

**HOSTILE ATTRIBUTION BIAS FOR PHYSICAL AND  
RELATIONAL PROVOCATIONS AND AGGRESSION IN  
ADOLESCENT GIRLS AND BOYS: THE MODERATING ROLE OF  
NARCISSISM AND SELF-ESTEEM**

by

Kimberley St. Anne Da Silva

B.Sc., Trent University, 2000

**Thesis Submitted in Partial Fulfilment  
of the Requirements for the Degree of  
Master of Arts**

in the Department  
of  
Psychology

© Kimberley St. Anne Da Silva, 2003

**SIMON FRASER UNIVERSITY**

**January, 2003**

All rights reserved.

This work may not be reproduced in whole or part, by photocopy or other means, without permission of the author.

National Library  
of Canada

Bibliothèque nationale  
du Canada

Acquisitions and  
Bibliographic Services

Acquisisitons et  
services bibliographiques

395 Wellington Street  
Ottawa ON K1A 0N4  
Canada

395, rue Wellington  
Ottawa ON K1A 0N4  
Canada

*Your file* *Votre référence*

*ISBN: 0-612-81772-5*

*Our file* *Notre référence*

*ISBN: 0-612-81772-5*

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

# Canada

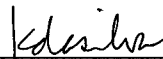
## PARTIAL COPYRIGHT LICENSE

I hereby grant to Simon Fraser University the right to lend my thesis (the title of which is shown below) to users of the Simon Fraser Library, and to make partial or single copies only for such users or in response to a request from the library of any other university, or other educational institution, on its own behalf or for one of its users. I further agree that permission for multiple copying of this work for scholarly purposes may be granted by me or the Dean of Graduate Studies. It is understood that copying or publication of this work for financial gain shall not be allowed without my written permission.

---

**Title of Thesis:** *Hostile Attribution Bias For Physical And Relational Provocations And Aggression In Adolescent Girls And Boys: The Moderating Role Of Narcissism And Self-esteem*

**Author:** Kimberley Da Silva  
MA (Psychology)



---

Signature: Kimberley Da Silva

March 10, 2003

---

date

# APPROVAL

**Name:** Kimberley Da Silva  
**Degree:** Master of Arts (Psychology)  
**Title of Thesis:** Hostile Attribution Bias for Physical and Relational Provocations and Aggression in Adolescent Girls and Boys: The Moderating Role of Narcissism and Self-Esteem

**Examining Committee:**

**Chair:** *Dr. Stephen Hart*  
Professor

---

*Dr. Marlene Moretti*  
Senior Supervisor  
Professor

---

*D. Connolly*  
**Dr. Deborah Connolly**  
Assistant Professor

---

*Shelley Hymel*  
**Dr. Shelley Hymel**  
External Examiner  
Professor  
Department of Education and Counselling Psychology  
University of British Columbia

---

---

**Date Approved:** January 16, 2003

## ABSTRACT

The role of hostile attribution bias for physical and relational provocations was linked to level of physical and relational aggressivity in adolescent boys and girls. In addition, the moderating roles of narcissism and self-esteem on the relation between hostile attribution bias and aggression were examined. Our findings suggest that relational provocations predict relational aggression for girls, and overt provocations predict overt aggression for boys. Results also indicated that the relationship between hostile attribution bias for both overall aggression (relational and overt aggression combined) and relational aggression was moderated by the interaction between self-esteem and narcissism. These findings are consistent with previous research and have implications for developing effective strategies for intervention.

## **DEDICATION**

This thesis is dedicated to my parents and family, who have always encouraged me and supported me in all my academic endeavours. I wouldn't have gotten this far without them. Also to my fiancé Erick, who has endured with me and celebrated all of my accomplishments. Thank you for believing in me when I did not believe in myself.

## ACKNOWLEDGEMENTS

I would like to thank Marlene Moretti for her excellent supervision and all of her support during this project. Her ability to challenge and encourage me throughout this process was greatly appreciated. Thanks to Deb Connolly for her contributions to this research, and for always being available when I popped into her office with questions. A big thank you to Ray Koopman for his statistical expertise, his patience, and his wonderful graphs, and to Elizabeth Michno for helping me to put on the final touches.

I also wish to thank Jessie and Jess for their friendship. They always managed to make me laugh, even when I was deflated. Thanks for keeping me grounded, girls.

## TABLE OF CONTENTS

<u>Approval</u> .....	ii
<u>Abstract</u> .....	iii
<u>Dedication</u> .....	iv
<u>Acknowledgements</u> .....	v
<u>Table of Contents</u> .....	vi
<u>List of Figures</u> .....	viii
<b><u>INTRODUCTION</u></b> .....	<b>1</b>
<u>Gender Differences in Aggressive Behaviour</u> .....	1
<u>The Role of Social Information Processing in Aggression</u> .....	3
<u>Self-Esteem, Defensive Egotism, and Aggression</u> .....	5
<u>The Present Study</u> .....	7
<b><u>METHOD</u></b> .....	<b>9</b>
<u>Participants</u> .....	9
<u>Measures</u> .....	9
<u>Assessment of Aggression</u> .....	9
<u>Assessment of Intent Attributions</u> .....	10
<u>Assessment of Self-Esteem</u> .....	10
<u>Assessment of Narcissism</u> .....	11
<b><u>RESULTS</u></b> .....	<b>12</b>
<b><u>DISCUSSION</u></b> .....	<b>17</b>
<u>Intent Attributions for Relational vs. Physical Provocations</u> .....	17



