it is not unlikely that interactions specific to these relationships may influence individuals' attributions and behaviours within these relationships.

In a longitudinal study, Pettit et al. (2010) tested whether biases in social information processing (including attributions, aggressive responses to provocations, and attitudes towards aggressive responses) mediated the relationships between harsh

experiences in peer (e.g., peer rejection) and romantic (e.g., victimization by romantic partner) relationships and subsequent violence in those relationships. Harsh experiences in parental relationships (e.g., discipline using physical punishment) were also measured. Pettit et al. (2010) found that harsh parenting experiences in childhood predicted biases in social information processing (including attributions, aggressive responses to provocations, and attitudes towards aggressive responses) that persisted into early adulthood. Interestingly, biases in social information processing in peer relationships (measured using vignettes in early adulthood) mediated the association between peer rejection in middle childhood and physical violence towards peers in young adulthood. Furthermore, biases in social information processing in peer relationships (measured using vignettes in early adulthood) mediated the association between victimization by romantic partner in adolescence and physical violence towards peers in young adulthood. Biases in social information processing in peer and romantic relationships (measured using vignettes in early adulthood) collectively mediated the association between victimization by romantic partner in adolescence and physical violence towards a romantic partner in young adulthood — this combined effect could be due to the extreme similarities between the measures of social information processing used in peer and romantic relationships (Pettit et al., 2010). These findings highlight the role of peers (and romantic partners, to a lesser extent) as socialization agents. However, the specific role of attachment to peers and romantic partners in shaping attributions in adulthood remains unknown.

### **The Present Study**

It is important to keep in mind that different researchers used different

measures of adult attachment, which may influence the interpretation of the findings. Specifically, researchers have used the Adult Attachment Scale (AAS; Collins & Read, 1990; e.g., Marrero-Quevedo et al., 2018), Revised Adult Attachment Scale (RAAS; Collins, 1996; e.g., Adamczyk & Pilarska, 2012), Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991; e.g., Wegner et al., 2018), Experiences in Close Relationships (ECR; Brennan et al., 1998; e.g., Goldstein et al., 2008; Mattingly et al., 2012; Oka et al., 2016; Wilson et al., 2013), Experiences in Close Relationships-Revised (ECR-R; Fraley, Waller, & Brennan, 2000; e.g., Ennis, Vrij, & Chance, 2008), and Experiences in Close Relationships – 12 (ECR-12; Lafontaine et al., 2015; e.g., Fitzpatrick & Lafontaine, 2017). The ECR and the ECR-R were not developed to measure Bartholomew's four category model of attachment (Scharfe, 2016); however, data using the ECR and ECR-R are often interpreted as if they do assess the four-category model. For this reason, results from some of the studies presented above should be interpreted based on the attachment styles that were actually measured (see Scharfe, 2016, for a full discussion of attachment measurement issues). The RQ assessed the four-category model; however, the items used in the RQ and the ECR were based on the theoretical account of the attachment representations derived by researchers and the results of prior research, respectively (Scharfe, 2016). In the present study, the Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016), a valid and reliable measure of the four category model of attachment, was used. The items of the T-RSQ were created using participants' verbal accounts in interviews about their experiences within various relationships, and participants were mapped on the four-category model (Scharfe, 2016).

Previous research has measured global attachment in social relationships when researchers were specifically interested in interactions within romantic relationships (e.g., Wegner et al., 2018) or within both peer and romantic relationships (e.g., Ennis et al., 2008). This could be a confounding problem, both theoretically and statistically, because participants were not instructed to think of certain social relationships while responding to the attachment scales. Bowlby (1969) proposed that individuals develop an attachment hierarchy in which they unconsciously organize their attachment figures; therefore, an individual's global attachment style may not be representative of their attachment representations in their individual relationships due to variations in attachment representations across relationships. Furthermore, the T-RSQ demonstrated higher internal reliability in previous research when participants were instructed to think of one relationship at a time rather than the amalgamation of their social relationships (Scharfe, 2016). Consequently, participants in the present study were presented with a separate T-RSQ for their peer relationships and their romantic relationships and were instructed to think of each of these relationships separately while responding to the attachment scale.

The present study tested whether attributional biases mediated the relationship between attachment and relational aggression in peer and romantic relationships in adulthood. This study extended previous research in five ways. First, despite the associations found between attachment, attributional biases, and relational aggression in childhood, to my knowledge, the present study was the first to test these associations simultaneously in a university sample. Second, this study was the first to use the four category model of attachment while exploring the attachment-relational

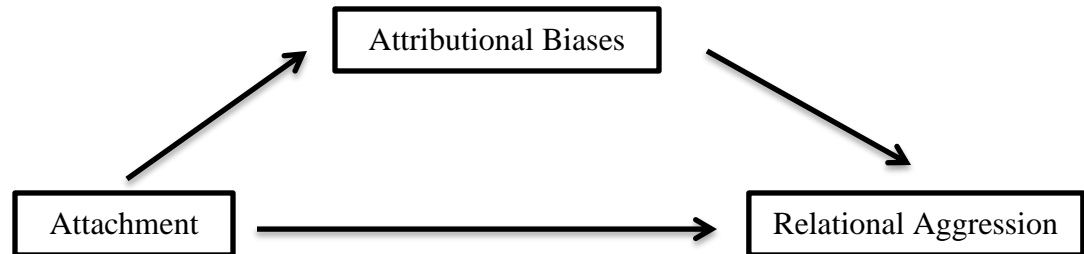
aggression association. Third, the current work is the first to de-construct relational aggression into its three subscales while exploring the attachment-relational aggression association. Fourth, the subscales of relational aggression were measured using both a self-report survey and questions following vignettes, which surpasses measuring relational aggression using only a single method as was used in previous research. Finally, benign attributions have received scant attention in the aggression literature; therefore, this study was the first to explore benign attributions as a potential mediator between attachment and relational aggression.

### **Hypotheses**

To test the proposed mediation model (see Figure 2) following Baron and Kenny's (1986) four-step approach to mediation, the hypotheses were as follows:

1. To meet the first condition described in Baron and Kenny (1986), attachment must directly predict relational aggression — this indicates that there is an association to mediate. I expect that attachment to peers will be associated with the peer-directed subtypes of relational aggression (proactive and reactive). Specifically, secure peer attachment is expected to be negatively associated with proactive and reactive relational aggression, while insecure peer attachment (fearful, preoccupied, and dismissing) is expected to be positively associated with proactive and reactive relational aggression. Similarly, attachment to romantic partner is expected to be associated with romantic relational aggression. Specifically, secure romantic partner attachment is expected to be negatively associated with romantic relational aggression, while insecure romantic partner attachment (fearful, preoccupied, and dismissing) is expected to be positively associated with romantic relational aggression. If the

variance explained by the four attachment scales ( $R^2$ ) is significant for at least one of the regressions (regardless of the significance of the variance explained by the individual attachment scales), then I can proceed to test the following steps.



*Figure 2.* Attributional biases as a mediator of the relationship between attachment and relational aggression.

2. To meet the second condition of mediation described in Baron and Kenny (1986), attachment must directly predict attributional biases. Attachment to peers and romantic partners is expected to be associated with hostile and benign attributional biases. Secure attachment to peers and secure attachment to romantic partners are expected to be negatively associated with the hostile attributional bias and positively associated with the benign attributional bias. Conversely, insecure attachment to peers and insecure attachment to romantic partners are expected to be positively associated with the hostile attributional bias and negatively associated with the benign attributional bias. If the variance explained by the four attachment scales ( $R^2$ ) is significant (regardless of the significance of the variance explained by the individual attachment scales), then I can proceed to test the following steps.

3. To meet the third condition of full mediation described in Baron and Kenny (1986), the combination of attachment and attributional biases must contribute unique variance to the explanation of relational aggression. The benign attributional bias is

expected to be negatively associated with all three subtypes of relational aggression. The hostile attributional bias is expected to be associated with reactive, but not proactive, relational aggression. As discussed earlier, romantic relational aggression consists of proactive and reactive functions, but has been typically measured as one construct in previous research. The items used to measure romantic relational aggression in the survey used in this study (Self-Report of Aggression and Social Behavior Measure; Morales & Crick, 1998) consist primarily of reactive items (four items measure reactive and one item measures proactive; Murray-Close et al., 2010). Consequently, the hostile attributional bias which is expected to be positively associated with reactive relational aggression is also expected to be positively associated with romantic relational aggression.

If the variance explained by attachment in step 1 is significantly different from the variance explained by the combination of attachment and attributional biases in step 3 (demonstrated by a significant  $\Delta R^2$  and a significant regression coefficient for attributional biases), then attributional biases significantly explained relational aggression. This provides adequate evidence for mediation and I can proceed to test the final step. If  $\Delta R^2$  and the  $\beta$ -value for attributional biases are not significant (but approaching significance), I may proceed to the next step to test for partial mediation.

4. Following the guidelines of Baron and Kenny (1986), the Sobel test (Sobel, 1982) will be conducted to determine whether the mediation was significant. The Sobel test compares the strength of the relationship between attachment and relational aggression before and after attributional biases was added as a mediator (Baron & Kenny, 1986). A significant Sobel test indicates that the mediation was significant.

## Method

### Participants

The final sample consisted of 258 undergraduate students enrolled in first and second year Psychology courses<sup>1</sup> at Trent University (see Data Screening section below). This was a typical university sample: Participants were mostly female (80%), Caucasian (76%), heterosexual (81%), and in their first year of undergraduate studies (59%). Participants were between 18 and 50 years of age ( $M = 20.24$ ,  $SD = 4.42$ ) and 65% of the sample was in a romantic relationship. See Table 1 for further sample characteristics.

### Data Screening

The data set was checked for accuracy of input before analyses were conducted. The minimum and maximum values of the continuous variables were examined, and there were no unusual or out-of-range values. The data set was then checked for scale completeness and scale scores were calculated. Scale scores were not calculated for participants who completed less than 70% of the items on a scale. A total of 286 students participated in this study; however, the scale scores were not calculated for 28 participants which resulted in the removal of their data from subsequent analyses. Of these 28 participants, 25 had incomplete data on one or more of the scales and three started but did not complete the survey due to a campus-wide internet outage. Specifically, 21 participants had incomplete data on the romantic partner attachment scale, one participant had incomplete data on the peer attachment scale, 19 participants had incomplete data on the relational aggression scale, and three participants had incomplete data on the vignettes. Participants were instructed to skip

---

<sup>1</sup> Psychology courses included two first year Introduction to Psychology courses and two second year Critical Thinking/Research Methods (Statistics) courses.

the romantic partner attachment scale and the romantic relationship questions in the relational aggression scale if they were not in a romantic relationship and could not think of a romantic partner.

Table 1 *Participant Demographic Information*

Variable	<i>n</i>	%
Gender		
Female	205	79.46
Male	52	20.16
Trans non-binary	1	0.39
Ethnicity		
Caucasian	197	76.36
Black	24	9.30
Asian	28	10.85
First Nations	8	3.10
Missing	1	0.39
Sexual Orientation		
Heterosexual	209	81.00
Lesbian	3	1.16
Gay	5	1.94
Bisexual	34	13.18
Queer	1	0.39
Questioning/unsure	3	1.16
Asexual	2	0.78
Prefer not to answer	1	0.39
Marital status		
Single (not dating)	90	34.88
Single (dating casually)	47	18.22
Committed relp (living separately)	85	32.95
Living with romantic partner	24	9.30
Married or common law	10	3.88
Divorced	1	0.39
Married with casual partners	1	0.39
Year of education		
First year	151	58.53
Second year	81	31.40
Third year	20	7.75
Fourth year	5	1.94
Fifth year	1	0.39

*Note.* *N* = 258. Year of education represents the year of undergraduate studies at Trent University.

The final sample consisted of 258 participants. To assess differences between the 258 participants with complete data and the 28 participants with incomplete data, I ran chi-square tests of independence on the categorical demographic variables (gender, sexual orientation, ethnicity, marital status, and year of education) and independent t-tests on the continuous variables (age and the scale scores). With one exception, the chi-square tests revealed no significant differences between the groups on gender, sexual orientation, ethnicity, and education level. The only difference was that participants with complete data ( $n = 258$ ) were more likely to be in a romantic relationship ( $\chi^2_{(1)} = 26.73, p < 0.001$ ) than participants with incomplete data ( $n = 28$ ). With the exception of the romantic partner attachment scale, the t-tests revealed no significant differences between participants with complete data and participants with incomplete data on age and the scale scores (peer attachment scale, relational aggression scale, and vignettes). Participants with complete data ( $n = 258, M = 5.19, SD = 1.00$ ) scored significantly higher on secure attachment to romantic partner than participants in the incomplete data group who responded to the romantic partner attachment scale ( $n = 7, M = 4.43, SD = 0.83$ ),  $t(263) = 1.99, p = 0.048$ .

### **Procedure**

The Trent Research Ethics Board approved this study. The study description was posted on the Participant Research System (SONA) at Trent University. Participants signed up for the study online and arrived to the designated computer lab on the Peterborough campus for a proctored session. Participants were first presented with an electronic consent form (see Appendix A). After providing consent, participants answered questions about their gender, age, year of study at Trent

University, ethnicity, sexual orientation, marital status, and length of their current romantic relationship (see Appendix B). Participants then completed measures of attachment (see Appendices C and D), relational aggression (see Appendix E), and attributional biases (see Appendix F). Lastly, participants were presented with an electronic feedback form (see Appendix G). The survey took participants between 13 and 63 min to complete ( $M = 30.95$ ,  $SD = 7.84$ ). Participation in this study was voluntary and each participant was granted 2% bonus credit towards one of their Psychology courses after participating.

### **Measures**

**Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016).** The T-RSQ was administered to measure the four category model of attachment to close friends (see Appendix C) and romantic partners (see Appendix D). Participants were instructed to respond to the romantic partner T-RSQ based on their current romantic relationship and were asked to think of their previous romantic relationships if they were not in a romantic relationship.

Of the 258 participants, 167 reported being in a romantic relationship — 142 participants reported thinking about their current romantic partner, 16 participants reported thinking about their current romantic partner and 1 to 4 of their past romantic partners, and 17 participants reported thinking about 1 to 4 of their past romantic partners. Ninety-one participants reported not being in a romantic relationship — 11 participants reported thinking about their current romantic partner, 13 participants reported thinking about their current romantic partner and 1 to 4 of their past romantic partners, and 70 participants reported thinking about 1 to 4 of their past romantic

partners.

The T-RSQ consists of 40 items rated on a scale from 1 (*not at all like me*) to 7 (*very much like me*). The averages of 10 items were calculated to assess each of the four attachment styles: secure (e.g., *I am comfortable having others depend on me*), fearful (e.g., *I am somewhat uncomfortable being close to others*), preoccupied (e.g., *I worry that others do not value me as much as I value them*), and dismissing (e.g., *I prefer not to have others depend on me*). The means and alphas of the attachment scales in the present study (see Table 2) were within the expected ranges when compared to the means and alphas reported in Scharfe (2016).

