Testing the Normative Hypothesis of Relational Aggression and Psychopathology through Gender and Age Moderation

by

Sarah Jennifer Kane

A thesis submitted in conformity with the requirements for the degree of Master of Arts
Department of Psychology
University of Toronto

© Copyright by Sarah Jennifer Kane 2012
Testing the Normative Hypothesis of Relational Aggression and Psychopathology through Gender and Age Moderation

Sarah Jennifer Kane
Master of Arts
Department of Psychology
University of Toronto
2012

Abstract

The gender normative hypothesis of relational aggression and psychopathology states that relational aggression is more detrimental to boys than it is to girls because relational aggression is more normative in girls. In the present study, this hypothesis was tested in a large sample of 6-to-18-year-old children and this hypothesis was also extended to the domain of age norms. Specifically, it was tested whether relational aggression would also be most detrimental outside of the age in which it is most normative. The results showed some evidence supporting the gender normative hypothesis. Specifically, it was found that relationally aggressive boys suffered more internalizing and externalizing problems than non-relationally aggressive boys did. Relationally aggressive girls, however, suffered only more externalizing problems than non-relationally aggressive girls did. Results did not support the age normative hypothesis. Implications of these findings and future directions are discussed.
Acknowledgments

Firstly, I would like to thank my supervisor, Dr. Jennifer L. Tackett, for all of invaluable guidance and support throughout this project. I would also like to thank Dr. Tina Malti, my subsidiary advisor, for her assistance on this project. I am additionally thankful to the families in the study for their participation and the research assistants at the Personality Across Development Lab for their help in the data collection. I am hugely grateful also to Kathrin Herzhoff; without her support and feedback this work would have been impossible. And finally, I would like to thank my parents and sisters for their emotional support. This research was supported by funding from the Social Sciences and Humanities Research Council of Canada.
# Table of Contents

Acknowledgments ........................................................................................................ iii

Table of Contents ......................................................................................................... iv

List of Tables .............................................................................................................. vi

List of Figures .............................................................................................................. vii

Chapter 1 ....................................................................................................................... 1

1 Introduction ............................................................................................................... 1

1.1 Relational Aggression, Gender, and Psychopathology ........................................ 3

1.2 Relational Aggression, Age, and Psychopathology ............................................. 4

1.3 The Present Study ................................................................................................. 6

Chapter 2 ....................................................................................................................... 7

2 Method ....................................................................................................................... 7

2.1 Participants ............................................................................................................ 7

2.2 Measures .............................................................................................................. 8

2.2.1 Children’s Social Behavior Scale (CSBS; Casas et al., 2006) ......................... 8

2.2.2 Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) ................. 9

2.3 Procedure ............................................................................................................. 9

Chapter 3 ....................................................................................................................... 10

3 Results ...................................................................................................................... 10

3.1 Gender and Age Differences in Relational Aggression ......................................... 10

3.2 Relationships between Relational Aggression, and Internalizing and Externalizing Problems ........................................................................................................................................ 11

3.3 Gender and Age as Moderators of the Relationship between Relational Aggression and Internalizing and Externalizing Problems ........................................................................................................ 11

Chapter 4 ....................................................................................................................... 15

4 Discussion ................................................................................................................ 15
4.1 Gender and Age Differences in Relational Aggression ........................................ 15

4.2 Relationships between Relational Aggression, and Internalizing and Externalizing Problems ................................................................. 16

4.3 Gender and Age as Moderators of the Relationship between Relational Aggression, and Externalizing and Internalizing Problems .................................................. 17

4.4 Limitations and Future Directions ................................................................... 19

4.5 Conclusion ........................................................................................................ 22

References ............................................................................................................. 24

Tables .................................................................................................................... 28

Figures ................................................................................................................. 35
List of Tables

Table 1  *Hierarchical Regression Analysis Testing Gender and Age Moderation of the Relationship between RAgg and Internalizing Problems while Partialling out Externalizing Problems* ................................................................. 28

Table 2  *Hierarchical Regression Analysis Testing Gender and Age Moderation of the Relationship between RAgg and Internalizing Problems* ................................................................. 29

Table 3  *Regression Analyses Predicting Internalizing problems from RAgg Conducted Separately for Boys and Girls* ................................................................. 30