<u>The Role of Narcissism and Self-Esteem in Predicting Aggression</u> .....	18
<u>The Moderating Role of Narcissism and Self-Esteem</u> .....	19
<u>Implications for Intervention</u> .....	21
<u>Limitations and Future Research</u> .....	22
<u>Conclusions</u> .....	24
<u>References</u> .....	26

## LIST OF FIGURES

<u>Figure 1: 3-way interaction between narcissism, self-esteem, and hostile attribution bias when participants rate highly on narcissism and self-esteem.</u> .....	14
<u>Figure 2: 3-way interaction between narcissism, self-esteem, and hostile attribution bias when participants rate low on narcissism and high on self-esteem.</u> .....	15
<u>Figure 3: 3-way interaction between narcissism, self-esteem, and hostile attribution bias when participants rate low on narcissism and low on self-esteem.</u> .....	15

## INTRODUCTION

Research examining aggression and delinquency in children and adolescents has focused primarily on the behaviour of boys. However, the past decade has brought about a new awareness of aggression in females, and the issue of violence among school-aged girls is a growing topic in the research arena as well as in the media (Artz, 1998). The primary focus of this study was to examine the role hostile attribution bias in aggression, and to extend this social information-processing model to relational forms of aggression. The second aim of this study was to examine the moderating role of self-esteem and narcissism on the relationship between hostile attribution bias and aggressive behaviour in adolescent boys and girls. This research builds on earlier studies of social-information processing in aggressive youth (Crick & Werner, 1998; Dodge & Frame, 1982; Dodge et al., 1990) and recent studies suggesting that inflated self-esteem predicts aggressive behaviour in young adults (Baumeister, Boden, & Smart, 1996; Bushman & Baumeister, 1998).

### **Gender Differences in Aggressive Behaviour**

According to Crick et al. (1999) there are two forms of aggression: overt (physical) aggression which includes physical acts and verbal threats intended towards others, and relational aggression, which is intended to harm others through damage to their peer relationships and their reputation. Examples of relationally aggressive acts include spreading destructive rumours about others, threatening to end valuable friendships, or manipulating peer groups to increase social rejection. In examining these two styles of

aggression, gender differences have been a key focus. Previous studies have established that girls are more likely to use relational aggression, and to evaluate this strategy more positively than boys, whereas boys are more likely to use overt forms of aggression and rate this approach more favourably (Crick & Grotpeter, 1995; Crick & Werner, 1998, Crick, 1995). However, when self-report measures are used, boys still endorse higher levels of overt aggression than girls, but girls and boys report relatively equal levels of relational aggression (Crick, 1996; 1997). This could be due to the fact that, as adolescents get older, relational forms of aggression are more accepted and less visible to salient authorities (e.g., teachers, coaches, parents) (Prinstein, Boergers, & Vernberg, 2001).

Previous investigations of aggression in adolescents that focused solely on physical forms of aggressive behaviour have found higher rates of aggression in boys. This result is misleading, as recent studies examining both relational and physical aggression have found that aggressive behaviour is identified with almost equal frequency among boys and girls (Crick, Casas, & Mosher, 1997; Crick and Grotpeter, 1995).

Studies examining the effects of relational and overt forms of aggression on both victims and aggressors have demonstrated that relational aggression, similar to physical acts of aggression, can have detrimental effects on a child's social-psychological adjustment (e.g., peer rejection, internalizing problems, low self-esteem; Crick, 1997; Crick, 1996; Prinstein, Boergers, & Vernberg, 2001). In addition, engagement in relational aggression is predictive of future maladjustment for both boys and girls, and provides unique information about future maladjustment for girls and young female adults (e.g., bulimia) that cannot be explained or accounted for by physical victimization (Crick, 1996; Werner & Crick, 1999). Given the harmful nature of relational aggression

in modern youth culture, it is imperative that we learn more about its causal factors so that appropriate intervention and treatment strategies can be designed.

### **The Role of Social Information Processing in Aggression**

Aggression in youth has been linked to biased patterns of information processing, and specifically to attributions of hostile intent to others (Coie & Dodge, 1998). Originally demonstrated by Dodge and Frame (1982), hostile attribution bias is defined as the tendency to misattribute hostile intentions to others, even in situations where the intentions of actions are ambiguous or clearly not hostile. This bias in information processing increases an individual's likelihood of reacting in an aggressive manner, and studies have demonstrated that attributional bias is positively correlated with reactive aggression (Dodge & Coie, 1987). A number of studies have demonstrated that aggressive boys can be differentiated from their non-aggressive peers by their increased likelihood in misattributing hostility to others in hypothetical scenarios (Dodge & Frame, 1982; Dodge & Milich, 1984). Further, in an examination of hostile attribution bias in severely aggressive adolescent boys from a maximum security prison, hostile attribution bias was correlated with conduct disorder, reactive-aggressive behaviour, and the number of violent crimes committed (Dodge et al., 1990).

The use of social-information processing models in understanding aggression in both boys and girls has consistently been emphasized in the literature (Dodge & Crick, 1990). However, the majority of studies examining social-information processing models of aggression have focused on physical aggression, a form of aggression more characteristic of boys. As a result, there is little research applying relational forms of

aggression to the model. Because relational aggression is more common in girls than overt aggression, a thorough understanding of the applicability of social information-processing models to this form of aggression is warranted.