To assess normality of the data, the z-scores of skew and kurtosis were calculated (see Table 2). A cutoff value of  $\pm 3.29$  was used (following Tabachnick & Fidell, 2007) and it was determined that, with the exception of dismissing attachment to peers which was slightly positively skewed ( $z = 4.14$ ), the attachment scales were normally distributed. Due to the large sample size in the present study ( $n = 258$ ), the z-scores may have been inflated, and a histogram was plotted to visually examine the distribution of dismissing attachment to peers and it appeared normal.

**Self-Report of Aggression and Social Behavior Measure (SRASBM; Morales & Crick, 1998; see Appendix E).** The SRASBM is a measure of relational aggression consisting of 56 items rated on a scale from 1 (*not at all true*) to 7 (*very true*). Five items measured peer-directed proactive relational aggression (e.g., *I have threatened to share private information about my friends with other people in order to get them to comply with my wishes*), six items measured peer-directed reactive relational aggression (e.g., *When I am not invited to do something with a group of*

people, I will exclude those people from future activities), and five items measured romantic relational aggression (e.g., *If my romantic partner makes me mad, I will flirt with another person in front of him/her*). Participants were asked to think of their previous romantic relationships if they were not in a romantic relationship.

Table 2 Means, Standard Deviations, Reliability Coefficients, and z-scores of the T-RSQ (peer and romantic partner), SRASBM, and SIP-AEQ

Variable	Mean	SD	Range	$\alpha$	Z <sub>skew</sub>	Z <sub>kurt</sub>
Attachment to Peers						
Secure	4.98	0.86	2.10-7.00	0.72	-2.08	0.65
Fearful	3.21	1.16	1.00-7.00	0.85	3.06	-0.28
Preoccupied	3.95	0.79	1.70-6.20	0.57	0.38	-1.06
Dismissing	3.31	0.91	1.50-6.70	0.77	4.14	2.48
Attachment to Romantic Partner						
Secure	5.19	1.00	1.50-7.00	0.79	-2.32	-0.48
Fearful	3.22	1.18	1.00-6.40	0.84	0.78	-2.39
Preoccupied	4.41	0.87	1.00-6.30	0.63	-3.01	3.05
Dismissing	3.27	0.99	1.00-6.80	0.78	2.53	1.35
Self-Report of Aggression and Social Behavior Measure						
Proactive RA	1.64	0.85	1.00-7.00	0.74	15.18	26.86
Reactive RA	2.06	0.96	1.00-7.00	0.77	10.78	13.50
Romantic RA	1.99	1.05	1.00-6.80	0.75	9.75	8.47
Attributional Biases						
Hostile <sup>a</sup>	19.36	0.55	0.00-2.88	0.90	0.13	-0.11
Benign	12.16	0.52	0.13-3.00	0.71	0.48	1.09
Relational Aggression Vignettes						
Proactive RA	2.96	1.21	1.00-6.50	0.83	9.13	-1.63
Reactive RA	1.82	0.90	1.00-5.25	0.85	2.59	5.21
Romantic RA	2.00	0.74	1.00-4.50	0.87	5.54	1.37

Note. N = 258. RA = Relational Aggression.

<sup>a</sup> Hostile attributions include direct and indirect hostile attributions.

The averages of the proactive, reactive, and romantic items were calculated to obtain a score on each subtype of relational aggression. The alphas for proactive, reactive, and romantic relational aggression in the present study (see Table 2) were similar to the alphas reported in previous studies (e.g., Murray-Close et al., 2010). To assess normality of the data, the z-scores of skew and kurtosis were calculated (see Table 2). A cutoff value of  $\pm 3.29$  was used (following Tabachnick & Fidell, 2007) and it was determined that all of the relational aggression subscales were positively skewed and leptokurtic.

As discussed previously, z-scores are highly influenced by the sample size; therefore, histograms were plotted to visually examine the normality of the relational aggression subscales while minimizing the influence of sample size. All of the subscales looked positively skewed and leptokurtic which indicates that most participants reported engaging in low levels of relational aggression. This finding was not unusual since previous researchers have reported low means on some (e.g., Goldstein et al., 2008; Linder et al., 2002) or all (e.g., Murray-Close et al., 2010) of the relational aggression subscales.

**Social Information Processing-Attribution and Emotional Response Questionnaire (SIP-AEQ; Coccaro et al., 2009; see Appendix F).** The SIP-AEQ consists of eight vignettes describing relational (vignettes 1, 5, 6, and 7) and physical (vignettes 2, 3, 4, and 8) aggression taking place between friends, classmates, co-workers, and strangers. In the present study, the wording of vignettes 6 and 7 was modified to describe an interaction between peers such that vignettes 1, 5, 6, and 7 all described relational aggression between peers. Vignettes 2, 3, 4, and 8 were modified

from physical aggression to describe relational aggression between romantic partners using the SRASBM items as a guide.

Each vignette was followed by four questions measuring one of four intent attributions: direct hostile intent (e.g., *My friend wanted to expose my secret*), instrumental non-hostile intent (e.g., *My friend wanted to impress other people with their secret knowledge about me*), benign intent (e.g., *My friend forgot that this was an important secret for me*), and indirect hostile intent (e.g., *My friend wanted to make me feel stupid for asking to keep my secret*). Items were rated on a scale from 0 (*not at all likely*) to 3 (*very likely*).

The averages of hostile (direct and indirect combined) and benign attributions were computed across the eight vignettes to obtain a score on each attribution. The mean of hostile attributions (see Table 2) was similar to means reported in previous research (e.g., 19.36 vs. 18.90; see Coccato et al., 2009). The mean of benign attributions (see Table 2) was lower than means reported in previous research (e.g., 12.16 vs. 17.90; see Coccato et al., 2009). This finding suggests that participants in the present study scored lower on benign attributions than participants in previous studies. Alternatively, it may be that the modifications made to the vignettes in the present study yielded the differences in means. Furthermore, the alphas of hostile and benign attributions in the present study (see Table 2) were similar to alphas reported in previous studies (e.g., Coccato et al., 2009). To assess normality of the attribution scales, the z-scores of skew and kurtosis were calculated (see Table 2) and it was determined that the attribution scales were normally distributed.

To assess relational aggression as a response to the vignettes, additional

follow-up questions were created for the present study (see Appendix F). Following peer vignettes, participants were asked to rate two proactive relational aggression items (e.g., *How likely are you to intentionally ignore your friend until he/she apologizes for sharing your secret with other people?*) and two reactive relational aggression items (e.g., *How likely are you to try to damage your friend's reputation by gossiping about him/her or by passing on negative information about him/her to other people for sharing your secret with other people?*). Following romantic relationship vignettes, participants were asked to rate five romantic relational aggression items (e.g., *How likely are you to threaten to break up with your romantic partner in order to get him/her to do what you want, whether that is an apology, an explanation, or anything else for telling your friends to ignore your jokes?*).

Since the relational aggression follow-up questions were created using the SRASBM items as a guide, they were also rated on a scale from 1 (*not at all true*) to 7 (*very true*). The averages of the proactive, reactive, and romantic items were calculated across the corresponding vignettes to obtain a score on each subscale of relational aggression. Because these follow-up questions were created for the present study, no comparisons could be made to means and alphas reported in previous empirical studies.

To assess normality of the relational aggression follow-up questions, the z-scores of skew and kurtosis were calculated (see Table 2). The proactive relational aggression subscale was normally distributed. However, the reactive and romantic relational aggression subscales were positively skewed and only the reactive relational aggression subscale was leptokurtic. Consequently, histograms were plotted to

visually examine these distributions while minimizing the influence of sample size.

The reactive and romantic relational aggression subscales were positively skewed and the reactive subscale was no longer leptokurtic, which suggests that most participants reported engaging in low levels of reactive and romantic relational aggression on the follow-up questions as a response to the vignettes. Since the relational aggression follow-up questions were created for the present study, no comparisons could be made to determine whether the skewness of the reactive and romantic subscales was usual.

### **Results**

The assumptions of multiple regression – multicollinearity, specification errors, and measurement errors – were tested. Multicollinearity was not problematic because the correlations between the predictors (attachment to peers and attachment to romantic partners, separately) ranged from  $r = 0.05$  to  $r = 0.66$  (i.e.,  $r$  values did not exceed  $r = 0.80$  which is the limit recommended by Grimm & Yarnold, 1995). See Table 3 for the Pearson correlations. After the regression analyses were conducted, histograms were plotted to visualize the relationship between participants' observed scores on the criterion and their scores predicted by the regression equation (i.e., their residual scores). Distributions of residual scores showed no major deviation from normality. To test for specification errors, three conditions were assessed: Linearity of the relationships between variables, inclusion of all relevant predictors in the analyses, and exclusion of irrelevant predictors from the analyses (Grimm & Yarnold, 1995). Scatterplots revealed that the relationships between variables were linear. I believe that my comprehensive literature review of the topic helped me include relevant predictors and exclude irrelevant predictors from the analyses. Finally, to test whether

Table 3 Correlations between the *T-RSQ*, *SR-ASBM*, and *SIP-AEQ*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. SecP	1.00															
2. FeaP	-0.66**	1.00														
3. PreP	-0.05	0.45***	1.00													
4. DisP	-0.57**	0.59**	0.09	1.00												
5. SecRP	0.48***	-0.38***	-0.04	-0.26***	1.00											
6. FeaRP	-0.46***	0.66**	0.31***	0.33***	-0.66**	1.00										
7. PreRP	0.02	0.30***	0.55**	0.02	0.11†	0.37***	1.00									
8. DisRP	-0.34***	0.34***	-0.04	0.48***	-0.59**	0.64**	0.06	1.00								
9. ProRA	-0.19**	0.23***	0.11†	0.17**	-0.27***	0.23***	-0.01	0.14*	1.00							
10. RecRA	-0.16*	0.16*	0.07	0.10	-0.26***	0.21**	-0.0002	0.16*	0.67**	1.00						
11. RomRA	-0.18**	0.22***	0.11†	0.11†	-0.25***	0.31***	0.15*	0.21**	0.58**	0.59**	1.00					
12. Hosatt	-0.21**	0.28***	0.16*	0.19**	-0.23***	0.29***	0.12†	0.29***	0.15*	0.29***	0.25***	1.00				
13. Benatt	0.13*	-0.10†	-0.01	-0.09	0.14*	-0.11†	-0.07	-0.15*	-0.07	-0.21**	-0.17**	-0.51***	1.00			
14. PRAvign	-0.10	0.23***	0.18**	0.13*	-0.10	0.21**	0.19**	0.14*	0.32***	0.46***	0.40***	0.53**	-0.38***	1.00		
15. RRAvign	-0.19**	0.19**	0.07	0.14*	-0.23***	0.27***	0.13*	0.26***	0.39***	0.57**	0.39***	0.52**	-0.33***	0.74**	1.00	
16. Romvign	-0.09	0.18**	0.15*	0.04	-0.19**	0.28***	0.18**	0.22***	0.33***	0.49***	0.61**	0.47***	-0.27***	0.70**	0.67**	1.00

Note.  $N = 258$ . SecP = secure with peers, FeaP = fearful with peers, PreP = preoccupied with peers, DisP = dismissing with peers, SecRP = secure with romantic partner, FeaRP = fearful with romantic partner, PreRP = preoccupied with romantic partner, DisRP = dismissing with romantic partner, ProRA = proactive relational aggression measured using the SR-ASBM, RecRA = reactive relational aggression measured using the SR-ASBM, RomRA = romantic relational aggression measured using the SR-ASBM, Hosatt = hostile attributions measured using the SIP-AEQ vignettes, Benatt = benign attributions measured using the SIP-AEQ vignettes; PRAvign = proactive relational aggression measured using the follow-up questions after each peer vignette, RRAvign = reactive relational aggression measured using the follow-up questions after each peer vignette, Romvign = romantic relational aggression measured using the follow-up questions after each romantic partner vignette.

†  $p < 0.10$ . \*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

measurement errors were present, reliability coefficients were examined.

Measurement errors were likely avoided due to the moderate to high reliability of the scales used in the present study (alphas ranged from 0.57 to 0.90). Therefore, all assumptions of multiple regression were met.

### **Correlation Analyses**

To examine the bivariate associations between the variables, Pearson correlations were obtained and are presented in Table 3. The associations were in the expected directions, but not all associations were significant. In peer relationships, secure attachment was negatively associated with proactive relational aggression (measured using the SRASBM) and reactive relational aggression (measured using both the SRASBM and the questions following the vignettes). Contrary to expectations, secure attachment was not significantly associated with proactive relational aggression measured using the vignettes. Fearful attachment was positively associated with proactive and reactive relational aggression measured using both the SRASBM and the questions following the vignettes. Preoccupied attachment was positively associated with proactive relational aggression measured using the questions following the vignettes. Unexpectedly, preoccupied attachment was not associated with proactive relational aggression measured using the SRASBM and reactive relational aggression measured using the SRASBM and the questions following the vignettes. Dismissing attachment was positively associated with proactive relational aggression measured using the SRASBM and the questions following the vignettes and reactive relational aggression measured using the questions following the vignettes. Contrary to expectations, dismissing attachment

was not associated with reactive relational aggression measured using the SRASBM. The significant associations between attachment to peers and peer-directed relational aggression (measured using both the SRASBM and the questions following the vignettes) had small to medium effect sizes (see Cohen, 1992).

In romantic relationships, as expected, secure attachment was negatively associated with romantic relational aggression measured using the SRASBM and the questions following the vignettes. Preoccupied, fearful, and dismissing attachment were positively associated with romantic relational aggression measured using the SRASBM and the questions following the vignettes. The significant associations between attachment to romantic partners and romantic relational aggression (measured using both the SRASBM and the questions following the vignettes) had small to medium effect sizes (see Cohen, 1992).

Hostile attributions were negatively associated with secure attachment to peers and romantic partners and positively associated with fearful and dismissing attachment to peers and romantic partners. Preoccupied attachment to peers was positively associated with hostile attributions; however, contrary to expectations, preoccupied attachment to romantic partners was not associated with hostile attributions. Benign attributions were positively associated with secure attachment to peers and romantic partners and negatively associated with dismissing attachment to romantic partners. Contrary to expectations, benign attributions were not associated with preoccupied and fearful attachment to peers and romantic partners. The significant associations between attributions (hostile and benign) and attachment to peers and romantic partners had small to medium effect sizes (see Cohen, 1992).

Hostile attributions were positively associated with the three subscales of relational aggression measured using the SRASBM and the questions following the vignettes. Benign attributions were negatively associated with reactive and romantic relational aggression measured using the SRASBM, but were not significantly associated with proactive relational aggression measured using the SRASBM. Benign attributions were negatively associated with the three subscales of relational aggression measured using the questions following the vignettes. The significant associations between attributions (hostile and benign) and peer and romantic relational aggression (measured using the SRASBM) had small to medium effect sizes (see Cohen, 1992). The significant associations between hostile attributions and peer and romantic relational aggression (measured using the questions following the vignettes) had large effect sizes (see Cohen, 1992). The significant associations between benign attributions and peer and romantic relational aggression (measured using the questions following the vignettes) had medium to large effect sizes (see Cohen, 1992).