Table 4  *Hierarchical Regression Analysis Testing Gender and Age Moderation of the Relationship between RAgg and Externalizing Problems while Partialling out Internalizing Problems* ................................................................. 31

Table 5  *Hierarchical Regression Analysis Testing Gender and Age Moderation of the Relationship between RAgg and Externalizing Problems* ................................................................. 32

Table 6  *Regression Analyses Predicting Externalizing Problems from RAgg Conducted Separately in Boys and Girls* ................................................................. 33

Table 7  *Regression Analyses Predicting Externalizing Problems from RAgg Conducted Separately Across Age Groups* ................................................................. 34
List of Figures

Figure 1. Mean relational aggression scores across age .......................................................... 35

Figure 2. The relationship between relational aggression and internalizing problems across gender, partialling out externalizing problems and age ................................................................. 37

Figure 3. The relationship between relational aggression and externalizing problems across gender, partialling out internalizing problems and age ................................................................. 36

Figure 4. The relationship between relational aggression and externalizing problems across different age ranges, partially out internalizing problems and gender .............................................. 38
Chapter 1

1 Introduction

Research on childhood and adolescent aggression has increasingly investigated more indirect, covert, and manipulative forms of aggression (Card, Stucky, Sawalani, & Little, 2008). This sort of aggression was coined *relational aggression* (RAgg) by Crick and Grotpeter (1995) and is defined as behaviors that aim to harm others through the purposeful manipulation and damage of their peer relationships. RAgg is very similar to both indirect aggression (Lagerspetz, Björkqvist, & Peltonen, 1988) and social aggression (Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989) and although RAgg is defined slightly differently from indirect and social aggression (Xie, Cairns, & Cairns, 2005), these constructs represent largely overlapping behaviors and ought to be considered concurrently when reviewing the literature on them (Björkqvist, 2001; Archer & Coyne, 2005; Card et al., 2008). For this reason, I will be using the term “RAgg” to represent behaviors encompassed by all three definitions. Examples of relationally aggressive behaviors include spreading malicious gossip about a target, encouraging others to dislike a target, telling a target’s secrets to others, giving someone “the Silent Treatment” and befriending others as a form of revenge (Lagerspetz et al., 1988; Cairns et al., 1989; Crick & Grotpeter, 1995).

Given that longitudinal studies have shown that overt and physical forms of aggression are one of the best-known predictors of future maladjustment (Coie & Dodge, 1998; Foster, in press; as cited in Crick, Ostrov, & Werner, 2006), researchers have begun to investigate if and how RAgg relates to maladjustment as well. Studies on how RAgg relates to psychopathology have focused mainly on internalizing and externalizing forms of psychopathology. Internalizing problems refer to a spectrum of over-controlled and inwardly directed emotional problems, including depression, anxiety, and somatic complaints (Achenbach, 1966; 1991). Externalizing problems, on the other hand, refer to a spectrum of under-controlled and outwardly directed behavioral problems, including conduct and oppositional defiant disorder (Achenbach, 1966; 1991).
Researchers initially proposed RAgg as a female form of aggression (Lagerspetz et al., 1988; Crick & Grotpeter, 1995) and, thus, began by investigating associations between RAagg and internalizing problems, which girls are typically at a higher risk for (Crick & Grotpeter, 1995). Studies demonstrated that children who were relationally aggressive were more likely to be withdrawn, anxious, and depressed than were their non-aggressive peers (Crick & Grotpeter, 1995; Crick et al., 2006). In a longitudinal study by Murray-Close, Ostrov, and Crick (2007), RAagg was predictive of both concurrent and later internalizing symptoms and behaviors. A recent meta-analysis confirmed these findings even when partialling out overt aggression (Card et al., 2008).

Research on externalizing problems has also supported RAagg’s association with psychopathology. Research has largely found that RAagg predicts externalizing problems both in cross-sectional and longitudinal investigations (Prinstein, Boergers, & Vernberg, 2001; Reed, Goldstein, Morris, & Keyes, 2008; Tackett & Ostrov, 2010). Additionally, Card et al. (2008) found in their meta-analysis that RAagg was uniquely predictive of externalizing problems even when partialling out overt aggression. Although all of these studies lead to the general conclusion that RAagg is associated with both internalizing and externalizing problem behaviors, questions regarding why RAagg relates to psychopathology remain.