To date, only two studies have examined hostile attribution bias in relationally aggressive children. Crick (1995) examined social information-processing patterns in relationally aggressive children, enrolled in grades three through six. Aggression was assessed using peer nomination, and intent attributions were assessed using a hypothetical-situation instrument that composed of both physical and relational provocations. Her findings suggest that children who are exclusively relationally aggressive demonstrate a hostile attribution bias which mirrors the pattern previously established for overtly aggressive children (Crick, 1995). Furthermore, she found that relationally aggressive children exhibited a hostile attributional bias for relational provocation situations, but not physical provocations. To put this into context, Crick (1995) found that girls reported significantly higher levels of emotional distress associated with relational provocation situations compared to their male counterparts, suggesting a gender-specific pattern for interpreting social situations.

In a more recent study by Crick, Grotpeter, and Bigbee (2002), the intent attributions of relationally and physically aggressive children were evaluated in response to physical and relational provocation contexts. Male and female third-grade children were assessed using peer-nomination to establish aggressiveness, and a hypothetical-situation instrument was used to assess intent attributions. Results indicated that children who were high in physical aggression exhibited more hostile attributions in response to physical provocations than did their nonaggressive counterparts. Similarly, children high in relational aggression exhibited more hostile attributions in response to

relational provocations than their nonaggressive peers (Crick, Grotpeter, & Bigbee, 2002). These findings emphasize the need to incorporate relational aggression into social information-processing models of aggression, and extend these results to populations across the developmental spectrum.

### **Self-Esteem, Defensive Egotism, and Aggression**

Traditionally, low self-esteem has been associated with aggressive behaviour. Interestingly this view is widely asserted in the absence of empirical evidence to support it (Baumeister, Smart & Boden, 1996). For example, it has been asserted that low self-esteem and “self-contempt” are powerful underlying causes of the violence in youth gangs. Similarly, studies examining domestic violence suggest that low self-esteem causes jealousy and insecurity, which in turn leads to violence (Baumeister, Smart, & Boden, 1996). These views imply that individuals with poor self-esteem are more likely to use aggression as a means of achieving social dominance. Specifically, low self-esteem could lead to distortions in cognitive processing if this leads individuals to perceive themselves as socially inadequate, resulting in a defensive approach towards a variety of situations. As previously mentioned, these processing biases may serve to increase aggressive behaviour in negative and ambiguous social situations. Research examining self-esteem in boys and girls reveals a negative correlation between hostility and self-esteem level (Buss & Perry, 1991). Similarly, in a study examining self-esteem, parental attachment and aggression, increased self-esteem was associated with parental reports of lower aggression and higher prosocial behaviour (Simons, Paternite, & Shore, 2001).

In contrast to the view that low self-esteem gives rise to defensiveness and hostility, Baumeister, Boden, and Smart (1996) propose that narcissism or “threatened egotism”- rather than low self-esteem-is at the heart of the problem. According to this view, individuals with an inflated sense of self feel threatened when self-views are challenged, questioned, mocked or contradicted. The self-appraisal literature hypothesizes that people seek to maintain consistent self-appraisals and therefore avoid adjusting their self-concept. With this in mind, individuals with an inflated self-view are reluctant accept contradictory information that may result in a decrease in self-esteem. The aggressive or hostile reaction towards the source of the threat serves as a means of maintaining equilibrium in one’s self-appraisal (Baumeister, Smart, & Boden, 1996).

In order to examine this theory, male and female college students were rated on measures of self-esteem, narcissism, and aggression. Participants were asked to write a brief essay, which was then evaluated by another “participant” who would provide written feedback. Upon receiving feedback, which was either positive or negative, the participant was then given an opportunity to aggress against the nonexistent editor by delivering an unpleasant noise blast through the pressing of a button. The results indicated that aggressive responses were strongest in participants who rated high in narcissism. Self-esteem was not related to aggression, either alone or in interaction with other variables (Bushman & Baumeister, 1998).

In a related study, bullying behaviour and its relation to three dimensions of self-esteem (self-evaluated, peer-evaluated, defensive egotism) were examined in an eighth-grade adolescent sample (Salmivalli & Kaukiainen, 1999). This study used self-report questionnaires to assess various dimensions of self-esteem as well as participation in bullying behaviour. Findings indicated that bullies could be differentiated from their



peers based on ratings of defensive egotism, which was characterized as “slightly above-average self-esteem combined with narcissistic, self-aggrandizing tendencies” (Salmivelli & Kaukiainen, 1999).

The low self-esteem hypothesis and the narcissism hypothesis paint fundamentally different pictures regarding the types of personality issues underlying aggressive tendencies. Despite the apparent contradiction between these two views, it may be the case that when combined they become more accurate in predicting aggressive behaviour. On the one hand, low self-esteem may indeed be associated with aggressive behaviour, but only when it occurs in the absence of narcissism. On the other, high self-esteem may be associated with aggressive behaviour, but only when it occurs in conjunction with narcissism. By assessing both self-esteem and narcissism, individuals with genuinely high, healthy levels of self-esteem can be differentiated from those with false self-esteem and narcissistic tendencies, and those with fundamentally low self-esteem, distinctions that are impossible to make without mutual consideration of both constructs.