### **Mediation Analyses**

To test whether attributional biases were a mediator of the relationship between attachment and relational aggression, I followed Baron and Kenny's (1986) four-step approach to conducting mediation analyses. To fulfill step 1, the predictors (i.e., the four attachment scales) must be associated with the criterion (relational aggression). If the predictors significantly influenced the criterion, as evidenced by a significant  $R^2$ , then there is an association to mediate and I may proceed to the following steps. Hayes (2018) proposed that caution should be used when including multiple independent variables in a single mediational model. When the independent

variables are highly correlated, they may cancel out each other's effects on the mediator and the outcome variable which may result in significant effects going unnoticed (Hayes, 2018). Since the four attachment scales were significantly correlated, but not to the point of being substitutes to each other (all  $r$ 's were less than 0.67; considerably less than the 0.80 cutoff suggested), they were simultaneously included in the meditation analyses. Moreover, it is theoretically relevant to include the four attachment scales simultaneously in the analyses (Scharfe, 2016).

To meet the requirements of step 2, the predictors must be associated with the mediator (attributional biases). In this step, the mediator is inserted as a criterion in the regression analysis (Baron & Kenny, 1986). If this step is significant (as evidenced by a significant  $R^2$ ), then I can test the following steps. Next, to fulfill the requirements of step 3, the combination of the predictors and the mediator should contribute unique variance to the explanation of the criterion (as evidenced by a significant  $\beta$ -value for the mediator and a significant  $\Delta R^2$ ). If  $\Delta R^2$  is significant then there is evidence for mediation.

Lastly, step 4 involves testing the significance of the mediation by comparing the strength of the indirect path from the predictors to the criterion through the mediator to the strength of the direct path from the predictors to the criterion. The Sobel test (Sobel, 1982) was used to compare the strength of the indirect path to the direct path. Since the Sobel test can only be used when there is one predictor and one mediator at a time, separate Sobel tests were conducted for each of the four attachment scales. A significant Sobel test statistic indicates that the direct path after the mediator was introduced was significantly weaker than the direct path before the mediator was

introduced; this suggests that the mediation was significant.

### **Attachment, Hostile Attributions, and Relational Aggression (SRASBM)**

I tested whether hostile attributions mediated the relationship between attachment and relational aggression for the three subscales of the SRASBM. As proposed by Baron and Kenny (1986), I first tested whether there was an association to mediate. I found that peer attachment significantly predicted proactive relational aggression but not reactive relational aggression. Furthermore, romantic partner attachment significantly predicted romantic relational aggression. Therefore, the first step of Baron and Kenny's (1986) four-step approach has been met for proactive relational aggression and romantic relational aggression. See Table 4 for  $R^2$  and  $\beta$ -values for each of the four attachment scales. As there was no association between peer attachment and reactive relational aggression, there was no association to mediate; no further analyses were conducted and reactive relational aggression was not included in Table 4.

Next, the association between attachment and hostile attributions (the mediator) was tested. Peer attachment significantly predicted hostile attributions and romantic partner attachment also significantly predicted hostile attributions. See Table 4 for  $R^2$  and  $\beta$ -values for each of the four attachment scales.

Finally, I tested whether hostile attributions contributed unique variance to the explanation of relational aggression after controlling for attachment. For proactive relational aggression, this step was not significant: The  $\beta$ -value for hostile attributions was not significant and the  $\Delta R^2$  was not significant. Therefore, there was no support for mediation. For romantic relational aggression, there was some support for

Table 4 *Hostile Attributions as a Mediator between Attachment and Relational Aggression (measured using the SRASBM)*

	Proactive RA		Romantic RA	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1. Attachment predicting RA <sup>a</sup>	0.06**		0.11***	
Secure		-0.08		-0.14
Fearful		0.13		0.18†
Preoccupied		0.04		0.10
Dismissing		0.05		0.004
Step 2. Attachment predicting Attributions	0.08***		0.11***	
Secure		-0.05		-0.07
Fearful		0.19†		0.09
Preoccupied		0.07		0.08
Dismissing		0.04		0.19*
Step 3. Attachment & Attributions				
3a. Attachment	0.06**		0.11***	
Secure		-0.07		-0.13
Fearful		0.11		0.17
Preoccupied		0.04		0.08
Dismissing		0.04		-0.03
3b. Attributions	0.01	0.09	0.03**	0.17**

Note.  $N = 258$ . RA = Relational aggression.

<sup>a</sup> Attachment to peers predicted proactive RA and attachment to romantic partners predicted romantic RA.

†  $p < 0.10$ . \*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

mediation. Hostile attributions contributed unique variance to the explanation of romantic relational aggression after controlling for attachment to romantic partner: The  $\beta$ -value for hostile attributions was significant and the  $\Delta R^2$  was significant (see Table 4). Sobel  $t$ 's were calculated to test the effects and none were significant (Sobel  $t$ 's ranged from -0.71 to 1.81); however, dismissing attachment approached statistical significance (Sobel  $t = 1.81, p = 0.07$ ).

As discussed previously, Hayes (2018) proposed that caution should be used when including multiple independent variables in a single mediational model. When the independent variables are highly correlated, they may cancel out each other's effects on the mediator and the outcome variable which may result in significant effects going unnoticed (Hayes, 2018). Since the four attachment scales were significantly correlated, but not to the point of being substitutes to each other (all  $r$ 's were less than 0.67), they were included simultaneously in the mediation analyses. However, since dismissing attachment to romantic partner approached statistical significance in the previous Sobel test, it may be that the combination of the independent variables masked the unique effect of dismissing attachment. Similarly, fearful attachment to romantic partner approached statistical significance in step 1 (see Table 4) and its unique effect may have been masked. Consequently, post hoc mediation analyses were conducted to determine the unique effects of dismissing attachment and fearful attachment separately.

The first post hoc analysis was for dismissing attachment to romantic partner. In step 1, dismissing attachment significantly predicted romantic relational aggression ( $R^2 = 0.04, F(1,256) = 11.65, p < 0.001$ ); in other words, there was an association to

mediate. In step 2, dismissing attachment significantly predicted hostile attributions ( $R^2 = 0.09$ ,  $F(1,256) = 24.20$ ,  $p < 0.001$ ). In step 3, hostile attributions predicted romantic relational aggression after controlling for dismissing attachment to romantic partner ( $\Delta R^2 = 0.04$ ,  $F(2,255) = 10.79$ ,  $p = 0.001$ ). Sobel  $t$  was calculated to test the effect and it was significant (Sobel  $t = 2.76$ ,  $p = 0.006$ ). In conclusion, when dismissing attachment to romantic partner was tested individually there was some evidence for mediation.

The second post hoc analysis was for fearful attachment to romantic partner. In step 1, fearful attachment to romantic partner significantly predicted romantic relational aggression ( $R^2 = 0.10$ ,  $F(1,256) = , p < 0.001$ ); in other words, there was an association to mediate. In step 2, fearful attachment to romantic partner significantly predicted hostile attributions ( $R^2 = 0.08$ ,  $F(1,256) = 22.90$ ,  $p < 0.001$ ). In step 3, hostile attributions predicted romantic relational aggression after controlling for fearful attachment to romantic partner ( $\Delta R^2 = 0.03$ ,  $F(2,255) = 8.16$ ,  $p = 0.005$ ). Sobel  $t$  was calculated to test the effect and it was significant (Sobel  $t = 2.45$ ,  $p = 0.014$ ). In conclusion, when fearful attachment to romantic partner was tested individually there was some evidence for mediation.

### **Attachment, Benign Attributions, and Relational Aggression (SRASBM)**

Next, I tested whether benign attributions mediated the relationship between attachment and relational aggression for the three subscales of the SRASBM. First, I tested whether there was an association to mediate. I found that peer attachment significantly predicted proactive relational aggression but not reactive relational aggression. Furthermore, romantic partner attachment significantly predicted

romantic relational aggression. Therefore, there was an association to mediate for proactive relational aggression and romantic relational aggression. See Table 5 for  $R^2$  and  $\beta$ -values for each of the four attachment scales. As there was no association between peer attachment and reactive relational aggression, there was no association to mediate; no further analyses were conducted and reactive relational aggression was not included in Table 5.

Next, the association between attachment and benign attributions (the mediator) was tested. Peer attachment did not significantly predict benign attributions, and romantic partner attachment also did not significantly predict benign attributions. Consequently, the second condition for mediation was not established and step 3 could not be tested. Therefore, there was no evidence for mediation.

#### **Attachment, Hostile Attributions, and Relational Aggression (SIP-AEQ)**

Next, I tested whether hostile attributions mediated the relationship between attachment and relational aggression using the follow-up questions after the vignettes. First, I tested whether there was an association to mediate. I found that peer attachment significantly predicted proactive relational aggression and reactive relational aggression. Furthermore, romantic partner attachment significantly predicted romantic relational aggression. Therefore, there was an association to mediate for the three subscales of relational aggression. See Table 6 for  $R^2$  and  $\beta$ -values for each of the four attachment scales.

Next, the association between attachment and hostile attributions (the mediator) was tested. Peer attachment significantly predicted hostile attributions and romantic partner attachment also significantly predicted hostile attributions. See

Table 5 *Beneign Attributions as a Mediator between Attachment and Relational Aggression (measured using the SR-ASBM)*

	Proactive RA		Romantic RA	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1. Attachment predicting RA <sup>a</sup>	0.06**		0.11***	
Secure		-0.08		-0.14
Fearful		0.13		0.18†
Preoccupied		0.04		0.10
Dismissing		0.05		0.004
Step 2. Attachment predicting Attributions	0.02		0.03†	
Secure		0.10		0.15
Fearful		-0.03		0.10
Preoccupied		0.01		-0.11
Dismissing		-0.02		-0.12

Note.  $N = 258$ . RA = Relational aggression.

<sup>a</sup> Attachment to peers predicted proactive RA and attachment to romantic partners predicted romantic RA.

†  $p < 0.10$ . \*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

Table 6 *Hostile Attributions as a Mediator between Attachment and Relational Aggression (measured using the SIP-AEQ vignettes)*

	Proactive RA		Reactive RA		Romantic RA	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
<b>Step 1. Attachment predicting RA<sup>a</sup></b>						
Secure	0.06**	0.07	0.04*	-0.10	0.09***	-0.06
Fearful		0.23*		0.11		0.13
Preoccupied		0.08		0.01		0.13†
Dismissing		0.03		0.02		0.10
<b>Step 2. Attachment predicting Attributions</b>						
Secure	0.08***	-0.05	0.08***	-0.05	0.11***	-0.07
Fearful		0.19†		0.19†		0.09
Preoccupied		0.07		0.07		0.08
Dismissing		0.04		0.04		0.19*
<b>Step 3. Attachment &amp; Attributions</b>						
<b>3a. Attachment</b>						
Secure	0.06**	0.10	0.04*	-0.08	0.09***	-0.03
Fearful		0.13		0.01		0.09
Preoccupied		0.04		-0.02		0.09
Dismissing		0.01		-0.002		0.02
<b>3b. Attributions</b>						
	0.23***	0.50***	0.23***	0.50***	0.16***	0.43***

Note. N = 258. RA = Relational aggression.

<sup>a</sup> Attachment to peers predicted proactive RA and reactive RA, and attachment to romantic partners predicted romantic RA.

†  $p < 0.10$ . \*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

Table 6 for  $R^2$  and  $\beta$ -values for each of the four attachment scales.

Finally, I tested whether hostile attributions contributed unique variance to the explanation of relational aggression after controlling for attachment. There was some support for mediation for the three subscales of relational aggression. Hostile attributions contributed unique variance to the explanation of proactive relational aggression after controlling for peer attachment: The  $\beta$ -value for hostile attributions was significant and the  $\Delta R^2$  was significant. Sobel  $t$ 's were calculated to test the effects and none were significant (Sobel  $t$ 's ranged from -0.60 to 1.82); however, fearful attachment approached statistical significance (Sobel  $t = 1.82, p = 0.07$ ).

Since fearful attachment to peers was significant in step 1 and approached statistical significance in the previous Sobel test, it may be that the inclusion of the four attachment scales simultaneously as predictors in the mediation analysis masked the unique effect of fearful attachment (following Hayes, 2018). Consequently, a post hoc mediation analysis was conducted to determine the unique effect of fearful attachment to peers. In step 1, fearful attachment significantly predicted proactive relational aggression ( $R^2 = 0.06, F(1,256) = 14.94, p < 0.001$ ); in other words, there was an association to mediate. In step 2, fearful attachment significantly predicted hostile attributions ( $R^2 = 0.08, F(1,256) = 21.94, p < 0.001$ ). In step 3, hostile attributions predicted proactive relational aggression after controlling for fearful attachment to peers ( $\Delta R^2 = 0.23, F(2,255) = 83.44, p < 0.001$ ). Sobel  $t$  was calculated to test the effect and it was significant (Sobel  $t = 4.12, p < 0.001$ ). In conclusion, when fearful attachment to peers was tested individually there was some evidence for mediation.

Hostile attributions also contributed unique variance to the explanation of reactive relational aggression after controlling for peer attachment: The  $\beta$ -value for hostile attributions was significant and the  $\Delta R^2$  was significant. Sobel  $t$ 's were calculated to test the effects and none were significant (Sobel  $t$ 's ranged from -0.60 to 1.82); however, fearful attachment approached statistical significance (Sobel  $t = 1.82$ ,  $p = 0.07$ ).

Since fearful attachment to peers approached statistical significance in the previous Sobel test, it may be that the inclusion of the four attachment scales simultaneously as predictors in the mediation analysis masked the unique effect of fearful attachment (following Hayes, 2018). Consequently, a post hoc mediation analysis was conducted to determine the unique effect of fearful attachment to peers. In step 1, fearful attachment significantly predicted reactive relational aggression ( $R^2 = 0.04$ ,  $F(1,256) = 10.10$ ,  $p = 0.002$ ); in other words, there was an association to mediate. In step 2, fearful attachment significantly predicted hostile attributions ( $R^2 = 0.08$ ,  $F(1,256) = 21.94$ ,  $p < 0.001$ ). In step 3, hostile attributions predicted reactive relational aggression after controlling for fearful attachment to peers ( $\Delta R^2 = 0.23$ ,  $F(2,255) = 81.75$ ,  $p < 0.001$ ). Sobel  $t$  was calculated to test the effect and it was significant (Sobel  $t = 4.12$ ,  $p < 0.001$ ). In conclusion, when fearful attachment to peers was tested individually there was some evidence for mediation.

Finally, hostile attributions contributed unique variance to the explanation of romantic relational aggression after controlling for attachment to romantic partner: The  $\beta$ -value for hostile attributions was significant and the  $\Delta R^2$  was significant. Sobel  $t$ 's were calculated to test the effects and only one was significant (Sobel  $t$ 's ranged

from 0.73 to 2.28). Namely, hostile attributions mediated the relationship between dismissing attachment to romantic partners and romantic relational aggression (Sobel  $t = 2.28, p = 0.02$ ). In conclusion, there was some evidence for mediation for dismissing attachment to romantic partner.