One of the most unique aspects of RAagg compared to other forms of aggression is its high prevalence among youth, with one study finding that more than 15% of youth report using RAagg (Keenan, Coyne, & Lahey, 2008). The other interesting fact about RAagg is that although it is associated with maladjustment, it is also associated with good adjustment. For example, relationally aggressive children have been found to be more socially intelligent (Kaukiainen et al., 1999), pro-social (Card et al., 2008), and less lonely (Björkqvist et al., 2001) than their non-relationally aggressive peers. These results appear at odds with the fact that RAagg also predicts internalizing and externalizing problems. One way of understanding these findings is that perhaps RAagg is not a universal risk factor but may act as a risk factor in some demographics and as a protective factor in others.
One hypothesis that has been put forward to explain when RA\textsubscript{Agg} acts as a risk factor is the gender normative hypothesis (Crick & Dodge, 1994; Crick, 1997). This hypothesis postulates that children who are aggressive in gender-non-normative ways (i.e., girls being physically aggressive and boys being relationally aggressive) are at an increased risk for maladjustment. The goal of the current study was to test this gender normative hypothesis and to extend it to the domain of age norms. The hypothesis regarding age and RA\textsubscript{Agg} was that different types of aggression are normative at different ages and that when an individual uses RA\textsubscript{Agg} outside of its normative developmental period the individual is more likely to suffer psychopathology.

1.1 Relational Aggression, Gender, and Psychopathology

As mentioned, gender was initially central to the discussion of RA\textsubscript{Agg} because RA\textsubscript{Agg} was proposed as the female form of aggression by researchers calling into question the conclusion that aggression was more common in boys than it was in girls (Lagerspetz, et al., 1988; Crick & Grotpeter, 1995). Early work on RA\textsubscript{Agg} supported this proposition by finding that RA\textsubscript{Agg} was more common in girls than it was in boys (Lagerspetz et al., 1988; Björkqvist, Lagerspetz, & Kaukiainen, 1992; Crick & Grotpeter, 1995).

Crick and colleagues (Crick & Dodge, 1994; Crick, 1997) used these findings in proposing the gender normative hypothesis. This hypothesis argued that children who engage in gender-non-normative forms of aggression are at an increased risk for psychological maladjustment because these children receive more social sanction and negative sentiments from peers and adults than do children who engage in gender-normative forms of aggression. When gender-non-normative forms of aggression are used, children place themselves at risk for a greater degree of intolerance, rejection, and negativity from others. This rejection will then exacerbate adjustment difficulties. Crick (1997) empirically supported this hypothesis when she found that boys who were relationally aggressive and girls who were overtly aggressive were rated higher on internalizing and externalizing problems than were their more normatively aggressive peers. Other studies, however, have failed to replicate this finding and problems with the gender normative hypothesis have been raised.
When Card et al. (2008) failed to replicate Crick’s (1997) finding, they proposed that the reason for this failure was that RAgg is not actually more common in girls than it is in boys. Based on this finding they further concluded that RAgg is not more normative in one gender compared to the other. Although it is true that RAgg is equally common in boys and girl (Card et al., 2008), the gender normative hypothesis may still apply if peers, teachers, and parents perceive RAgg as being more normative for girls than for boys, and thus still sanction RAgg in boys. Crick, Bigbee and Howes (1996) found that both boys and girls viewed physical aggression as the normative form of aggression for boys. Boys and girls disagreed, however, on what was the normative form of aggression for girls. Girls thought that RAgg whereas boys thought that physical aggression and tattle-telling were the most normative forms of aggression for girls. According to this finding, only girls would negatively sanction physical aggression in other girls whereas both boys and girls would negatively sanction RAgg in boys. Further supporting these gender-normative perceptions, Giles and Heyman (2005) found that both preschoolers and middle-aged children (aged 7-8 years) described RAgg as the most common form of aggression among girls and physical aggression as the most common form among boys. Crick and Werner (1998) also found that RAgg is reported as more socially acceptable among girls than it is among boys. Clearly, despite the evidence that RAgg is not actually more common in girls than it is in boys, beliefs about RAgg being more normative for girls persist. As long as these norms persist, it is likely that boys will be more negatively sanctioned for engaging in RAgg than will girls. These negative sanctions might than increase boys’ risk for psychopathology. So far, only a handful of empirical studies have tested this hypothesis, and they have exclusively examined early adolescence samples (Crick, 1997; Crick et al., 2006; Keenan et al. 2008).