## **The Present Study**

The first goal of this research is to replicate and extend prior work on the role of social information-processing in understanding aggression in various populations. More specifically, this study examined the utility of the social information-processing model to relational aggression. A further aim was to replicate and extend findings that suggest that provocative situations set in a context meaningful to the adolescent (relational vs. physical) would be more likely to result in aggressive behaviour. Furthermore, the type

of aggressive retaliation would be specific to the nature of the provocation (Crick, Grotpeter, & Bigbee, 2002). Based on previous research, it was hypothesized that relationally provocative situations would be more distressing for girls, and therefore more likely to evoke hostile attributions and aggressive behaviour than for boys. A final goal of this research was to examine the moderating effects of narcissism and self-esteem on the relationship between hostile attributions and aggression. We further investigated gender differences in these relationships and specificity of the model to relational versus physical provocations, and relational versus physical forms of aggression.

This study investigated these hypotheses in a sample of early adolescent girls and boys, a stage of development traditionally neglected in the literature. Because the transition into adolescence is marked by increased time with peers as well as an increased emphasis on peer support and acceptance, relational forms of aggression may be more salient (Prinstein, Boergers, & Vernberg, 2001).

## **METHOD**

### **Participants**

Participants were 173 ninth- and tenth-grade adolescents (92 boys, 81 girls; mean age=14.7) from a secondary school in Burnaby, British Columbia participated in the study. Fifty-three percent were Caucasian, twenty-three percent were Asian, and twenty-one percent identified themselves as an ethnicity not specified in the research protocol. All of the participants had parental consent to take part in the study. Adolescents completed the measures described below during one group-administered testing session conducted within their secondary school classrooms. Adolescent's scores and ratings were examined for missing data and six participants were omitted due to incomplete data, leaving a final sample of 167.

### **Measures**

#### ***Assessment of Aggression***

Physical and relational forms of aggression were assessed with a self-report instrument developed in prior research (Crick & Grotpeter, 1995). This measure includes three items that assess overt aggression (e.g., Some people hit other people at school/work. How often do you do this?), four items that assess relational aggression (Some people tell lies about another person so that others won't like that person anymore. How often do you do this?), and two items that assess prosocial behaviour

(When other people are saying mean things about a person, some people stand up for that person. How often do you do this?). Participants were asked to rate each item on a 5-point scale (1=never to 5=all the time), and an assessment of reliability determined reasonable internal consistency,  $\alpha=.71$ .

### ***Assessment of Intent Attributions***

Attributions of intent were assessed using a measure adapted from previous research with younger children (Crick, 1995; Crick & Dodge, 1996) which included six hypothetical situations that described provocation situations in which the intent of the provocateur was ambiguous. Three of the situations described physical provocations (e.g., a peer walks by, trips and spills juice all over the participant) and three of the stories depicted relational provocations (e.g., the adolescent overhears two peers talking about an upcoming part to which the adolescent has not been invited).

For each of the situations, participants rated how likely the intent of the provocateur was purposefully hurtful on a 4-point scale (1=definitely to 4=definitely not).

### ***Assessment of Self-Esteem***

Self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965), a 10-item self-report instrument of global self-esteem ( $\alpha=.86$ ). Sample items include "I feel that I have a number of good qualities" and "I take a positive attitude toward myself". Each item is answered on a 7-point scale, and responses are summed to create a global self-esteem score, with high school indicating high self-esteem.

### ***Assessment of Narcissism***

Levels of narcissism were measured using items from a subscale of the Millon Adolescent Clinical Inventory (MACI; Millon, 1993). The Egotism subscale consists of 20 "I" statements that are answered on a dichotomous, true/false scale. Items on this scale tap characteristics associated with narcissistic personality disorder as defined by the DSM-IV, such as arrogance, an inflated sense of self-worth and the tendency to exploit others to one's own advantage (e.g., I like being the center of attention; I find it easy to control other people). An analysis of internal consistency revealed acceptable reliability,  $\alpha=.68$ .

## RESULTS

The data were analyzed via regression analysis. The model included two-way and three-way interactions, which were computed as multiplicative products of the main effects. A hierarchical analysis of sets approach was used (Cohen & Cohen, 1983). The main effects were entered in the first step, the two-way interactions were entered in the second step, and the three-way interaction was entered in the third step. Based on this approach, the main effects were removed from the two-way interactions and the main effects and two-way interactions were removed from the three-way interaction.

### Intent Attributions for Physical vs. Relational Provocations

Hierarchical regression analysis yielded a significant main effect for hostile attribution bias for both relational and physical provocations. Consistent with predictions, physical provocations predicted physical aggression and relational provocations predicted relational aggression,  $R^2=.111$ ,  $F(3, 163)=6.750$ ,  $\beta=.463$ ,  $p=.001$  and  $R^2=.106$ ,  $F(3, 163)=6.416$ ,  $\beta=.320$ ,  $p=.022$  respectively. Separate hierarchical regression analyses for girls and boys indicated that, for girls, hostile attributions for relational provocations significantly lead to relational aggression,  $R^2=.167$ ,  $F(3, 74)=4.962$ ,  $\beta=.364$ ,  $p=.035$ , whereas for boys, hostile attributions for physical provocations significantly lead to physical aggression,  $R^2=.048$ ,  $F(3, 85)=1.421$ ,  $\beta=.415$ ,  $p=.049$ .