Since preoccupied attachment to romantic partners approached statistical significance in step 1, it may be that the inclusion of the four attachment scales simultaneously as predictors in the mediation model masked the unique effect of preoccupied attachment (following Hayes, 2018). Consequently, a post hoc mediation analysis was conducted to determine the unique effects of preoccupied attachment to romantic partners. In step 1, preoccupied attachment significantly predicted romantic relational aggression ( $R^2 = 0.03, F(1,256) = 8.18, p = 0.005$ ); in other words, there was an association to mediate. In step 2, preoccupied attachment did not significantly predict hostile attributions ( $R^2 = 0.1, F(1,256) = 3.83, p = 0.051$ ). Consequently, step 3 could not be tested. In conclusion, when preoccupied attachment to romantic partners was tested individually there was no evidence for mediation.

### **Attachment, Benign Attributions, and Relational Aggression (SIP-AEQ)**

Next, I tested whether benign attributions mediated the relationship between attachment and relational aggression using the follow-up questions after the vignettes. First, I tested whether there was an association to mediate. I found that peer attachment significantly predicted proactive relational aggression and reactive relational aggression. Furthermore, romantic partner attachment significantly predicted romantic relational aggression. Therefore, there was an association to mediate for the three subscales of relational aggression. See Table 7 for  $R^2$  and

Table 7 Benign Attributions as a Mediator between Attachment and Relational Aggression (measured using the SIP-AEQ vignettes)

	Proactive RA		Reactive RA		Romantic RA	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1. Attachment predicting RA <sup>a</sup>	0.06**		0.04*		0.09***	
Secure		0.07		-0.10		-0.06
Fearful		0.23*		0.11		0.13
Preoccupied		0.08		0.01		0.13†
Dismissing		0.03		0.02		0.10
Step 2 Attachment predicting Attributions	0.02		0.02		0.03†	
Secure		0.10		0.10		0.15
Fearful		-0.03		-0.03		0.10
Preoccupied		0.01		0.01		-0.11
Dismissing		-0.02		-0.02		-0.12

Note. N = 258. RA = Relational aggression.

<sup>a</sup> Attachment to peers predicted proactive RA and reactive RA, and attachment to romantic partners predicted romantic RA.

†  $p < 0.10$ . \*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

$\beta$ -values for each of the four attachment scales.

Next, the association between attachment and benign attributions (the mediator) was tested. Peer attachment did not significantly predict benign attributions and romantic partner attachment also did not significantly predict benign attributions. Consequently, the second condition for mediation was not established and step 3 could not be tested. Therefore, there was no evidence for mediation.

### **Discussion**

The present study tested whether attributional biases mediated the relationship between attachment and relational aggression in peer and romantic relationships in adulthood. The associations between attachment, attributional biases, and relational aggression have been thoroughly studied in childhood. However, these associations remained understudied in adulthood until this thesis. The present study is novel because it explored the associations between the four-category model of attachment in peer and romantic relationships, the three subtypes of relational aggression, and attributional biases simultaneously. Interestingly, the findings were both consistent and inconsistent with previous research.

#### **Peer Attachment and Proactive Relational Aggression**

The test of the first condition of mediation indicated that peer attachment significantly predicted proactive relational aggression. Therefore, there was an association for attributions to mediate. Due to the goal-oriented and premeditated nature of proactive aggression (Crick & Dodge, 1996; Murray-Close et al., 2010), individuals may be likely to take the time to evaluate their desired goals and think about how their relationships with others may be used to serve those goals.

Accordingly, the views that individuals hold of themselves and their peers may help explain individuals' use of proactive relational aggression towards their peers.

Mediation analyses revealed that hostile attributions did not mediate the relationship between peer attachment and proactive relational aggression in adulthood (regardless of measure of relational aggression). This finding supports previous research that the hostile attributional bias was not associated with proactive relational aggression (Bailey & Ostrov, 2008; Crick & Dodge, 1996; Dodge, 2006; Martinelli, Ackermann, Bernhard, Freitag, & Schwenck, 2018; Murray-Close et al., 2010). A post hoc mediation analysis revealed that when fearful attachment was individually entered as a predictor of proactive relational aggression (measured using the vignettes) there was some evidence for the mediating role of hostile attributions. This finding suggests that fearful attachment to peers increases individuals' generation of hostile attributions which in turn increases their participation in proactive relational aggression.

Similarly, there was no evidence for the mediating role of benign attributions between peer attachment and proactive relational aggression in adulthood. This suggests that benign attributions do not explain the relationship between peer attachment and proactive relational aggression. Previous research has found that children who made a benign attribution after being relationally provoked did not react aggressively towards the provoker (Dodge et al., 2015). Since proactive relational aggression is premeditated, rather than a reaction to a provocation, it is likely that the perpetrators of this form of aggression were motivated by their desire to meet a certain goal regardless of their attributions of others' behaviours. Accordingly, it may be that

instrumental attributions (which are goal-directed; Coccaro et al., 2009) may be more informative of proactive relational aggression than hostile and benign attributions.

### **Peer Attachment and Reactive Relational Aggression**

Contrary to expectations, peer attachment did not significantly predict reactive relational aggression (measured using the SRASBM), which indicated that there was no association to mediate. This finding is not consistent with Attachment Theory because attachment representations become salient during times of distress (Bowlby, 1969), which suggests that they would be important in explaining reactive aggression that is typically accompanied by feelings of anger (Crick & Dodge, 1996; Murray-Close et al., 2010). Alternatively, due to the hostile and retaliatory nature of reactive aggression (Crick & Dodge, 1996; Murray-Close et al., 2010), individuals are likely to impulsively respond to provocations without involving cognition in their actions (Chen et al., 2012). Even though impulsivity was not measured in the present study, reactive relational aggression is accompanied by impulsivity (Murray-Close et al., 2010), which may be why individuals were less likely to take the time to evaluate their relationships with others before engaging in this subtype of aggression. Consequently, social factors such as attachment relationships may not have been governing individuals' actions as they used reactive relational aggression. Therefore, the mediating role of attributional biases was not tested because peer attachment did not predict reactive relational aggression.

In contrast, peer attachment significantly predicted reactive relational aggression for the SIP-AEQ vignettes, which indicated that there was an association to mediate. This finding is consistent with Attachment Theory because attachment

representations are activated during times of distress (Bowlby, 1969), and reactive aggression is accompanied by feelings of anger towards the target of aggression (Crick & Dodge, 1996; Murray-Close et al., 2010). Therefore, attachment representations are likely to be salient during reactive relational aggression. However, there was no evidence of the mediating role of hostile attributions between peer attachment and reactive relational aggression. A post hoc mediation analysis revealed that when fearful attachment was individually entered as a predictor of reactive relational aggression, there was some evidence for mediation. This suggests that fearful attachment to peers increases individuals' formation of hostile attributions which in turn increases their participation in reactive relational aggression.

Similarly, there was no evidence for the mediating role of benign attributions between peer attachment and reactive relational aggression (regardless of measure). This suggests that benign attributions do not explain the association between peer attachment and reactive relational aggression. While previous research has demonstrated that children who made benign attributions about the behaviours of their peers did not engage in aggressive behaviours (Dodge et al., 2015), the findings in the present study suggest that benign attributions may not play a similar protective role against reactive relational aggression in adult peer relationships.

### **Romantic Partner Attachment and Romantic Relational Aggression**

Attachment to romantic partners significantly predicted romantic relational aggression, which indicated that there was an association to mediate. Because romantic relational aggression is measured using primarily reactive items on the SRASBM (four reactive items and one proactive item; Murray-Close et al., 2010) and

on the follow-up questions created for this study after the vignettes, it seems reasonable to expect that romantic relational aggression would be influenced by factors that influence reactive relational aggression. Accordingly, romantic relational aggression is also expected to be accompanied by feelings of anger, which increases the salience of attachment representations as well as their importance in understanding this subscale of aggression.

Mediation analyses revealed different results for the SRASBM and the SIP-AEQ vignettes. Hostile attributions did not mediate the relationship between romantic partner attachment and romantic relational aggression. Post hoc mediation analyses revealed that when dismissing attachment and fearful attachment to romantic partner were individually entered as predictors, there was evidence for mediation. This suggests that dismissing and fearful attachment to a romantic partner increases individuals' generation of hostile attributions which in turn increases their use of romantic relational aggression. For the SIP-AEQ vignettes, hostile attributions mediated the relationship between dismissing attachment to romantic partners and romantic relational aggression. This suggests that dismissing attachment to romantic partners increases individuals' formation of hostile attributions which in turn increases their participation in romantic relational aggression. A post hoc mediation analysis revealed that when preoccupied attachment to romantic partner was individually entered as a predictor there was no evidence for mediation. According to the results of the present study, the role of avoidant attachment in romantic relationships deserves further attention in future research.

These findings are consistent with Attachment Theory because avoidant

individuals have negative views of others (Bartholomew, 1990; Bartholomew & Horowitz, 1991) which lead to the persistence of universal hostile attributions about others' behaviours and may in turn propel individuals to engage in relational aggression. These findings are also consistent with previous research that hostile attributions predicted reactive aggression (e.g., Bailey & Ostrov, 2008; Crick & Dodge, 1996; Dodge, 2006; Martinelli et al., 2018; Murray-Close et al., 2010), and since romantic relational aggression consists of primarily reactive items, it seems theoretically sound that hostile attributions would also predict romantic relational aggression.

There was no evidence for the mediating role of benign attributions between romantic partner attachment and romantic relational aggression (regardless of measure). This suggests that benign attributions do not explain the association between romantic partner attachment and romantic relational aggression. These findings are somewhat inconsistent with previous research. Research on romantic relationships in adulthood has found that individuals are inclined to explain their partners' behaviours in a benevolent manner (Miller, 2012). However, depending on the quality of the relationship, individuals may be inclined to explain their own misbehaviours in a more favourable and sympathetic manner than their partners' misbehaviours (Miller, 2012). Accordingly, the protective role of benign attributions depends on the quality of the romantic relationship. As a result, the findings of the present study support the role of attachment relationships, but not benign attributions, in understanding relational aggression.

### **The Role of Dismissing Attachment in Romantic Relationships**

There was limited support for mediation. With one exception, attributional biases did not mediate the attachment-relational aggression association. The exception was that hostile attributions mediated the association between dismissing attachment to romantic partners and romantic relational aggression (measured using the questions following the vignettes). This means that dismissing attachment to romantic partners increases individuals' formation of hostile attributions about their partner's behaviours which in turn increases the incidence of relational aggression against the partners. These findings are consistent with Attachment Theory because avoidant individuals have negative views of others (Bartholomew, 1990; Bartholomew & Horowitz, 1991) which may predispose these individuals to explain the behaviours of others in a hostile manner and may in turn propel them to engage in relationship-threatening behaviours. This explanation is consistent with previous research that dismissing individuals' hostile behaviours in their relationships were reported to be a result of their attachment needs that have not been met by their social partners (Bartholomew, 1990; Kobak & Sceery, 1988).

### **Comparing the SRASBM and the Follow-Up Questions after the SIP-AEQ**

Since hostile attributions mediated the relationship between dismissing attachment to romantic partner and romantic relational aggression for the SIP-AEQ vignettes but not the SRASBM, it is important to explore why this unexpected discrepancy existed. Furthermore, after controlling for the effects of attachment, hostile attributions predicted relational aggression in peer and romantic relationships when measured using the vignettes, but only predicted relational aggression in

romantic relationships when measured using the SRASBM. Because different measures of the same construct yielded discrepancies in the results, it may be that shared method variance accounted for part of the relationship between hostile attributions and relational aggression measured using the vignettes. Future research can try to replicate these findings to see if similar results emerge.

Alternatively, the discrepancies in results may be due to the salience of the relational provocation in the vignettes but not in the SRASBM. Previous research has found that relational aggression is most strongly associated with the hostile attributional bias in situations of relational provocation (Bailey & Ostrov, 2008; Coccaro, Fanning, & Lee, 2017; Crick, 1995). The salience of the provocation is especially important when it comes to individuals' encoding of the situation which precedes the formation of attributions (Crick & Dodge, 1994). This was demonstrated by the work of Coccaro, Fanning, Fischer, Couture, and Lee (2017) who developed a computerized version of their written vignettes (demonstrated in Coccaro, Fanning, & Lee, 2017) because an audio-video based vignette measure would enable researchers to assess which parts of the vignettes participants paid attention to and encoded before generating attributions. Since the relational aggression questions following the vignettes in the present study explicitly asked participants to record how they would respond to the behaviour depicted in each vignette, participants were explicitly asked to imagine themselves in situations of relational conflict (see Appendix F). While the SRASBM instructed participants to imagine certain relational provocations taking place (e.g., *When I am not invited to do something with a group of people, I will exclude those people from future activities*; Morales & Crick, 1998), the items were

not as thorough or as detailed as the descriptions in the vignettes. Therefore, the relational context may not have been as salient in the SRASBM as it was in the vignettes (i.e., the items of the survey were not put in context).

In addition to the salience of the relational context, attachment representations may have become more salient when participants were responding to the questions following the vignettes. Attachment representations become salient when individuals find themselves in stressful situations (Bowlby, 1969). Accordingly, it may be that the detailed descriptions of relational provocations in the vignettes assisted participants in drawing on their attachment representations while responding to the follow-up questions. Supporting this explanation, the results of this study demonstrated that the combined effect of attachment and attributional biases on relational aggression in peer relationships was significant when relational aggression was measured using the vignettes but not the SRASBM.

Another potential explanation for the discrepancy in results is that social desirability biases may have influenced the responses to the SRASBM to a greater degree than the responses to the questions following the vignettes. Previous research has consistently listed social desirability issues as a major downfall of using self-report measures of aggression (e.g., Bailey & Ostrov, 2008; Goldstein et al., 2008). However, alternative measures of aggression such as the reports of peers and romantic partners have seldom been used in previous research because they may be unlikely to capture the true level of relational aggression that participants are engaging in (Bailey & Ostrov, 2008; Linder et al., 2002; Storch et al., 2004) and may be difficult to obtain in a wide university sample (Dahlen et al., 2013). Consequently, the measures of

aggression used in the present study were both self-report measures. While participants were instructed to self-report how they would respond to the questions following the vignettes, it is noteworthy that participants were asked to imagine themselves in hypothetical situations, which may have relieved some of the social desirability biases that typically accompany self-report measures. Steiner, Atzmüller, and Su (2016) explained that vignettes may be used to elicit responses to sensitive topics that are minimally influenced by social desirability biases.

### **Extension of Previous Research**

This study extended previous research in five ways. First, despite the associations found between attachment, attributional biases, and relational aggression in childhood (Dodge, 2006), to my knowledge, the present study was the first to test these associations simultaneously in a university sample. Bowlby (1969/1988) emphasized the importance of early familial interactions in establishing individuals' patterns of processing social information and behaviours that are carried into future social relationships. Consistent with Bowlby's (1969) proposition that later attachment figures may also operate as socializing agents that influence individuals' thoughts and behaviours, the findings of this study suggest that attachment to peers and romantic partners influence hostile attributions and relational aggression in adulthood.