1.2 Relational Aggression, Age, and Psychopathology

Unlike investigations of gender differences in RAgg, investigations of age differences have been scarce (Card et al., 2008). Despite evidence that RAgg occurs across the lifespan, from children as young as three years (Crick et al., 2006) to adults as old as 70 years (Walker, Richardson, & Green, 2000), the majority of RAgg research has focused only on early
adolescence. Furthermore, samples within a given study have usually examined only limited age ranges.

From the nascence of this line of research, researchers assumed that RAgg would be most common in early adolescence (Lagerspetz et al., 1988; Björkqvist et al., 1992; Crick & Grotpeter, 1995). Björkqvist (1994) suggested RAgg would peak during early adolescence when the greater verbal abilities and social sophistication that are necessary to enact RAgg develop. Further supporting a peak at this age is the fact that friendships become increasingly important during early adolescence, with children spending more time with peers than with parents or siblings (Ellis, Rogoff, & Cromer, 1981). Empirical studies investigating when RAgg is most common have been scarce but those that have been conducted have found that RAgg is most common during early- to mid-adolescence (Tiet, Wasserman, Loeber, McReynolds, & Miller, 2001; Karriker-Jaffe, Foshee, Ennett, & Suchindran, 2008). Based on the available findings, it appears that RAgg demonstrates a curvilinear pattern, increasing until around age 14-15 years and then decreasing (Tiet et al., 2001; Karriker-Jaffe et al., 2008).

Applied to the normative hypothesis, these findings suggest that RAgg would be most associated with maladaptation outside of the early-adolescence age range in which RAgg is most common. The assumption behind this hypothesis is that during early- to mid-adolescence, RAgg is very common and therefore less likely to be socially sanctioned by peers, teachers, or parents. In contrast, very young children along with older adolescents and adults who are relationally aggressive would be seen as behaving in an abnormal way and would face increased punishment and reprimands for these behaviors. In a meta-analysis, Card and colleagues (2008) tested and failed to find evidence for age moderation of the relationship between RAgg and psychopathology. No studies, however, have investigated this question within a single sample covering a sufficiently large age range. The current study aims to further the existing literature by investigating the prevalence of RAgg across a larger age range than previously studied and by testing for age moderation between RAgg and both internalizing and externalizing psychopathology.
1.3 The Present Study

The present study focused on investigating the relationships between RA_gg and internalizing and externalizing problems. Firstly, I expected that this study would replicate past research in finding that RA_gg is predictive of both internalizing and externalizing problems in both boys and girls. The current study also tested for gender and age moderation of the relationship between RA_gg and psychopathology. I predicted that the results of these analyses would confirm a normative hypothesis, such that individuals who are relationally aggressive outside of gender and age norms would be at increased risk for both internalizing and externalizing problems. The study’s large sample that covers a broad age range (ages 6-18 years) is ideal for a rigorous test of developmental norms as well as potential age moderation of the relationship between RA_gg and psychopathology. Specifically, in this study, I tested the following hypotheses:

- RA_gg would be a significant predictor of both internalizing and externalizing problems.

- Gender would moderate the relationship between RA_gg and both internalizing and externalizing problems, such that the association between RA_gg and problem behaviors would be stronger in boys than in girls, supporting the gender normative hypothesis.

- Age would moderate the relationship between RA_gg and both internalizing and externalizing problems, such that the association would be weakest in 14-15 year olds and would be stronger in younger and older ages, supporting the age normative hypothesis.
Chapter 2

2 Method

2.1 Participants

Participants in this study were part of two larger research projects, the Childhood Personality Across Cultures (CPAC) and the Childhood Personality and Behavioral Outcomes Study (CPBS). The CPAC study is a large cross-sectional study designed to validate two personality and temperament measures developed by researchers in Belgium. CPBS is a longitudinal study aimed at understanding how individual differences in personality traits relate to behavior in middle childhood.

As part of the CPAC study, 6-18-year-old children and their primary caregivers were recruited, whereas 7-12-year-old children and up to two of their caregivers were recruited as part of the CPBS project. In both studies, participants were recruited in one of the following ways: through a Department-of-Psychology database of families who had indicated interest in participating in studies, through flyers around the community, and through advertisements in the local media. In the CPAC study, participants were also recruited through students taking an introductory abnormal psychology course. As part of class participation, students were asked to recruit a caregiver of a 6-18-year-old child and collect data from them. Participants in both studies were fluent in English and the children did not have previous diagnoses of neurodevelopmental disorders, mental retardation, or psychotic disorders. Informed consent was obtained from all parents and informed assent was obtained from children in the CPBS study and informed consent from the children in the CPAC study who filled out questionnaires.