### Narcissism and Self-Esteem as Predictors of Aggression

As predicted, narcissism was found to significantly predict both relational and overt aggression,  $R^2=.106$ ,  $F(3, 163)=6.416$ ,  $\beta=.226$ ,  $p=.00$ , and  $R^2=.111$ ,  $F(3, 163)=6.750$ ,

$\beta=.176$ ,  $p=.004$  respectively. To examine gender differences, narcissism was examined as a predictor of relational and overt aggression separately for boys and girls. Results indicated that, for boys, narcissism significantly predicted increased relational aggression only,  $R^2=.068$ ,  $F(3, 85)=2.068$ ,  $\beta=.200$ ,  $p=.05$ , whereas for girls, narcissism significantly predicted both relational aggression,  $R^2=.167$ ,  $F(3, 74)=4.962$ ,  $\beta=.211$ ,  $p=.003$  and overt aggression,  $R^2=.205$ ,  $F(3, 74)=6.350$ ,  $\beta=.262$ ,  $p=.00$ .

In contrast to results for narcissism, hierarchical regression analyses predicting relational and overt aggression failed to produce significant main effects for self-esteem.

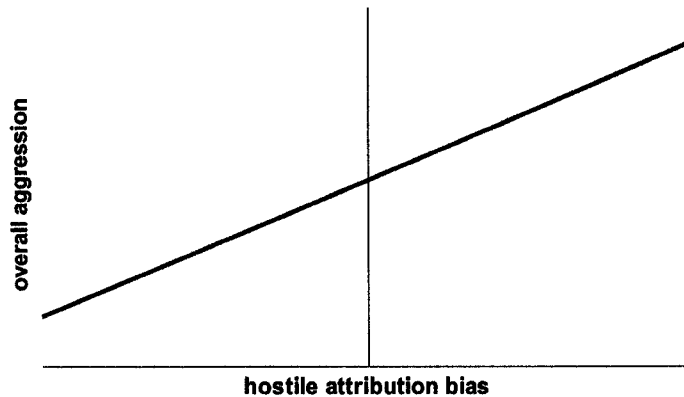
#### The Moderating Role of Narcissism and Self-Esteem

The moderating role of narcissism and self-esteem on the relation between hostile attribution bias and aggression was assessed through hierarchical regression analysis, entering all main effects in the first step, all two way interactions in the second, and the three way interaction between hostile attribution bias, narcissism and self-esteem in the third step. It will be recalled that the model tested in this study predicted a significant three-way interaction effect. Results failed to produce significant moderating effects for the two-way interactions. As predicted, however, a significant effect of the three-way interaction was found,  $R^2=.184$ ,  $\Delta R^2=.032$ ,  $F(1, 158)=6.266$ ,  $p=.013$ , indicating that the relationship between hostile attribution bias and overall aggression was dependent on the level of both self-esteem and narcissism,  $\beta=.007$ ,  $p=.013$ . A similar moderation effect was found between hostile attributions for relational provocations and relational aggression,  $R^2=.175$ ,  $\Delta R^2=.037$ ,  $F(1, 159)=7.070$ ,  $p=.009$  but not for hostile attributions for physical provocations and overt aggression. These interactions were divided into four hypothetical quadrants in order to better visualize the pattern of results for multiple

levels of narcissism and self-esteem. Figure 1 depicts the moderation effect of self-esteem and narcissism on the relationship between hostile attributions and overall aggression for participants who rated themselves highly on both narcissism and self-esteem.

**Figure 1:**

***3-way interaction between narcissism, self-esteem, and hostile attribution bias when participants rate highly on narcissism and self-esteem.***

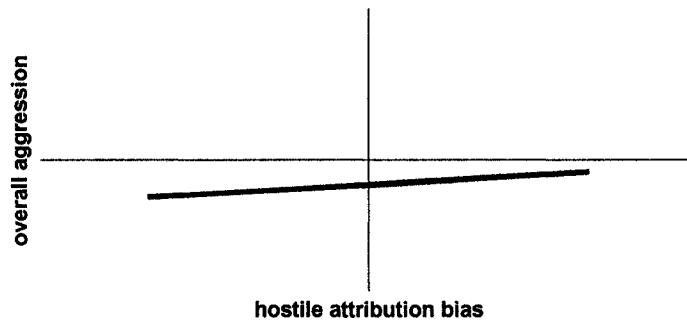


This graph indicates that adolescents who rated highly on narcissism and self-esteem are at an increased likelihood to engage in aggressive behaviour when they attribute hostile intent to others. Figure 2 depicts the moderation effect of self-esteem and narcissism on the relationship between hostile attributions and overall aggression for participants who rated themselves low on narcissism and high on self-esteem.



**Figure 2:**

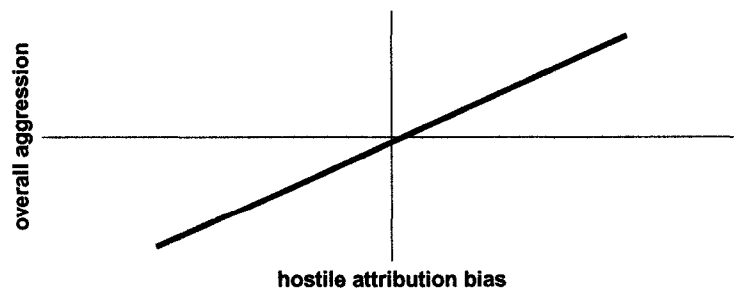
**3-way interaction between narcissism, self-esteem, and hostile attribution bias when participants rate low on narcissism and high on self-esteem.**



This graph indicates that adolescents with high self-esteem, who score low on narcissism, are not likely to become aggressive, despite having hostile attributions towards others. Figure 3 depicts the same moderation effect for low levels of narcissism and low levels of self-esteem.