Second, this study was the first to use the four category model of attachment while exploring the attachment-relational aggression associations. The use of the four category model of attachment was informative because the mediation effect that emerged was for dismissing attachment. Dismissing attachment may not have been

accurately measured if a different theoretical approach had been taken. Moreover, the post hoc mediation analyses supported the mediating role of fearful attachment, which would have likely not have been adequately measured had the T-RSQ not been used. Accordingly, these two attachment scales would not have been adequately measured without using the four category model of attachment and the T-RSQ. Third, the current work is the first to de-construct relational aggression into its three subscales while exploring the attachment-relational aggression association in adulthood. The results of the present study suggest that this distinction is necessary due to the different results obtained for the different subscales of relational aggression.

Fourth, the subscales of relational aggression were measured using a self-report survey and questions following the vignettes, which surpass measuring relational aggression using only a single method as was used in previous research. However, due to the discrepancy in findings for the different measures, future research should try to replicate these findings or consider other viable options for exploring these associations in adulthood. As previously mentioned, alternative measures of aggression, such as the reports of peer and romantic partners, have seldom been used because they may be unlikely to capture the true level of relational aggression that participants have engaged in (Bailey & Ostrov, 2008; Linder et al., 2002; Storch et al., 2004). Furthermore, they may be difficult to obtain in a wide university sample due to the large size and fluidity of peer groups (Dahlen et al., 2013). However, future research could explore potential solutions to these problems, such as assessing relational aggression in close-knit peer groups where individuals have formed close relationships with each other (e.g., certain university clubs or organizations). This

may allow researchers to adequately assess relational aggression in a manner other than self-reports. Furthermore, future research could use the audio-video based vignette measure proposed by Coccaro, Fanning, Fischer, et al. (2017) to explore whether the results obtained using this measure are similar to the results obtained using a different vignette measure (e.g., Coccaro et al., 2009).

Finally, benign attributions have received scant attention in the aggression literature. In fact, this study was the first to explore benign attributions as a potential mediator between attachment and relational aggression. The results of the present study do not support the mediating role of benign attributions between attachment and relational aggression. Since attachment to peers and attachment to romantic partners did not predict benign attributions in the present study, it may be that benign attributions that are learned through secure attachment to a responsive adult early in life (Dodge, 2006) are not influenced by attachment relationships later in life. Future research could further explore this finding by measuring attachment to parents as well as attachment to peers and romantic partners in adulthood to test whether parental relationships in adulthood influence benign attributions.

### **Limitations and Future Directions**

A limitation of this study was the drastic difference between the number of male and female participants ( $n = 52$  and  $n = 205$ , respectively). Even though this was a typical university sample, it is difficult to generalize these findings to samples that contain more males. Another limitation may be the self-report format of data collection used in this study. Social desirability concerns have been consistently listed as a limitation of using self-report forms of data collection in the aggression literature

(e.g., Bailey & Ostrov, 2008; Goldstein et al., 2008). The means of the aggression subscales in the present study were low, which was consistent with previous research. Therefore, participants may be underreporting the prevalence of relational aggression in their social relationships. Consequently, self-report measures of aggression were likely influenced by social desirability biases, which suggests that alternative measures of aggression should be considered in future research.

Despite the strengths associated with using vignettes to assess attributions, there may be a few downfalls in the design of vignettes. In a literature review on attributions and aggression in children and adolescents, Martinelli et al. (2018) suggested that the pervasive association found between hostile attributions and reactive aggression (but not proactive aggression) may be due to the nature of the relational provocations presented in vignettes that are based on relationship-threatening situations. These types of situations have been found to provoke feelings of anger and hostile attributions in individuals who typically engage in reactive aggression as part of their relationship dynamics. Interestingly, the introduction of vignettes describing manipulative and premeditated behaviours may provoke hostile attributions in individuals who typically engage in proactive aggression in their relationships (Martinelli et al., 2018). While the researchers did not assess vignettes used to measure attributions and aggressive responses in adult samples, the same issues seem to be present in vignettes used in adulthood. Although the concerns raised seem reasonable, the results of the present study may have revealed a problem with the implementation of the previous suggestion. Since the combination of attachment and hostile attributions predicted proactive and reactive aggression when measured using

the vignettes, it may be that the placement of proactive items right after the vignettes may have made proactive items seem reactive since they were posed as a response to the vignettes rather than goal-oriented behaviours. Consequently, future research should explore new methods of measuring proactive relational aggression.

Descriptive analyses revealed that not all participants were thinking of one romantic partner while responding to the romantic partner T-RSQ. This is a limitation because participants may have answered certain questions based on their relationship with one individual and other questions based on their relationship with other individuals. Consequently, their total scores on the attachment scale may not be representative of their attachment representations in any of their romantic relationships. This concern is also relevant for the measure of relational aggression. Individuals may not have been thinking about the same peers and romantic partners when responding to the SRASBM and the SIP-AEQ vignettes, which may yield different results on these measures if the participants were to complete these measures on another day while thinking of different individuals. Consequently, test-retest reliability may be impacted depending on who participants think about while completing the measures.

In conclusion, although the findings of the present study yielded limited support to the mediating role of attributions between attachment and relational aggression in adulthood, they nonetheless pointed to the importance of avoidant attachment when exploring the associations between attachment, attributional biases, and relational aggression. Contrary to expectations, attributional biases did not seem to influence the relationship between secure attachment and relational aggression and

between preoccupied attachment and relational aggression. Another contribution to the literature was that the present study proposed explanations for why benign attributions, which have been understudied in adulthood, did not play a mediating role between attachment and relational aggression. Furthermore, the present study extended previous research and raised important questions for future research.

## References

- Adamczyk, K., & Pilarska, A. (2012). Attachment style, relationship status, gender and relational competences among young adults. *Polish Psychological Bulletin, 43*, 59-69. doi:10.2478/v10059-012-0007-4
- Bagner, D. M., Storch, E. A., & Preston, A. S. (2007). Romantic relational aggression: What about gender? *Journal of Family Violence, 22*, 19-24. doi:10.1007/s10896-006-9055-x
- Bailey, C. A., & Ostrov, J. M. (2008). Differentiating forms and functions of aggression in emerging adults: Associations with hostile attribution biases and normative beliefs. *Journal of Youth and Adolescence, 37*, 713-722. doi:10.1007/s10964-007-9211-5
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182. doi:10.1037/0022-3514.51.6.1173
- Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships, 7*, 147-178. doi:10.1177/0265407590072001
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226-244. doi:10.1037/0022-3514.61.2.226
- Bowlby, J. (1969). Objections, misconceptions, and clarifications. *Attachment and Loss, Vol. 1: Attachment* (pp.371-376). New York, NY: Penguin Books.

- Bowlby, J. (1980). An Information Processing Approach to Defence. *Attachment and Loss, Vol. 3: Loss Sadness and Depression* (pp.44-75). New York, NY: Basic Books.
- Bowlby, J. (1988). The origins of attachment theory. *A secure base: Parent-child attachment and healthy human development* (pp.20-38). New York, NY: Basic Books.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York, NY: Guildford Press.
- Campbell, L., Simpson, J. A., Boldry, J., & Kashy, D. A. (2005). Perceptions of conflict and support in romantic relationships: The role of attachment anxiety. *Journal of Personality and Social Psychology*, 88, 510-531. doi:10.1037/0022-3514.88.3.510
- Carroll, J. S., Nelson, D. A., Yorgason, J. B., Harper, J. M., Ashton, R. H., & Jensen, A. C. (2010). Relational aggression in marriage. *Aggressive Behavior*, 36, 315-329. doi:10.1002/ab.20349
- Chen, P., Coccaro, E. F., & Jacobson, K. C. (2012). Hostile attributional bias, negative emotional responding, and aggression in adults: Moderating effects of gender and impulsivity. *Aggressive Behavior*, 38, 47-63. doi:10.1002/ab.21407

- Coccaro, E. F., Fanning, J. R., Fisher, E., Couture, L., & Lee, R. J. (2017). Social emotional information processing in adults: Development and psychometrics of a computerized video assessment in healthy controls and aggressive individuals. *Psychiatry Research, 248*, 40-47.  
doi:10.1016/j.psychres.2016.11.004
- Coccaro, E. F., Fanning, J., & Lee, R. (2017). Development of a social emotional information processing assessment for adults (SEIP-Q). *Aggressive Behavior, 43*, 47-59. doi:10.1002/ab.21661
- Coccaro, E. F., Noblett, K. L., & McCloskey, M. S. (2009). Attributional and emotional responses to socially ambiguous cues: Validation of a new assessment of social/emotional information processing in healthy adults and impulsive aggressive patients. *Journal of Psychiatric Research, 43*, 915-925.  
doi:10.1016/j.jpsychires.2009.01.012
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.  
doi:10.1037/0033-2909.112.1.155
- Collins, N. L., & Feeney, B. C. (2004). Working models of attachment shape perceptions of social support: Evidence from experimental and observational studies. *Journal of Personality and Social Psychology, 87*, 363-383.  
doi:10.1037/0022-3514.87.3.363
- Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58*, 644-663. doi:10.1037/0022-3514.58.4.644

- Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology, 71*, 810-832. doi:10.1037/0022-3514.71.4.810
- Crick, N. R. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology, 7*, 313-322. doi:10.1017/S0954579400006520
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74-101. doi:10.1037/0033-2909.115.1.74
- Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms on reactive and proactive aggression. *Child Development, 67*, 993-1002. doi:10.2307/1131875
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*, 710-722. doi:10.2307/1131945
- Dahlen, E. R., Czar, K. A., Prather, E., & Dyess, C. (2013). Relational aggression and victimization in college students. *Journal of College Student Development, 54*, 140-154. doi:10.1353/csd.2013.0021
- Dodge, K. A. (2006). Translational science in action: Hostile attributional style and the development of aggressive behavior problems. *Development and Psychopathology, 18*, 791-814. doi:10.1017/S0954579406060391
- Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. *Science, 250*, 1678-1683. doi:10.1126/science.2270481

- Dodge, K. A., Malone, P. S., Lansford, J. E., Sorbring, E., Skinner, A. T., Tapanya, S., . . . Pastorelli, C. (2015). Hostile attributional bias and aggressive behavior in global context. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, *112*, 9310-9315. doi:10.1073/pnas.1418572112
- Ennis, E., Vrij, A., & Chance, C. (2008). Individual differences and lying in everyday life. *Journal of Social and Personal Relationships*, *25*, 105-118.  
doi:10.1177/0265407507086808
- Feeney, J., & Noller, P. (1996). Adult Attachment: Broadening the Picture. In *Adult attachment* (pp. 117-134). Thousand Oaks, CA: SAGE Publications.  
doi:10.4135/9781452243276
- Feeney, J. A., Noller, P., & Callan, V. J. (1994). Attachment style, communication and satisfaction in the early years of marriage. In K. Bartholomew, & D. Perlman (Eds.), *Attachment processes in adulthood; attachment processes in adulthood* (pp. 269-308, 342). London, United Kingdom: Jessica Kingsley Publishers.
- Fitzpatrick, J., & Lafontaine, M. (2017). Attachment, trust, and satisfaction in relationships: Investigating actor, partner, and mediating effects. *Personal Relationships*, *24*, 640-662. doi:10.1111/pere.12203
- Foster, J. D., Kernis, M. H., & Goldman, B. M. (2007). Linking adult attachment of self-esteem stability. *Self and Identity*, *6*, 64-73.  
doi:10.1080/15298860600832139
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*, 350-365. doi:10.1037/0022-3514.78.2.350

- Goldstein, S. E. (2011). Relational aggression in young adults' friendships and romantic relationships. *Personal Relationships, 18*, 645-656.  
doi:10.1111/j.1475-6811.2010.01329.x
- Goldstein, S. E., Chesir-Teran, D., & McFaul, A. (2008). Profiles and correlates of relational aggression in young adults' romantic relationships. *Journal of Youth and Adolescence, 37*, 251–265. doi:10.1007/s10964-007-9255-6
- Grimm, L. G., & Yarnold, P. R. (1995). *Reading and Understanding Multivariate Statistics*. Washington, DC: American Psychological Association.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Ohio, OH: Guilford Publications.
- Kobak, R. R., & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development, 59*, 135-146. doi:10.2307/1130395
- Lafontaine, M., Brassard, A., Lussier, Y., Valois, P., Shaver, P. R., & Johnson, S. M. (2015). Selecting the best items for a short-form of the experiences in close relationships questionnaire. *European Journal of Psychological Assessment, 32*, 140-154. doi:10.1027/1015-5759/a000243
- Lento-Zwolinski, J. (2007). College students' self-report of psychosocial factors in reactive forms of relational and physical aggression. *Journal of Social and Personal Relationships, 24*, 407-421. doi:10.1177/0265407507077229

- Linder, J. R., Crick, N. R., & Collins, W. A. (2002). Relational aggression and victimization in young adults' romantic relationships: Associations with perceptions of parent, peer, and romantic relationship quality. *Social Development, 11*, 69-86. doi:10.1111/1467-9507.00187
- Loudin, J. L., Loukas, A., & Robinson, S. (2003). Relational aggression in college students: Examining the roles of social anxiety and empathy. *Aggressive Behavior, 29*, 430-439. doi:10.1002/ab.10039
- Marrero-Quevedo, R., Blanco-Hernández, P. J., & Hernández-Cabrera, J. A. (2018). Adult attachment and psychological well-being: The mediating role of personality. *Journal of Adult Development, 26*, 41-56. doi:10.1007/s10804-018-9297-x
- Martinelli, A., Ackermann, K., Bernhard, A., Freitag, C. M., & Schwenck, C. (2018). Hostile attribution bias and aggression in children and adolescents: A systematic literature review on the influence of aggression subtype and gender. *Aggression and Violent Behavior, 39*, 25-32.  
doi:10.1016/j.avb.2018.01.005
- Mattingly, B. A., Whitson, D., & Mattingly, M. J. B. (2012). Development of the romantic jealousy-induction scale and the motives for inducing romantic jealousy scale. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues, 31*, 263-281. doi:10.1007/s12144-012-9144-3

- Mikulincer, M., & Shaver, P. R. (2005). Mental representations of attachment security: Theoretical foundation for a positive social psychology. In M. W. Baldwin (Ed.), *Interpersonal cognition* (pp. 233-266). New York, NY: Guilford Press.
- Mikulincer, M., & Shaver, P. R. (2007). Attachment Processes and Couple Functioning. *In Attachment in adulthood: Structure, dynamics, and change* (pp.285-324). New York, NY: Guilford Press.
- Miller, R. (2012). Social cognition. *Intimate Relationships* (pp.105-138). New York, NY: McGraw-Hill.
- Morales, J. R., & Crick, N. R. (1998). Self-report of aggression and social behavior measure. *Unpublished measure, University of Minnesota, Twin Cities Campus.*
- Murray-Close, D., Ostrov, J. M., Nelson, D. A., Crick, N. R., & Coccaro, E. F. (2010). Proactive, reactive, and romantic relational aggression in adulthood: Measurement, predictive validity, gender differences, and association with intermittent explosive disorder. *Journal of Psychiatric Research, 44*, 393-404. doi:10.1016/j.jpsychires.2009.09.005
- Oka, M., Brown, C. C., & Miller, R. B. (2016). Attachment and relational aggression: Power as a mediating variable. *American Journal of Family Therapy, 44*, 24-35. doi:10.1080/01926187.2015.1105716
- Oka, M., Sandberg, J. G., Bradford, A. B., & Brown, A. (2014). Insecure attachment behavior and partner violence: Incorporating couple perceptions of insecure attachment and relational aggression. *Journal of Marital and Family Therapy, 40*, 412-429. doi:10.1111/jmft.12079

Pettit, G. S., Lansford, J. E., Malone, P. S., Dodge, K. A., & Bates, J. E. (2010).