The CPAC study consisted of 742 children for whom one parent completed questionnaires. The majority of informants were mothers (78.2%) and the rest were fathers (21.8%). The children ranged in age from 6-18 years ($M_{age} = 11.26$ years, $SD_{age} = 3.64$ years) and the sample was evenly split by gender (51.48% female). Ethnicity of the children was moderately
diverse. Of those that indicated an ethnicity for their child, 63.15% reported their child as European/White, 14.77% reported Multi-Racial/Other race, 17.66% reported Asian/Pacific Islander, 2.72% reported African-American, and 1.70% reported Hispanic. Ethnicity was not reported for 153 children. The CPBS sample consisted of 333 children for whom up to two caregivers completed reports on their child. In the following analyses, mother report was used when available and when unavailable, father report was used to create a one-parent dataset similar to the CPAC sample. This resulted in 305 mother reports (91.6%) and 28 father reports. The children ranged in age from 7-12 years ($M_{age} = 9.46$ years, $SD_{age} = 0.73$ years) and the sample was evenly split by gender (50.45% female). Ethnicity of the children was moderately diverse. Of those who indicated an ethnicity for their child, 72.33% reported their child as European/White, 23.33% reported Multi-Racial/Other race, 10.67% reported Asian/Pacific Islander, 3% reported African-American and less than 1% reported Hispanic. Ethnicity was not reported for 3 children.

Combining the CPAC and CPBS samples created a total combined sample of 1075 target children for whom one parent completed questionnaires. The majority of informants were mothers (82.3%) and the rest were fathers. The children ranged in age from 6-18 years ($M_{age} = 10.70$ years, $SD_{age} = 3.16$ years) and the sample was evenly split by gender (51.16% female). Ethnicity of the children was moderately diverse. Of those who indicated an ethnicity for their child, 64.09% reported their child as European/White, 17.08% reported Multi-Racial/Other race, 14.80% reported Asian/Pacific Islanders, 2.72% reported African-American, and 1.31% reported Hispanic. Ethnicity was not reported for 156 children.

2.2 Measures

2.2.1 Children’s Social Behavior Scale (CSBS; Crick, 2006 as cited in Ostrov & Bishop, 2008; Casas et al., 2006; Ostrov & Bishop, 2008)

The CSBS assesses a child’s RAgg, physical aggression, and pro-social behaviour via 13 items completed by parent report. Items were rated on a 7-point scale from 1 (never true) to 7
For the purpose of this study, only the 5-item RAgg subscale was computed for each child. Internal consistency for this scale was $\alpha = .75$.

### 2.2.2 Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001)

The CBCL assesses a child’s behavioural and emotional problems via 118 items completed by parent report. Items were rated on a 3-point scale ranging from 0 (*not true*) to 2 (*often true of the child*). Items were scored to generate two higher-order scales. The higher-order scale of internalizing problems was composed of items regarding anxiety, depression, and somatic complaints. The higher-order scale of externalizing problems was composed of items regarding rule-breaking and aggression. Internal consistency for the internalizing scale was $\alpha = .87$ and $\alpha = .89$ for the externalizing scale.

### 2.3 Procedure

For the CPAC study, those parents who were recruited via the Department-of-Psychology database participated by mail. All participants completed the CBCL questionnaire. In addition, participants completed three other questionnaires. Each of the three questionnaires was randomly assigned from a choice of two. For example, each parent completed either the Inventory of Callous and Unemotional Traits (Frick, 2004; not used in the present study) or the CSBS. Participation took approximately 1 hour. Participants were compensated with a CAD $10 gift certificate. Those parents who were recruited via the course assignment completed questionnaires independently at home and the student collected the data and returned it to the lab. All participants completed a selection of questionnaires including the CBCL and the CSBS. Participation also took approximately 1 hour. Students received partial course credit for collecting the data. For CPBS, one parent and the child participated in the lab where, among other tasks not used in the following analyses, the parent completed the CSBS questionnaire. The parent completed the CBCL independently at home and returned it during the lab visit. The lab visit took up to 2.5 hours. Parents were compensated with CAD $40 whereas children received two small gifts. The University of Toronto Ethics Board approved the protocols and materials for both studies.
Chapter 3

3 Results

3.1 Gender and Age Differences in Relational Aggression

To create the combined sample used in the analyses, the CPAC and CPBS samples were merged, creating a one-parent-report data set. Missing data were imputed using the maximum-likelihood-based EM algorithm in SPSS.