**Figure 3:**

**3-way interaction between narcissism, self-esteem, and hostile attribution bias when participants rate low on narcissism and low on self-esteem.**



This graph indicates that adolescents with low levels of narcissism and self-esteem are more likely to aggress when they perceive a situation as hostile. This pattern is

similar to the one observed in Figure 1 for those with high levels of narcissism and self-esteem. The fourth quadrant, which examined those adolescents with high narcissism and low self-esteem was not included because there were no participants in this group. Patterns for the moderation effects of narcissism and self-esteem on relational provocations and relational aggression mirrored those looking at overall aggression and hostile attribution bias. Due to issues of reduced power, gender differences were not examined.

## DISCUSSION

### Intent Attributions for Relational vs. Physical Provocations

Consistent with previous research, our results confirmed the utility of the social-information processing model for understanding relational aggression as well as physical aggression. As predicted, hostile attributions for relational provocations were particularly influential in predicting relational aggression in girls. This is consistent with the findings of Crick, Grotpeter, & Bigbee (2002) and Crick (1995) who found that girls reported significantly higher levels of emotional distress for relational provocations than did boys. In addition, we found that hostile attributions for physical provocations were predictive of overt aggression in boys. These findings suggest a gender-specific pattern of aggression, where aggressive reactions are specific to the context of the perceived conflict.

Why might girls be sensitive to relational provocations while boys are reactive to physical provocations? Previous research has argued that feelings of distress significantly influence children's interpretations of social situations in ways that evoke aggressive responding (Crick & Dodge, 1994). Relational contexts may be more personally salient for adolescent girls than boys, and therefore potentially more provocative when perceived as rejecting or hostile. Previous research has suggested that, from an early age, girls are socialized to attend to others' needs, correspond to their expectations and judge themselves based on how they are evaluated by others (Moretti & Higgins, 1999; Cross & Madson, 1997). This process of sex-typed socialization

predisposes young girls to develop a sense of self that is intrinsically related to others. As adolescent girls struggle to establish a sense of identity, it is possible that their sense of self becomes increasingly intertwined with their social relationships, and that they are particularly sensitive to the evaluations and perspectives of their peers. Relational provocations that are perceived as threatening to their sense of self must be defended against, and relational aggression is best suited to respond to threats that arise in this context.

Previous research has demonstrated that boys evaluate overt aggression more positively than girls (Crick & Werner, 1998), and are therefore more likely to use this form of aggression to deal with conflict. It is possible that physical provocations are more threatening to boys because issues of physical dominance and strength are central to male adolescent identity. When faced with physical intimidations, boys may feel embarrassed or insulted in front of peers and consequently engage in physical aggression to save face.

### **The Role of Narcissism and Self-Esteem in Predicting Aggression**

As hypothesized, our results confirmed that narcissism was predictive of both relational and overt aggression in young adolescents. Girls who scored high in narcissism were more likely to use both relational and overt aggression to defend themselves against attacks on their ego. Boys who rated themselves high in narcissistic tendencies were more likely to use relational aggression than were boys who scored low on narcissism. These results highlight the significance of narcissism as a determinant of

aggressive behaviour in both boys and girls, and support the findings of Salmivalli and Kaukiainen (1999) in reporting the role of defensive egotism in predicting aggression. Our results also extend the findings of Bushman and Baumeister (1998) by examining the role of narcissism in an adolescent population. Contrary to previous research, self-esteem was not a significant predictor of aggressive behaviour in adolescent girls or boys when narcissism was not controlled for.

Interestingly, boys who scored high on narcissism did not engage in higher rates of overt aggression. This may be due to the fact the relationship between narcissism is best understood in conjunction with levels of self-esteem as discussed below.

### **The Moderating Role of Narcissism and Self-Esteem**

Results of this investigation also demonstrated that the interaction between narcissism and self-esteem moderates the relationship between hostile attribution bias and aggression. This suggests that the construct of narcissism differentiates those individuals who score highly on self-esteem measures due to healthy levels of self-esteem, and those who score highly as a function of a more inflated and grandiose sense of self. In order to elucidate and interpret these findings, the pattern of the interaction was divided into quadrants and examined within each of these sections. Consistent with expectations, adolescents who scored highly on narcissism and self-esteem were more likely to be aggressive as their intent attributions became increasingly hostile (only overt or relational as well??). This pattern builds on work by Hughes, Cavell, and Grossman (1997) who found that a highly positive self-view, characterized

by an idealized and inflated estimate of competence and relationship quality, was construed as a risk factor in aggressive children.

For adolescents who rated themselves as low on narcissism and low on self-esteem, a similar pattern was also observed. This supports previous research demonstrating that low self-esteem is related to aggression and hostility (Schneider & Leitenberg, 1989; Moretti, Holland, & McKay, 2001). Although the pathway between hostile attributions and aggressive behaviour is similar between the two aforementioned groups, it is important to recognize that the motivations behind the aggression are intrinsically different. Those adolescents high in narcissism are emotionally invested in a grandiose self-view, and are likely to use aggression as a method of defending against threats to their ego, whereas adolescents with low self-esteem and low narcissism are seen to use aggression as a means of bolstering their sense of self.

Adolescents who scored highly on self-esteem and low on narcissism demonstrated a decreased likelihood to engage in aggression as hostile attributions increased. This suggests that a true, positive sense of self serves as a protective factor against aggressive behaviour even when adolescents are confronted with stressful or tenuous situations. Even when peers are perceived as hostile, adolescents with health self-esteem may feel less threatened and more inclined to attribute the cause of hostility to characteristics of their peers and remain relatively unbothered by concerns about personal inadequacy. This type of attribution would reduce threat and the likelihood of hostile retaliation.