Domain specificity in relationship history, social-information processing, and violent behavior in early adulthood. *Journal of Personality and Social Psychology*, *98*, 190-200. doi:10.1037/a0017991

Quan, F., Yang, R., Zhu, W., Wang, Y., Gong, X., Chen, Y., . . . Xia, L. (2019). The relationship between hostile attribution bias and aggression and the mediating effect of anger rumination. *Personality and Individual Differences*, *139*, 228-234. doi:10.1016/j.paid.2018.11.029

Scharfe, E. (2016). Measuring what counts: Development of a new four-category measure of adult attachment. *Personal Relationships*, *23*, 4-22. doi:10.1111/pere.12105

Scharfe, E., & Bartholomew, K. (1995). Accommodation and attachment representations in young couples. *Journal of Social and Personal Relationships*, *12*, 389-401. doi:10.1177/0265407595123004

Sobel, M. E. (1982) Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models. *Sociological Methodology*, *13*, 290-321. doi:10.2307/270723

Steiner, P. M., Atzmüller, C., & Su, D. (2016). Designing valid and reliable vignette experiments for survey research: A case study on the fair gender income gap. *Journal of Methods and Measurement in the Social Sciences*, *7*, 52-94. doi:10.2458/v7i2.20321

- Storch, E. A., Bagner, D. M., Geffken, G. R., & Baumeister, A. L. (2004). Association between overt and relational aggression and psychosocial adjustment in undergraduate college students. *Violence and Victims, 19*, 689-700.  
doi:10.1891/vivi.19.6.689.66342
- Tabachnick, B. G. & Fidell, L. S (2007). *Using multivariate statistics*. Boston, MA: Pearson.
- Weber, D., & Robinson Kurpius, S. (2011). The importance of self-beliefs on relational aggression of college students. *Journal of Interpersonal Violence, 26*, 2735-2743. doi:10.1177/0886260510388287
- Wegner, R., Roy, A. R. K., Gorman, K. R., & Ferguson, K. (2018). Attachment, relationship communication style and the use of jealousy induction techniques in romantic relationships. *Personality and Individual Differences, 129*, 6-11.  
doi:10.1016/j.paid.2018.02.033
- Werner, N. E., & Crick, N. R. (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal of Abnormal Psychology, 108*, 615-623. doi:10.1037/0021-843X.108.4.615
- Wilson, J. B., Gardner, B. C., Brosi, M. W., Topham, G. L., & Busby, D. M. (2013). Dyadic adult attachment style and aggression within romantic relationships. *Journal of Couple & Relationship Therapy, 12*, 186-205.  
doi:10.1080/15332691.2013.779185

## Appendix A

### Information and Consent Form

**Title:** Frenemies: Attachment, Relational Aggression, and Attributional Biases

**Researcher and Graduate student:** Ghinwa El-Ariss, 705-748-1011 x 7872, LHS C131, [ghinwaelariss@trentu.ca](mailto:ghinwaelariss@trentu.ca)

**Researcher and Supervisor:** Dr. Elaine Scharfe, PhD., Department of Psychology, 705-748-1011 x 7354, LHS C130, [escharfe@trentu.ca](mailto:escharfe@trentu.ca)

### Information

**The purpose of this research:**

The present study investigates whether attachment style leads to the development of the hostile attributional bias, which in turn makes people susceptible to engaging in relational aggression in their peer and romantic relationships. In order to achieve this goal, we will explore the associations between your views of your peer and romantic relationships (your “attachment relationships”), your explanations of the behaviours of your peers and romantic partners (your “attributions”), and your behaviours that may threaten or damage your peer and romantic relationships (“relational aggression”).

**Procedures:**

If you choose to participate in this project, you will be asked to complete an online survey containing demographic questions, surveys, and hypothetical scenarios (i.e., vignettes) to assess your views of your relationships with your close friends and romantic partners, your attributions of the intents of your peers and romantic partners, and your use of relational aggression in your peer and romantic relationships. You may review the questionnaires before you decide to participate by asking the researcher for a copy to review. It will take you approximately 50-55 minutes to complete the questionnaires.

### Consent

**Discomfort, Risks, and Benefits:**

There is no expected harm from completing these questionnaires, however, some of the questions may be viewed as personal and you can refuse to answer any question(s) and may stop participating at any time. Some people report that the survey gets them to think about their behaviors, feelings, experiences, and their relationships more deeply than they might do otherwise and that may be a benefit or a risk depending on the nature of your behaviours and relationships. While it is not anticipated that participation in this study will cause you any distress, we recognize that you may have noticed this study because it addresses the topic of relational aggression. If you feel that, as a result of your participation in this study, you would like more information about how to access services to discuss your experiences, or that of an acquaintance, we have provided a list of services where you could reach out for help at the end of this survey. A benefit of participation may be that you value the opportunity to learn about the research being conducted by Psychology professors and students – who are benefitting from your willingness to participate in the study. By agreeing to this consent form and completing the online surveys, you will be awarded 2% credit bonus toward your psychology course grade.

**Confidentiality:**

You understand that your responses will be completely confidential and that you may skip any question(s) that you are not comfortable answering. All data from the questionnaires

will be completely anonymous and will be stored in a computer file form using the ID number for identification purposes. This anonymous data will be analyzed by Dr. Elaine Scharfe, as well as Ghinwa El-Ariss who is a graduate student in Dr. Scharfe's research lab, with the purpose of fulfilling Ghinwa's MSc thesis requirements. Undergraduate students may use these data to fulfill their course requirements for a 3<sup>rd</sup> or 4<sup>th</sup> year research practicum course. Data will also be used by Dr. Scharfe for research and teaching purposes. The data may be presented at conferences and published in journals, chapters, books or other venues. The data will also be used to support external research grants of Dr. Scharfe and her colleagues. All anonymous data will be kept for at least five years after publication of the results.

**Other:**

Participation in this study is completely your choice. You can refuse to answer any question or quit participating at any time and there will be no negative consequences to you whatsoever. If you stop taking part in the study, the information you have given up to the time of your withdrawal will be automatically deleted from the system. Once you have completed the study and submitted your responses, you should understand that you will not be able to withdraw; the data will remain completely anonymous (i.e., the data will not be associated with you). If you have any questions about this study, you should take this opportunity to ask questions to the researcher now (Ghinwa El-Ariss; [ghinwaelariss@trentu.ca](mailto:ghinwaelariss@trentu.ca)) or by emailing Dr. Elaine Scharfe ([escharfe@trentu.ca](mailto:escharfe@trentu.ca); 748-1011 ext. 7354), so that your concerns are addressed to your satisfaction before you agree to participate.

If you agree to participate in this study, you should understand that by proceeding you are giving informed consent. If you would like a summary of the results, you will need to email Ghinwa El-Ariss, [ghinwaelariss@trentu.ca](mailto:ghinwaelariss@trentu.ca) or Dr. Elaine Scharfe, [escharfe@trentu.ca](mailto:escharfe@trentu.ca) to let them know that you would like to receive this summary when the study is completed (Fall 2019). You understand that if you would like clarification regarding any part of this research, you can contact the researcher. If you have any questions about the ethics approval or considerations, you may contact the Trent Research Ethics Board by either phoning Karen Mauro at 748 1011 x 7896 or e-mailing her at [kmauro@trentu.ca](mailto:kmauro@trentu.ca). You understand that you can print a paper copy of this consent form for your records.

You have read and given consent to completing the following questionnaire. To confirm that you agree to the consent form, you will click here to proceed.

If you do not wish to participate, do not continue and please close the browser.

Appendix B  
Demographic Questionnaire

Indicate your gender:

- Male  
 Female

Neither of these apply to me. I prefer \_\_\_\_\_

Age: \_\_\_\_\_

What is your year of education at Trent University?

- 1<sup>st</sup> year  
 2<sup>nd</sup> year  
 3<sup>rd</sup> year  
 4<sup>th</sup> year  
 Graduate studies  
 Other (please specify: \_\_\_\_\_)

Ethnicity (please fill in all that apply)

- Caucasian (please specify: \_\_\_\_\_)  
 Black (please specify: \_\_\_\_\_)  
 Asian (please specify: \_\_\_\_\_)  
 First Nations, Metis, Inuit (please specify: \_\_\_\_\_)  
 Other (please specify: \_\_\_\_\_)

Sexual Orientation (please select what applies)

- Straight/heterosexual  
 Lesbian  
 Gay  
 Bisexual  
 Queer  
 Polysexual  
 Two-spirit  
 Questioning/unsure  
 Prefer not to answer  
 Other not listed here (\_\_\_\_\_)

Marital status (choose the option that best describes your relationship status)

- Single (not dating)  
 Single (dating casually)  
 In a committed relationship (but not living with romantic partner)  
 Living with romantic partner  
 Married or common law  
 Separated  
 Divorced  
 Widowed  
 Other (please specify: \_\_\_\_\_)

If you are currently in a romantic relationship, how long have you been in this relationship?

\_\_\_\_\_

Appendix C  
Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016)

Please read each of the following and rate the extent to which it describes your feelings about *close friendships* on the 7-point scale. Think about all of your close friendships, past and present, and respond in terms of how you generally feel in these relationships.

	1	2	3	4	5	6	7	
	Not at all like me			Somewhat like me			Very much like me	
___	1.	I find it difficult to depend on my close friends.						
___	2.	It is very important to me to feel independent from my close friends.						
___	3.	I find it easy to get emotionally close to my close friends.						
___	4.	I worry that I will be hurt if I allow myself to become too close to my close friends.						
___	5.	I am comfortable without close emotional relationships.						
___	6.	I want to be completely emotionally intimate with my close friends.						
___	7.	I worry about being alone.						
___	8.	I am comfortable depending on my close friends.						
___	9.	I find it difficult to trust my close friends completely.						
___	10.	I am comfortable having my close friends depend on me.						
___	11.	I worry that my close friends do not value me as much as I value them.						
___	12.	It is very important to me to feel self-sufficient.						
___	13.	I prefer not to have my close friends depend on me.						
___	14.	I am somewhat uncomfortable being close to my close friends.						
___	15.	I find that my close friends are reluctant to get as close as I would like.						
___	16.	I prefer not to depend on my close friends.						
___	17.	I worry about having my close friends not accept me.						
___	18.	I tend to let problems build up before dealing with them.						
___	19.	I would like to spend more time with my close friends, but they do not have enough time for me.						
___	20.	It takes a long time for me to become close to someone new.						
___	21.	I am affectionate in my relationships with my close friends.						
___	22.	I am too busy to form close relationships with my close friends.						
___	23.	I tend to be emotionally expressive in my relationships with my close friends.						
___	24.	I am honest and open in my relationships with my close friends.						
___	25.	I am shy in social situations.						
___	26.	When I disagree with my close friends, I find that they are often defensive.						
___	27.	I do not disclose personal information to my close friends that I am close to.						
___	28.	It is difficult to accept advice from my close friends because their views are so different from mine.						
___	29.	I like to deal with conflict immediately, regardless of how long it takes to resolve the conflict.						
___	30.	I am usually a good judge of how my close friends are feeling.						
___	31.	I cry easily.						
___	32.	I handle conflicts differently depending on the issues and the individual involved.						
___	33.	I do not express my feelings openly for fear that my close friends might disagree with me.						

- \_\_\_ 34. I believe that it is a waste of time to argue/disagree with my close friends.
- \_\_\_ 35. I am comfortable crying in front of my close friends.
- \_\_\_ 36. Many of the problems in my relationships with my close friends are primarily my fault.
- \_\_\_ 37. When I am upset, I go to my close friends for comfort or support.
- \_\_\_ 38. I do not go to my close friends when I am upset because I like to deal with problems on my own.
- \_\_\_ 39. Although I want to be accepted, sometimes I feel like I do not fit in.
- \_\_\_ 40. I wish that I could be more open in my relationships, but I do not know how to change.
- \_\_\_ 41. I can go to my close friends to help me feel better when I am upset or when something bad happens.
- \_\_\_ 42. I can count on my close friends to always be there for me and care about me no matter what.
- \_\_\_ 43. I need to see or talk regularly with my close friends.
- \_\_\_ 44. I would be upset if I knew that I was not going to see my close friends for a long time.
- \_\_\_ 45. I am anxious and I worry when I cannot have immediate contact with my close friends.
- \_\_\_ 46. I know that my close friends will always accept me, no matter what I say or do.
- \_\_\_ 47. My resolution of conflicts with my close friends changes depending on the situation.
- \_\_\_ 48. My resolution of conflicts with my close friends is always the same – I always do the same thing when we disagree.
- \_\_\_ 49. I prefer to deal with problems on my own so I do not go to my close friends for support or advice.
- \_\_\_ 50. I am comfortable not having a close emotional relationship with my close friends.
51. Who did you think about when you completed the questions above about your close friends? (select all that apply)
- \_\_\_ your closest or best friend
- \_\_\_ 2-4 of your current close friends
- \_\_\_ more than 5 of your current close friends
- \_\_\_ your closest or best friend in the past (not currently your best friend)
- \_\_\_ 2-4 of your close friends from the past (you no longer consider them close friends)
- \_\_\_ more than 5 of your close friends from the past (you no longer consider them close friends)

Appendix D  
Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016)

Please read each of the following and rate the extent to which it describes your feelings about *romantic relationships* on the 7-point scale. If you are not currently in a romantic relationship, please think about any past relationships and respond in terms of how you generally felt in those relationships or skip to the next questionnaire.