To test for gender differences, an across-gender ANCOVA was run with gender as the fixed factor, age as the covariate, and RAgg as the dependent variable. Boys’ RAgg scores ($M = 8.37, SD = 2.39$) were not significantly different from girls’ ($M = 8.59, SD = 2.67$), $F(1, 1072) = 1.94, p = .16$ as rated by parents.

The relationship between age and RAgg was tested in two ways, first by an ANOVA and then by a regression. The relationship between age and mean RAgg scores is shown in Figure 1. For the ANOVA, six age groups were created: 6- and 7-year-olds ($n = 166$), 8- and 9-year-olds ($n = 311$), 10- and 11-year olds ($n = 237$), 12- and 13-year-olds ($n = 104$), 14- and 15-year-olds ($n = 143$), and 16- to 18-year-olds ($n = 114$). These groups were chosen for two reasons, firstly, so that the hypothesis regarding RAgg peaking between ages 14-15 could be specifically tested and secondly, to create groups with more equitable $n$s. The omnibus test was statistically significant $F(5, 1069) = 2.64, p = .022$; however, Tukey’s HSD follow-up tests revealed that RAgg was not significantly different across any of the age ranges. The difference between ages 6 and 7 ($M = 8.11, SD = 1.82$) and ages 16 to 18 ($M = 8.95, SD = 2.54$), was the closest to reaching statistical significance, with $q_{HSD} = -0.84, p = .068$. A regression was used to test the hypothesis that RAgg would have a curvilinear relationship with age. A hierarchical regression was conducted in which age (centered) was entered in Step 1 and an Age x Age quadratic term was entered in Step 2. The results indicated that RAgg was significantly positively related to age, $\beta = .09, p = .003$, but that there was no evidence of a quadratic effect, $\beta = .00, p = .936$. 
3.2 Relationships between Relational Aggression, and Internalizing and Externalizing Problems

To examine the basic relationships between RAgg, internalizing and externalizing problems, Pearson correlations were computed. First, correlations were computed for the entire sample, and then separately by gender. Internalizing and externalizing problems were significantly positively correlated with each other, $r = .54, p < .001$. This relationship was not significantly different from the relationships found when boys and girls were analyzed separately. Both internalizing and externalizing problems were correlated with RAgg, with $r = .29, p < .001$, and $r = .42, p < .001$, respectively. These results were followed up by calculating the correlations separately by gender. No difference in the relationship between RAgg and internalizing problems was found between girls ($r = .26, p < .001$) and boys ($r = .33, p < .001$), Fisher’s $Z = -1.25, p = .211$. The correlation between RAgg and externalizing problems was stronger in girls ($r = .49, p < .001$) than it was in boys ($r = .35, p < .001$), Fisher’s $Z = 2.79, p = .005$.

3.3 Gender and Age as Moderators of the Relationship between Relational Aggression and Internalizing and Externalizing Problems

To investigate if gender and age moderated the relationship between RAgg and internalizing problems, two moderated hierarchical regressions were conducted. In both of them the dependent variable was internalizing problems. In Step 1, RAgg, gender, and age were entered. Gender was recoded to -1 (boys) and 1 (girls) and RAgg and age were mean-centered. In Step 2, the interaction terms, RAgg x Gender and RAgg x Age were entered. In the second moderated regression predicting internalizing problems, externalizing problems (mean-centered) was also entered in Step 1. The shared variance between internalizing and externalizing problems represents a general underlying psychopathology, and so partialling out externalizing problems in the second regression allowed for testing how RAgg and the moderators predict the unique aspect of internalizing problems whereas the first regression
allowed for testing how RAgg and the moderators predict internalizing problems as a whole construct.