Upon further examination, the same pattern of findings was significant for relational provocations and relational aggression, and although the pattern was mirrored for overt provocations and overt aggression, it was not statistically significant. This could be

interpreted as an artifact of the population used in this study. As children move into adolescence, relational aggression may partially replace physical forms of aggression as a more acceptable means of expressing anger or retaliation. Cognitive advances in adolescence, such as an increased capacity for planning and greater understanding of sarcasm and innuendo, may allow a more efficient use of relational aggression (Creusere, 1999). In addition, the increased emphasis on peer relationships and self-disclosure in friendships that defines adolescence creates more opportunities to use personal information as a weapon when friendships falter (Prinstein, Boergers, & Vernberg, 2001).

### **Implications for Intervention**

What are the implications of these findings? First, a relational hostile attribution bias predicted relational aggression in girls, whereas a physical hostile attribution bias predicted physical aggression in boys. These findings provide insight into the nature of peer interaction episodes that are most likely to provoke relational versus physical acts of aggression. Furthermore, it demonstrates that the social context of a provocation may have more saliency for one gender over another, and therefore produce different responses. When designing interventions for aggressive behaviour in adolescents, an emphasis on the role of social context in eliciting biased patterns of social information-processing is integral to tailoring gender-specific or aggression-specific treatment approaches.

Our results also provide some insight into the ongoing debate about narcissism versus low self-esteem as being precursors to aggressive behaviour. The outcome of

this study indicates that the constructs of self-esteem and narcissism need to be examined in conjunction with one another in order to differentiate between healthy levels of self-esteem and unrealistic or inflated levels of self-esteem. Youth with low levels of self-esteem as well as youth with high levels of narcissism are both at risk for aggression when they attribute hostile intent to others. Furthermore, to the extent that youth have healthy self-esteem they are less likely to aggress despite the attribution of hostile intent to others. School-based programs that encourage healthy, realistic self-views where youth are taught to build on and accept both their strengths and weaknesses may be beneficial in reducing aggression among peers. Similarly, providing adolescents with alternative methods for resolving peer-related disputes, particularly those of a relational nature, may promote more acceptable forms of conflict resolution.

### **Limitations and Future Research**

This study is the first, to our knowledge, to examine the interaction between narcissism and self-esteem as a moderator between hostile attribution bias and aggression. There are several caveats to our findings that deserve mention. First, all measures included in the study were self-report, along with which comes possible response bias. Future replication and extension of these findings could include additional methods of assessing aggression, narcissism and self-esteem in order to incorporate multiple perspectives and establish increased consistency between how the youth presents themselves and how others view him/her. Behavioral observations or a peer nomination system, such as that used in similar research would help to clarify any concerns surrounding self-report as the only method of assessment (Crick, Grotpeter, &



Bigbee, 2002; Crick, 1996). Another measurement system that would add more breadth to this study would be the breakdown of aggression into dimensions: overt, relational, instrumental and reactive (Little et al., 2002). Distinguishing amongst the 'whys' and 'whats' of aggression may be helpful in further understanding the motivations underlying aggressive behavior.

Additionally, in this study we have focused on narcissism as a personality construct that exists on a continuum. Many would argue, however, that narcissism is relatively normative in adolescence, and that its existence is more a reflection of this developmental period than an aspect of personality. While the results of our study reflect deviations from normal levels of narcissism, it is not synonymous with a DSM-IV diagnosis of narcissistic personality disorder. The MACI (Millon, 1993), which was used to measure narcissism in this study, is a measure of adolescent socio-emotional functioning, and consists of self-report items that tap into the adolescent's view of himself and his experience. Conversely, a DSM-IV diagnosis of narcissistic personality disorder is only warranted in individuals over the age of 18 and reflects a longstanding pattern of behaviour and interaction that cannot be fairly assessed or assumed in early adolescence, a period defined by identity development and the establishment of social relationships. In order to better understand narcissism in adolescence, research assessing the stability of the construct in adolescence and its predictive validity would be useful in providing a foundation for interpreting the role of narcissism during this developmental stage.

One final issue of importance is the construction of the model applied in our study and the way in which the constructs were ordered. While the interaction between narcissism and self-esteem were seen to moderate the relationship between hostile

attribution bias and aggressivity, it is possible that the relationship between these variables could be multidirectional. For example, there is also a theoretical basis for investigating hostile attribution bias as a moderator between narcissism and aggression, since a bias in social information processing can be seen as a reflection of one's personality and consequently, their worldview. Further manipulation of the model outlined in this study will allow for a more in depth understanding of the ways in which the constructs of narcissism, self-esteem, and hostile attribution bias influence one another and contribute to aggressive behaviour.

## Conclusions

The question of self-esteem and its relation to aggressive behaviour has been empirically controversial. The narcissism theory and the low self-esteem theory provide fundamentally distinct pictures regarding the types of personality issues underlying aggressive tendencies. Our research points to the importance of examining both self-esteem and narcissism in conjunction with one another, in order to differentiate these two constructs. The results of our study demonstrate that adolescents with high narcissistic tendencies and adolescents with low self-esteem show an increased likelihood to engage in aggression when they attribute hostile intent to others. Also of substantial importance is the protective nature of high, non-narcissistic self-esteem, which seems to decrease the likelihood of aggressive behaviour in the face of hostile attributions. Researchers, educators, and clinicians need to recognize that a well-rounded, *realistic* appraisal of self should be a focus of early intervention and prevention strategies.