- | 1                     | 2   | 3   | 4                   | 5 | 6 | 7                    |
|-----------------------|-----|---|---------------------|---|---|----------------------|
| Not at all<br>like me |     |   | Somewhat<br>like me |   |   | Very much<br>like me |
| ___                   | 1.  | I find it difficult to depend on my romantic partner.   |                     |   |   |                      |
| ___                   | 2.  | It is very important to me to feel independent from my romantic partner.                                  |                     |   |   |                      |
| ___                   | 3.  | I find it easy to get emotionally close to my romantic partner.   |                     |   |   |                      |
| ___                   | 4.  | I worry that I will be hurt if I allow myself to become too close to my romantic partner.                 |                     |   |   |                      |
| ___                   | 5.  | I am comfortable without close emotional relationships.   |                     |   |   |                      |
| ___                   | 6.  | I want to be completely emotionally intimate with my romantic partner.                                    |                     |   |   |                      |
| ___                   | 7.  | I worry about being alone.  |                     |   |   |                      |
| ___                   | 8.  | I am comfortable depending on my romantic partner.  |                     |   |   |                      |
| ___                   | 9.  | I find it difficult to trust my romantic partner completely.  |                     |   |   |                      |
| ___                   | 10. | I am comfortable having my romantic partner depend on me.   |                     |   |   |                      |
| ___                   | 11. | I worry that my romantic partner does not value me as much as I value them.                               |                     |   |   |                      |
| ___                   | 12. | It is very important to me to feel self-sufficient.   |                     |   |   |                      |
| ___                   | 13. | I prefer not to have my romantic partner depend on me.  |                     |   |   |                      |
| ___                   | 14. | I am somewhat uncomfortable being close to my romantic partner.   |                     |   |   |                      |
| ___                   | 15. | I find that my romantic partner is reluctant to get as close as I would like.                             |                     |   |   |                      |
| ___                   | 16. | I prefer not to depend on my romantic partner.  |                     |   |   |                      |
| ___                   | 17. | I worry about having my romantic partner not accept me.   |                     |   |   |                      |
| ___                   | 18. | I tend to let problems build up before dealing with them.   |                     |   |   |                      |
| ___                   | 19. | I would like to spend more time with my romantic partner, but they do not have enough time for me.        |                     |   |   |                      |
| ___                   | 20. | It takes a long time for me to become close to someone new.   |                     |   |   |                      |
| ___                   | 21. | I am affectionate in my relationship with my romantic partner.  |                     |   |   |                      |
| ___                   | 22. | I am too busy to form a close relationship with my romantic partner.                                      |                     |   |   |                      |
| ___                   | 23. | I tend to be emotionally expressive in my relationship with my romantic partner.                          |                     |   |   |                      |
| ___                   | 24. | I am honest and open in my relationship with my romantic partner.   |                     |   |   |                      |
| ___                   | 25. | I am shy in social situations.  |                     |   |   |                      |
| ___                   | 26. | When I disagree with my romantic partner, I find that they are often defensive.                           |                     |   |   |                      |
| ___                   | 27. | I do not disclose personal information to my romantic partner that I am close to.                         |                     |   |   |                      |
| ___                   | 28. | It is difficult to accept advice from my romantic partner because their views are so different from mine. |                     |   |   |                      |
| ___                   | 29. | I like to deal with conflict immediately, regardless of how long it takes to resolve the conflict.        |                     |   |   |                      |
| ___                   | 30. | I am usually a good judge of how my romantic partner is feeling.  |                     |   |   |                      |
| ___                   | 31. | I cry easily.   |                     |   |   |                      |

- \_\_\_ 32. I handle conflicts differently depending on the issues and the individual involved.
- \_\_\_ 33. I do not express my feelings openly for fear that my romantic partner might disagree with me.
- \_\_\_ 34. I believe that it is a waste of time to argue/disagree with my romantic partner.
- \_\_\_ 35. I am comfortable crying in front of my romantic partner.
- \_\_\_ 36. Many of the problems in my relationship with my romantic partner are primarily my fault.
- \_\_\_ 37. When I am upset, I go to my romantic partner for comfort or support.
- \_\_\_ 38. I do not go to my romantic partner when I am upset because I like to deal with problems on my own.
- \_\_\_ 39. Although I want to be accepted, sometimes I feel like I do not fit in.
- \_\_\_ 40. I wish that I could be more open in my relationships, but I do not know how to change.
- \_\_\_ 41. I can go to my romantic partner to help me feel better when I am upset or when something bad happens.
- \_\_\_ 42. I can count on my romantic partner to always be there for me and care about me no matter what.
- \_\_\_ 43. I need to see or talk regularly with my romantic partner.
- \_\_\_ 44. I would be upset if I knew that I was not going to see my romantic partner for a long time.
- \_\_\_ 45. I am anxious and I worry when I cannot have immediate contact with my romantic partner.
- \_\_\_ 46. I know that my romantic partner will always accept me, no matter what I say or do.
- \_\_\_ 47. My resolution of conflicts with my romantic partner changes depending on the situation or the person.
- \_\_\_ 48. My resolution of conflicts with my romantic partner is always the same – I always do the same thing when we disagree.
- \_\_\_ 49. I prefer to deal with problems on my own so I do not go to my romantic partner for support or advice.
- \_\_\_ 50. I am comfortable not having a close emotional relationship with my romantic partner
51. Who did you think about when you completed the questions above about your romantic partner? (select all that apply)
- \_\_\_ your current romantic partner
- \_\_\_ your current romantic partner and 1-4 of your past romantic partners
- \_\_\_ 1-4 of your romantic partners from the past (you no longer consider them a romantic partner)
- \_\_\_ more than 5 of your romantic partners from the past (you no longer consider them a romantic partner)

## Appendix E

## Self-Report of Aggression and Social Behavior Measure (SRASBM; Morales &amp; Crick, 1998)

Directions: This questionnaire is designed to measure qualities of adult social interaction and close relationships. Please read each statement and indicate how true each is for you, now and during the last year, using the scale below. **IMPORTANT.** The items marked with asterisks (\*) ask about experiences in a current romantic relationship. If you are not currently in a romantic relationship please think about your previous romantic relationships while answering these questions or skip to the next questionnaire. Remember that your answers to these questions are completely anonymous, so please answer them as honestly as possible!

- | 1                  | 2   | 3   | 4                | 5 | 6 | 7            |  |
|--------------------|-----|---|------------------|---|---|--------------|--|
| Not at all<br>true |     |   | Somewhat<br>true |   |   | Very<br>true |  |
| ___                | 1.  | I usually follow through with my commitments.   |                  |   |   |              |  |
| ___                | 2.  | * I have threatened to break up with my romantic partner in order to get him/her to do what I wanted.   |                  |   |   |              |  |
| ___                | 3.  | * My romantic partner tries to make me feel jealous as a way of getting back at me.   |                  |   |   |              |  |
| ___                | 4.  | * It bothers me if my romantic partner wants to spend time with his/her other friends.  |                  |   |   |              |  |
| ___                | 5.  | I try to get my own way by physically intimidating others.  |                  |   |   |              |  |
| ___                | 6.  | I have a friend who ignores me or gives me the "cold shoulder" when s/he is angry with me.  |                  |   |   |              |  |
| ___                | 7.  | I am willing to lend money to other people if they have a good reason for needing it.   |                  |   |   |              |  |
| ___                | 8.  | *When my romantic partner is mad at me, s/he won't invite me to do things with our friends.   |                  |   |   |              |  |
| ___                | 9.  | My friends know that I will think less of them if they do not do what I want them to do.  |                  |   |   |              |  |
| ___                | 10. | I get jealous if one of my friends spends time with his/her other friends even when I am busy.  |                  |   |   |              |  |
| ___                | 11. | When I am not invited to do something with a group of people, I will exclude those people from future activities.   |                  |   |   |              |  |
| ___                | 12. | I have been pushed or shoved by people when they are mad at me.   |                  |   |   |              |  |
| ___                | 13. | I am usually kind to other people.  |                  |   |   |              |  |
| ___                | 14. | I am usually willing to help out others.  |                  |   |   |              |  |
| ___                | 15. | When I want something from a friend of mine, I act "cold" or indifferent towards them until I get what I want.  |                  |   |   |              |  |
| ___                | 16. | I would rather spend time alone with a friend than be with other friends too.   |                  |   |   |              |  |
| ___                | 17. | A friend of mine has gone "behind my back" and shared private information about me with other people.   |                  |   |   |              |  |
| ___                | 18. | *My romantic partner has pushed or shoved me in order to get me to do what s/he wants.  |                  |   |   |              |  |
| ___                | 19. | I try to make sure that other people get invited to participate in group activities.  |                  |   |   |              |  |
| ___                | 20. | *I try to make my romantic partner jealous when I am mad at him/her.  |                  |   |   |              |  |
| ___                | 21. | When someone makes me really angry, I push or shove the person.   |                  |   |   |              |  |
| ___                | 22. | I get mad or upset if a friend wants to be close friends with someone else.   |                  |   |   |              |  |
| ___                | 23. | When I have been angry at, or jealous of someone, I have tried to damage that person's reputation by gossiping about him/her or by passing on negative information about him/her to other people. |                  |   |   |              |  |
| ___                | 24. | When someone does something that makes me angry, I try to embarrass that person or make them look stupid in front of his/her friends.   |                  |   |   |              |  |

- \_\_\_ 25. I am willing to give advice to others when asked for it.
- \_\_\_ 26. \*My romantic partner has threatened to physically harm me in order to control me.
- \_\_\_ 27. When I have been mad at a friend, I have flirted with his/her romantic partner.
- \_\_\_ 28. When I am mad at a person, I try to make sure s/he is excluded from group activities (going to the movies or to a bar).
- \_\_\_ 29. I have a friend who tries to get her/his own way with me through physical intimidation.
- \_\_\_ 30. \*I get jealous if my romantic partner spends time with her/his other friends, instead of just being alone with me.
- \_\_\_ 31. I make an effort to include other people in my conversations.
- \_\_\_ 32. When I have been provoked by something a person has said or done, I have retaliated by threatening to physically harm that person.
- \_\_\_ 33. \*My romantic partner has threatened to break up with me in order to get me to do what s/he wants.
- \_\_\_ 34. It bothers me if a friend wants to spend time with his/her other friends, instead of just being alone with me.
- \_\_\_ 35. \*My romantic partner doesn't pay attention to me when s/he is mad at me.
- \_\_\_ 36. I have threatened to share private information about my friends with other people in order to get them to comply with my wishes.
- \_\_\_ 37. I make other people feel welcome.
- \_\_\_ 38. \*When my romantic partner wants something, s/he will ignore me until I give in.
- \_\_\_ 39. When someone has angered or provoked me in some way, I have reacted by hitting that person.
- \_\_\_ 40. \*I have cheated on my romantic partner because I was angry at him/her.
- \_\_\_ 41. I get mad or upset if my romantic partner wants to be close friends with someone else.
- \_\_\_ 42. I have a friend who excludes me from doing things with her/him and her/his other friends when s/he is mad at me.
- \_\_\_ 43. I am usually willing to lend my belongings (car, clothes, etc.) to other people.
- \_\_\_ 44. I have threatened to physically harm other people in order to control them.
- \_\_\_ 45. I have spread rumors about a person just to be mean.
- \_\_\_ 46. When a friend of mine has been mad at me, other people have "taken sides" with her/him and been mad at me too.
- \_\_\_ 47. \*I would rather spend time alone with my romantic partner and not with other friends too.
- \_\_\_ 48. I have a friend who has threatened to physically harm me in order to get his/her own way.
- \_\_\_ 49. I am a good listener when someone has a problem to deal with.
- \_\_\_ 50. \*My romantic partner has tried to get his/her own way through physical intimidation.
- \_\_\_ 51. \*I give my romantic partner the silent treatment when s/he hurts my feelings in some way.
- \_\_\_ 52. When someone hurts my feelings, I intentionally ignore them.
- \_\_\_ 53. I try to help others out when they need it.
- \_\_\_ 54. \*If my romantic partner makes me mad, I will flirt with another person in front of him/her.
- \_\_\_ 55. I have intentionally ignored a person until they gave me my way about something.
- \_\_\_ 56. I have pushed and shoved others around in order to get things that I want.

Appendix F  
Social Information Processing-Attribution and Emotional Response Questionnaire  
(SIP-AEQ; Coccaro et al., 2009)

Please read these short stories about relationships with other people and answer all questions asked about the story as honestly as possible.

**Story. 1**

You tell a friend something personal and ask your friend not to discuss it with anyone else. However, a couple of weeks later, you find out that a lot of people know about it. You ask your friend why she/he told other people and your friend says: “Well, I don’t know, it just came up and I didn’t think it was a big deal.”

- A. Why do you think your friend shared your secret when you told them not to share it with anyone?

Rate the likelihood of each statement on a scale of 0 - 3:

- |         | 0   | 1        | 2               | 3           |
|---------|---|----------|-----------------|-------------|
|         | Not at all<br>likely  | Unlikely | Somewhat likely | Very likely |
| ___ A1. | My friend wanted to expose my secret.   |          |                 |             |
| ___ A2. | My friend wanted to impress other people with their secret knowledge about me.  |          |                 |             |
| ___ A3. | My friend forgot that this was an important secret for me.                      |          |                 |             |
| ___ A4. | My friend wanted me to feel stupid for asking to keep my secret.                |          |                 |             |
| ___ B.  | How likely is it that you would be angry if this happened to you?               |          |                 |             |
| ___ C.  | How likely is it that you would be upset with yourself if this happened to you? |          |                 |             |

Rate the likelihood of each statement on a scale from 1 - 7:

- |         | 1  | 2 | 3 | 4                | 5 | 6 | 7            |
|---------|--|---|---|------------------|---|---|--------------|
|         | Not at all<br>true   |   |   | Somewhat<br>true |   |   | Very<br>true |
| ___ D1. | How likely are you to intentionally ignore your friend until he/she apologizes for sharing your secret with other people?                                    |   |   |                  |   |   |              |
| ___ D2. | How likely are you to make it obvious to your friend that you will think less of him/her until he/she apologizes for sharing your secret with other people?  |   |   |                  |   |   |              |
| ___ D3. | How likely are you to try to damage your friend’s reputation by gossiping about him/her or by passing on negative information about him/her to other people? |   |   |                  |   |   |              |
| ___ D4. | How likely are you to make sure that your friend is excluded from group activities?  |   |   |                  |   |   |              |

**Story. 2**

Imagine that you are in a karate competition and you have to demonstrate your abilities to your instructor. You are matched up to “fight” with someone in the class who you do not know well. Your romantic partner, who happens to be a part of your team and knows your opponent, threatens to break up with you if you do not win the match and impress your instructor.