As tested in Step 1 of the regressions, RAgg emerged as a significant predictor of internalizing problems whether externalizing problems were partialled out ($\beta = .08, p = .006$; see Table 1) or not ($\beta = .29, p < .001$; see Table 2). This indicates that RAgg is predictive of both the unique aspect of internalizing problems, and internalizing problems when it includes the general psychopathology variance that it shares with externalizing problems.

The results of the gender moderation depended on whether or not externalizing problems was entered in Step 1. When it was not, there was no evidence of gender moderation, $\beta = -.05, p = .070$. When externalizing problems was included, however, the RAgg x Gender term was significant, $\beta = -.07, p = .009$. To probe this interaction, an additional regression was conducted separately for each gender where externalizing problems, RAgg, and age were entered as predictors of internalizing problems (see Table 3). The results of these regressions were used to plot the relationship between RAgg and internalizing problems separately for each gender (see Figure 2). The results indicate that RAgg is only predictive of internalizing problems for boys ($\beta = .15, p < .001$) and that no significant relationship exists between RAgg and internalizing problems for girls ($\beta = .01, p = .811$). There was no evidence for age moderation in either the partialled, $\beta = -.01, p = .598$ or unpartialled regressions, $\beta = .05, p = .126$.

To investigate whether gender and age moderated the relationship between RAgg and externalizing problems, two moderated hierarchical regressions were conducted in the same manner as the internalizing regressions, with externalizing problems as the dependent variable and internalizing problems entered in Step 1 of the second regression. As tested in Step 1 of the regressions, RAgg emerged as a significant predictor of externalizing problems whether internalizing problems was partialled out ($\beta = .28, p < .001$; see Table 4) or not ($\beta = .42, p < .001$; see Table 5). This indicates that RAgg is predictive of both the unique aspect of
externalizing problems, and externalizing problems when it includes the general psychopathology variance that it shares with internalizing problems.

The results of the gender moderation depended on whether or not internalizing problems was entered in Step 1. When it was not, there was no evidence of gender moderation, $\beta = .03, p = .332$. When internalizing problems was included, however, the $R_{Agg} \times$ Gender term was significant, $\beta = .05, p = .033$. To probe this interaction, an additional regression was conducted separately for each gender where internalizing problems, $R_{Agg}$, and age were entered as predictors of externalizing problems. The results of these regressions were used to plot the relationship between $R_{Agg}$ and externalizing problems separately for each gender (see Figure 3). The results indicate that for both boys and girls, $R_{Agg}$ is predictive of externalizing problems. This relationship, however, is stronger in girls ($\beta = .37, p < .001$; see Table 6) than it is in boys ($\beta = .19, p < .001$).

The results of the age moderation did not depend on whether or not internalizing problems was entered in Step 1. The $R_{Agg} \times$ Age interaction term was significant both when internalizing problems was partialled out, $\beta = .09, p < .001$, and was not, $\beta = .11, p < .001$. Both of these interactions were followed up by conducting separate regressions of $R_{Agg}$ predicting externalizing problems while partialling out gender across the same six age groups used previously. The results of both age moderations were similar, so to avoid redundancy, only the results of the regression in which internalizing problems was partialled out is presented (See Table 7). The results of these regressions were used to plot the relationship between $R_{Agg}$ and externalizing problems separately for each age group (see Figure 4). The results point towards $R_{Agg}$ being more associated with externalizing problems in the older ages than the younger ones.
Chapter 4

4 Discussion

The goal of the present study was to test whether gender and age moderated the relationship between RAgg and internalizing and externalizing problems. The overarching hypothesis behind these moderation analyses was that children who are relationally aggressive in non-normative ways would be at an increased risk for psychological problems. Although gender and age moderations have been investigated in the past via a meta-analysis (Card et al., 2008), this was the first study that concurrently tested both gender and age moderation of the relationship between RAgg and internalizing and externalizing problems in a large sample of 6-to 18-year-old participants. The results of the present study further our knowledge about how RAgg impacts both genders across key developmental periods and bring new insights that will help further this important field of study.

4.1 Gender and Age Differences in Relational Aggression

In this study, no gender difference emerged in parent-reported RAgg. These results are in line with Card et al.’s (2008) conclusions made based on their meta-analysis. Card et al. (2008) found that parents rated girls as more relationally aggressive than they rated boys; however, because of the negligible magnitude of this finding and the heterogeneity across studies looking at this relationship, they concluded that gender differences in RAgg were trivial.