Relational aggression and the significance of a relational context during young adolescence is another important issue that has been underrepresented in the literature. Our research points to the importance of understanding and incorporating this form of aggression into the social information processing model in order to make the model relevant to both genders, and to highlight gender-specific patterns of aggression. The current findings suggest that expanding research on aggressive behaviour in youth by examining multiple forms of aggression may prove profitable in furthering our understanding of the developmental course of aggression and of interventions that alter these pathways.

## REFERENCES

- Artz, S. (1998). Where have all the school girls gone? Violent girls in the school yard. Children & Youth Care Forum, 27, 77-109.
- Baumeister, R.F., Smart, L., & Boden, J.M. (1996). Relation of threatened egotism to violence and aggression: the dark side of high self-esteem. Psychological Review, 103, 5-33.
- Bushman, B.J. & Baumeister, R.F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: does self-love or self-hate lead to violence? Journal of Personality and Social Psychology, 75, 219-229.
- Buss, A., & Perry, M. (1991). Sources of self-esteem in men and women. Unpublished data, University of Texas at Austin.
- Coie, J.D., & Dodge, K.A. (1998). Aggression and antisocial behavior. In W. Damon (Ed.), Handbook of child psychology (pp. 779-862). New York: Wiley.
- Creusere, M. (1999). Theories of adults' understanding and use of irony and sarcasm: Applications to and evidence from research with children. Developmental Review, 19, 213-262.
- Crick, N.R.. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. Development and Psychopathology, 7, 313-322.
- Crick, N.R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. Child Development, 67, 2317-2327.
- Crick, N.R. (1997). Engagement in gender normative versus nonnormative forms of aggression: Links to social-psychological adjustment. Developmental Psychology, 33, 610-617.
- 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.
- Crick, N.R., & Grotpeter, J.K. (1995). Relational aggression, gender, and social-psychological adjustment. Child Development, 66, 710-722.
- Crick, N.R., & Dodge, K.A. (1996). Social information-processing mechanisms in reactive and proactive aggression. Child Development, 67, 993-1002.

- Crick, N.R., Casas, J.R., & Mosher, M. (1997). Relational and overt aggression in preschool. Developmental Psychology, 33, 579-588.
- Crick, N.R., & Werner, N.E. (1998). Response decision processes in relational and overt aggression. Child Development, 69, 1630-1639.
- Crick, N.R., Casas, J.F., & Ku, H.. (1999). Relational and physical forms of peer victimization in preschool. Developmental Psychology, 35, 376-386.
- Crick, N.R., Grotpeter, J.K., & Bigbee, M.A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and physical peer provocations. Child Development, 73, 1134-1142.
- Cross, S.E., & Madson, L. (1997). Models of the self: Self-construals and gender. Psychological Bulletin, 122, 5-37.
- Dodge, K.A. & Frame, C.L. (1982). Social cognitive biases and deficits in aggressive boys. Child Development, 53, 620-635.
- Dodge, K.A., & Coie, J.D. (1987). Social-information processing factors in reactive and proactive aggression in children's peer groups. Journal of Personality and Social Psychology, 53, 1146-1158.
- Dodge, K.A., & Crick, N.R. (1990). Social information processing bases of aggressive behavior in children. Personality and Social Psychology Bulletin, 100, 309-330.
- Dodge, K.A., Price, J.M., Bachorowski, J., & Newman, J.P. (1990). Hostile attributional biases in severely aggressive adolescents. Journal of Abnormal Psychology, 99, 385-392.
- Hughes, J.N., Cavell, T.A., & Grossman, P.B. (1997). A positive view of self: Risk or protection for aggressive children? Development and Psychopathology, 9, 75-94.
- Little, T.D., Jones, S.M., Henrich, C.C., & Hawley, P.H. (2002). Disentangling the 'whys' from the 'whats' of aggressive behavior. International Journal of Behavioral Development, in press.
- Millon, T. (1993). Millon Adolescent Clinical Inventory (MACI) Manual. National Computer Systems, Inc: Minneapolis.
- Moretti, M.M., & Higgins, E.T. (1999). Own versus other standpoints in self-regulation: Developmental antecedents and functional consequences. Review of General Psychology, 3, 188-223.
- Moretti, M.M., Holland, R., & McKay, S. (2001). Self-other representations and relational and overt aggression in adolescent girls and boys. Behavioral Sciences and the Law, 19, 109-126.

- Prinstein, M.J., Boergers, J., & Vernberg, E.M. (2001). Overt and relational aggression in adolescents: social-psychological adjustment of aggressors and victims. Journal of Clinical Child Psychology, 30, 479-491.
- Salmivalli, C., & Kaukiainen, A. (1999). Self-evaluated self-esteem, peer-evaluated self-esteem, and defensive egotism as predictors of adolescents' participation in bullying situations. Personality & Social Psychology Bulletin, 25, 1268.
- Schneider, M., & Leitenberg, H. (1989). A comparison of aggressive and withdrawn children's self-esteem, optimism and pessimism, and causal attributions for success and failure. Journal of Abnormal Child Psychology, 17, 133-144.
- Simons, Paternite, & Shore, (2001). Quality of parent/adolescent attachment and aggression in young adolescents. Journal of Early Adolescence, 21, 182-203.
- Werner, N.E., & Crick, N.R. (1999). Relational aggression and social-psychological adjustment in a college sample. Journal of Abnormal Psychology, 108, 615-623