A. Why do you think your romantic partner threatened to break up with you if you did not win the match?

Rate the likelihood of each statement on a scale of 0 - 3:

- |         | 0  | 1        | 2               | 3           |
|---------|--|----------|-----------------|-------------|
|         | Not at all<br>likely   | Unlikely | Somewhat likely | Very likely |
| ___ A1. | My romantic partner wanted to show me that he/she is in control of our relationship. |          |                 |             |
| ___ A2. | My romantic partner wanted our team to win the match.                                |          |                 |             |
| ___ A3. | My romantic partner was nervous and did not mean to hurt my feelings.                |          |                 |             |
| ___ A4. | My romantic partner wanted me to feel inadequate about my abilities.                 |          |                 |             |
| ___ B.  | How likely is it that you would be angry if this happened to you?                    |          |                 |             |
| ___ C.  | How likely is it that you would be embarrassed if this happened to you?              |          |                 |             |

Rate the likelihood of each statement on a scale from 1 - 7:

- |         | 1   | 2 | 3 | 4                | 5 | 6 | 7            |
|---------|---|---|---|------------------|---|---|--------------|
|         | Not at all<br>true  |   |   | Somewhat<br>true |   |   | Very<br>true |
| ___ D1. | How likely are you to threaten to break up with your romantic partner in order to get him/her to do what you want, whether that is an apology or anything else? |   |   |                  |   |   |              |
| ___ D2. | How likely are you to give your romantic partner the silent treatment?  |   |   |                  |   |   |              |
| ___ D3. | How likely are you to try to make your romantic partner jealous?  |   |   |                  |   |   |              |
| ___ D4. | How likely are you to flirt with another person in front of your romantic partner?  |   |   |                  |   |   |              |
| ___ D5. | How likely are you to cheat on your romantic partner?   |   |   |                  |   |   |              |

**Story. 3**

Early one morning, your partner skips breakfast with you and says that this morning he/she needs to rush to work. A few minutes later, you go to your regular local coffee shop to get a cup of coffee before heading to work. While you are waiting in line, you see your romantic partner having breakfast with an individual that they never told you about.

A. Why do you think your romantic partner did not tell you about their plans to have breakfast with this individual?

Rate the likelihood of each statement on a scale of 0 - 3:

- |       | 0   | 1        | 2               | 3           |
|-------|---|----------|-----------------|-------------|
|       | Not at all<br>likely  | Unlikely | Somewhat likely | Very likely |
| _____ | A1. My romantic partner knew that I would see him/her because I regularly visit that local coffee shop before work and he/she wanted to show me that he/she did not want to be with me. |          |                 |             |
| _____ | A2. My romantic partner was having breakfast with this individual to discuss a work-related issue.  |          |                 |             |
| _____ | A3. My romantic partner forgot to tell me about his/her breakfast plans.  |          |                 |             |
| _____ | A4. My romantic partner knew that I would see him/her because I regularly visit that local coffee shop before work, and he/she wanted to make me jealous.                               |          |                 |             |
| _____ | B. How likely is it that you would be angry if this happened to you?  |          |                 |             |
| _____ | C. How likely is it that you would be upset with yourself if this happened to you?  |          |                 |             |

Rate the likelihood of each statement on a scale from 1 - 7:

- |       | 1   | 2 | 3 | 4                | 5 | 6 | 7            |
|-------|---|---|---|------------------|---|---|--------------|
|       | Not at all<br>true  |   |   | Somewhat<br>true |   |   | Very<br>true |
| _____ | D1. How likely are you to threaten to break up with your romantic partner in order to get him/her to do what you want, whether that is an apology or anything else? |   |   |                  |   |   |              |
| _____ | D2. How likely are you to give your romantic partner the silent treatment?  |   |   |                  |   |   |              |
| _____ | D3. How likely are you to try to make your romantic partner jealous?  |   |   |                  |   |   |              |
| _____ | D4. How likely are you to flirt with another person in front of your romantic partner?  |   |   |                  |   |   |              |
| _____ | D5. How likely are you to cheat on your romantic partner?   |   |   |                  |   |   |              |

**Story. 4**

Imagine that you and your romantic partner went on a vacation with a group of friends. You flew to a tropical island. While all of you were at the beach, your romantic partner tells your friends to ignore your jokes because they are not funny.

A. Why do you think your romantic partner told your friends to ignore your jokes?

Rate the likelihood of each statement on a scale of 0 - 3:

- |           | 0   | 1        | 2               | 3           |
|-----------|---|----------|-----------------|-------------|
|           | Not at all<br>likely  | Unlikely | Somewhat likely | Very likely |
| _____ A1. | My romantic partner wanted to embarrass me in front of our friends.                           |          |                 |             |
| _____ A2. | My romantic partner wanted the chance to tell his/her own jokes instead of listening to mine. |          |                 |             |
| _____ A3. | My romantic partner was tired and did not mean to say that.                                   |          |                 |             |
| _____ A4. | My romantic partner wanted to make me feel excluded from the group.                           |          |                 |             |
| _____ B.  | How likely is it that you would be angry if this happened to you?                             |          |                 |             |
| _____ C.  | How likely is it that you would be embarrassed if this happened to you?                       |          |                 |             |

Rate the likelihood of each statement on a scale from 1 - 7:

- |           | 1  | 2 | 3 | 4                | 5 | 6 | 7            |
|-----------|--|---|---|------------------|---|---|--------------|
|           | Not at all<br>true   |   |   | Somewhat<br>true |   |   | Very<br>true |
| _____ D1. | How likely are you to threaten to break up with your romantic partner in order to get him/her to do what you want, whether that is an apology, an explanation, or anything else? |   |   |                  |   |   |              |
| _____ D2. | How likely are you to give your romantic partner the silent treatment?   |   |   |                  |   |   |              |
| _____ D3. | How likely are you to try to make your romantic partner jealous?   |   |   |                  |   |   |              |
| _____ D4. | How likely are you to flirt with another person in front of your romantic partner?   |   |   |                  |   |   |              |
| _____ D5. | How likely are you to cheat on your romantic partner?  |   |   |                  |   |   |              |

**Story. 5**

You make plans with one of your friends to go on a short trip for the weekend. You're very excited about these plans and have been looking forward to the trip. However, at the last minute, your friend says that he (or she) no longer wants to go on the trip and has made plans with another friend for the weekend.

A. Why do you think your friend said he/she no longer wanted to go on the trip?

Rate the likelihood of each statement on a scale of 0 - 3:

0	1	2	3
Not at all likely	Unlikely	Somewhat likely	Very likely

- \_\_\_ A1. My friend doesn't want to be with me.  
 \_\_\_ A2. My friend wanted to do something else.  
 \_\_\_ A3. My friend forgot about the plans we made.  
 \_\_\_ A4. My friend wanted me to feel unimportant.  
 \_\_\_ B. How likely is it that you would be angry if this happened to you?  
 \_\_\_ C. How likely is it that you would be upset with yourself if this happened to you?

Rate the likelihood of each statement on a scale from 1 - 7:

1	2	3	4	5	6	7
Not at all true			Somewhat true			Very true

- \_\_\_ D1. How likely are you to intentionally ignore your friend until he/she changes his/her mind and joins you on the short trip?  
 \_\_\_ D2. How likely are you to act cold or indifferent towards your friend until he/she changes his/her mind and joins you on the short trip?  
 \_\_\_ D3. How likely are you to make sure that your friend is excluded from group activities in the future (such as going to the movies or a bar)?  
 \_\_\_ D4. How likely are you to try to damage your friend's reputation by gossiping about him/her or by passing on negative information about him/her to other people?

**Story. 6**

One day at work, you decide to go to the cafeteria for lunch. After you purchase your lunch, you notice that the seating area is very crowded and no empty tables are available. You notice one of your friends sitting alone at a small table and ask if you can join him (or her) for lunch. Your friend says “no”.

A. Why do you think your friend said “no”?

Rate the likelihood of each statement on a scale of 0 - 3:

- |                              | 0  | 1        | 2               | 3           |
|------------------------------|--|----------|-----------------|-------------|
|                              | Not at all<br>likely   | Unlikely | Somewhat likely | Very likely |
| <input type="checkbox"/> A1. | My friend wanted to exclude me.  |          |                 |             |
| <input type="checkbox"/> A2. | My friend wanted to be alone at that time.   |          |                 |             |
| <input type="checkbox"/> A3. | My friend was “lost in thought” and didn’t realize I had asked to join him (or her). |          |                 |             |
| <input type="checkbox"/> A4. | My friend wanted me to feel bad.   |          |                 |             |
| <input type="checkbox"/> B.  | How likely is it that you would be angry if this happened to you?                    |          |                 |             |
| <input type="checkbox"/> C.  | How likely is it that you would be embarrassed if this happened to you?              |          |                 |             |

Rate the likelihood of each statement on a scale from 1 - 7:

- |                              | 1  | 2 | 3 | 4                | 5 | 6 | 7            |
|------------------------------|--|---|---|------------------|---|---|--------------|
|                              | Not at all<br>true   |   |   | Somewhat<br>true |   |   | Very<br>true |
| <input type="checkbox"/> D1. | How likely are you to make it clear to your friend that you will think less of him/her if he/she does not change his/her mind and offer you a seat at his/her table? |   |   |                  |   |   |              |
| <input type="checkbox"/> D2. | How likely are you to spread rumors about your friend just to be mean?   |   |   |                  |   |   |              |
| <input type="checkbox"/> D3. | How likely are you to try to embarrass your friend or make him/her look stupid in front of his/her friends?  |   |   |                  |   |   |              |
| <input type="checkbox"/> D4. | How likely are you to intentionally ignore your friend?  |   |   |                  |   |   |              |

**Story. 7**

Imagine that you go to the first meeting of a club you want to join. You notice that a lot of your friends are a part of that club. You walk up to your friends and say, "Hi!" but they don't say anything back.

A. Why do you think your friends didn't say anything back to you?

Rate the likelihood of each statement on a scale of 0 - 3:

0	1	2	3
Not at all likely	Unlikely	Somewhat likely	Very likely

- \_\_\_ A1. My friends wanted to ignore me.  
 \_\_\_ A2. My friends were more interested in talking among themselves.  
 \_\_\_ A3. My friends didn't hear me say "Hi".  
 \_\_\_ A4. My friends wanted me to feel unimportant.  
 \_\_\_ B. How likely is it that you would be angry if this happened to you?  
 \_\_\_ C. How likely is it that you would be embarrassed if this happened to you?

Rate the likelihood of each statement on a scale from 1 - 7:

1	2	3	4	5	6	7
Not at all true			Somewhat true			Very true

- \_\_\_ D1. How likely are you to ignore your friends until they apologize or explain to you why they did not reply to your greeting?  
 \_\_\_ D2. How likely are you to be cold or indifferent towards your friends until you get what you want (whether that is an apology or an explanation for why they did not return your greeting)?  
 \_\_\_ D3. How likely are you to try to damage your friends' reputation by gossiping about them or by passing on negative information about them to other people?  
 \_\_\_ D4. How likely are you to try to make sure that your friends they are excluded from any group activities (going to the movies or to a bar)?

**Story. 8**

You and your romantic partner were interviewed for similar jobs. A week later, you are notified that you got the job. Your romantic partner has not heard back from the job agency. At dinner time, your romantic partner tells you that you got the job by luck, rather than by qualification.

A. Why do you think your romantic partner said that to you?

Rate the likelihood of each statement on a scale of 0 - 3:

- |       | 0   | 1        | 2               | 3           |
|-------|---|----------|-----------------|-------------|
|       | Not at all<br>likely  | Unlikely | Somewhat likely | Very likely |
| _____ | A1. My romantic partner wanted to show me that he/she does not think that I am qualified for the job.   |          |                 |             |
| _____ | A2. My romantic partner wanted to get his/her job before I got my job.  |          |                 |             |
| _____ | A3. My romantic partner was anxious about the fact that he/she had not heard back from the job agency, and he/she did not mean to make that remark. |          |                 |             |
| _____ | A4. My romantic partner wanted to make me feel bad about myself.  |          |                 |             |
| _____ | B. How likely is it that you would be angry if this happened to you?  |          |                 |             |
| _____ | C. How likely is it that you would be upset with yourself if this happened to you?  |          |                 |             |

Rate the likelihood of each statement on a scale from 1 - 7:

- |       | 1  | 2 | 3 | 4                | 5 | 6 | 7            |
|-------|--|---|---|------------------|---|---|--------------|
|       | Not at all<br>true   |   |   | Somewhat<br>true |   |   | Very<br>true |
| _____ | D1. How likely are you to threaten to break up with your romantic partner in order to get him/her to do what you want, whether that is an apology, an explanation, or anything else? |   |   |                  |   |   |              |
| _____ | D2. How likely are you to give your romantic partner the silent treatment?   |   |   |                  |   |   |              |
| _____ | D3. How likely are you to try to make your romantic partner jealous?   |   |   |                  |   |   |              |
| _____ | D4. How likely are you to flirt with another person in front of your romantic partner?   |   |   |                  |   |   |              |
| _____ | D5. How likely are you to cheat on your romantic partner?  |   |   |                  |   |   |              |

Appendix G  
Participant Feedback Form

**Title:** Frenemies: Attachment, Relational Aggression, and Attributional Biases

**Researcher and Graduate student:** Ghinwa El-Ariss, 705-748-1011 x 7872, LHS C131;  
ghinwaelariss@trentu.ca

**Researcher and Supervisor:** Dr. Elaine Scharfe, PhD., Department of Psychology, 705-748-1011 x 7354, LHS C130; escharfe@trentu.ca

If you have any questions about this study or would like a summary of the findings (available Fall 2019) please email Ghinwa El-Ariss (ghinwaelariss@trentu.ca) or Dr. Elaine Scharfe ([escharfe@trentu.ca](mailto:escharfe@trentu.ca)).

**Participant Feedback**

The purpose of this study is to explore the associations between your views of your peer and romantic relationships (your “attachment relationships”), your explanations of the behaviours of your peers and romantic partners (“attributions”), and your behaviours that involve relational aggression in your peer and romantic relationships. Although much research has been done to understand the effects of attachment relationships on adults’ aggressive behaviours in social relationships, this is, to date, the first study to explore the associations among the popular construct of adult attachment, relational aggression, and attributional biases in adulthood.

If you have any problems or concerns as a result of your participation in this study, please contact Trent Research Ethics Board by either phoning Karen Mauro at 705-748-1011 ext 7896 or e-mailing her at [kmauro@trentu.ca](mailto:kmauro@trentu.ca).

While it is not anticipated that participation in this study will cause you any distress, we recognize that you may have noticed this study because it addresses the topic of relational aggression and for some people thinking about their behaviours in their close relationships causes distress. If you feel that, as a result of your participation in this study, you would like more information about how to access services to discuss your own mental health, or that of an acquaintance, we provide here a list of services where you could reach out for help.

If you have experienced any distress while completing this study, personal counselling is available to all students through the Counselling Centre.

To book an appointment, please call (705) 748-1386 or drop by Blackburn Hall, Suite 113.

Please phone ahead for an appointment.

Counselling Centre  
Blackburn Hall, Suite 113  
Telephone: (705) 748-1386 Fax: 705: 748-1137  
E-mail: [counselling@trentu.ca](mailto:counselling@trentu.ca)

Web: [www.trentu.ca/counselling](http://www.trentu.ca/counselling)  
Office Hours: Monday - Friday  
9:00-12:00, 1:00-4:00  
Summer hours vary.

1. Kids Help Phone: [www.kidshelpphone.ca](http://www.kidshelpphone.ca)
2. Canadian Mental Health Association: [www.ontario.cmha.ca](http://www.ontario.cmha.ca)
3. Telehealth Ontario: This is a confidential phone service, where you can talk to a Registered Nurse for free 24 hours a day, 7 days a week. Phone Number: 1-866-797-0000
4. Peterborough Public Health: <http://www.peterboroughpublichealth.ca>