RAgg was found to be modestly positively associated with age, i.e., parents rated older children as more relationally aggressive than they rated younger children. This finding was small in magnitude and detectable only by regression analysis and not when participants were grouped into 2-3 year age groups. This finding was unexpected given that previous studies found curvilinear relationships between RAgg scores and age during childhood and adolescence (Tiet et al., 2001; Karriker-Jaffe et al., 2008). Both previous studies found that RAgg scores increased until around 14-15 years and then decreased. Specifically, Tiet et al. (2001) found this in a cross-sectional investigation of 4- to 18-year-olds and Karriker-Jaffe et
al. (2008) further supported this finding in a longitudinal sample tracking children from age 11 to 18. This curvilinear relationship was tested for in both ANOVA and regression analyses, and failed to emerge. Instead, the results suggested that RAgg continually increases past mid-adolescence, although in general this effect is small. These results point to RAgg having a peak later in life, perhaps in early adulthood.

One issue that needs to be addressed in regards to these findings is that this study relied only on parental report. Others have questioned the validity of using parental report in detecting maladjustment (Crick & Grotpector, 1995; Keenan et al., 2008). Children may purposefully hide their RAgg from their parents to avoid getting into trouble (Keenan et al., 2008). This concern is especially relevant in regards to the developmental trends presented here given that the validity of parental report may vary across age. Parents may be less able to detect their children’s RAgg as the child ages, develops increased social intelligence, and is more capable of hiding their behaviors from their parents. Additionally, children spend less time with their parents as they age (Ellis et al., 1981), and thus parents of older children have fewer opportunities to observe their children than do parents of younger children. Interpretations of developmental trends of maladjustment based on parental measures must therefore be interpreted with caution.

4.2 Relationships between Relational Aggression, and Internalizing and Externalizing Problems

In the present study, internalizing and externalizing problems were significantly moderately correlated with each other and this degree of inter-correlation did not differ across gender. As expected based on past literature (Crick, 1997; Card et al., 2008; Crick, Ostrov, & Werner, 2006; Tackett & Ostrov, 2010), RAgg predicted both internalizing and externalizing problems. The relationship between RAgg and externalizing problems also varied across gender, with the relationship being higher in girls than boys. There was no difference in the relationship between RAgg and internalizing problems across gender. These relationships were further elucidated in the moderation analyses.
4.3 Gender and Age as Moderators of the Relationship between Relational Aggression, and Externalizing and Internalizing Problems

The gender normative hypothesis was supported only in the domain of internalizing problems, where it was found that RAgg predicted internalizing problems in boys but not in girls. The opposite pattern was found for externalizing problems, where although RAgg predicted externalizing problems in both boys and girls, the relationship was stronger in girls. Both of these effects were found only when the other form of psychopathology was partialled out (i.e., internalizing problems were partialled out in the regressions predicting externalizing problems and vice versa). Taken together, these findings suggest that although relationally aggressive boys and girls are equally likely to have some form of psychopathology, boys and girls differ in their likelihood of having specific kinds of problems, as represented by the gender moderation of the unshared variance of internalizing and externalizing psychopathology. Specifically, relationally aggressive boys are more likely to suffer concurrent internalizing problems and less likely to suffer externalizing problems than relationally aggressive girls are.

Compared across gender, relationally aggressive boys were less likely to have externalizing problems than were girls. This finding did not support the gender normative hypothesis. Compared within gender, however, relationally aggressive boys were more likely to have both internalizing and externalizing problems than were non-relationally aggressive boys. In contrast, relationally aggressive girls were more likely to have only externalizing problems than were non-relationally aggressive girls. One possible explanation of these findings is based on the mechanism of the gender normative hypothesis. The gender normative hypothesis suggests that boys who are relationally aggressive are more likely to receive social sanctions and disapproval from peers and authority figures than are relationally aggressive girls (Crick & Dodge, 1994; Crick, 1997). The results here found that relationally aggressive boys are more susceptible only to internalizing problems than girls are, suggesting that those sanctions lead only to inwardly directed problems (internalizing) instead of
outwardly directed ones (externalizing). RA\text{agg}, however, was associated with externalizing problems in both genders. This may be because externalizing problems and RA\text{agg} result from a common cause whereas internalizing problems result only from gender-non-normative RA\text{agg}. Another explanation for the gender moderation found for RA\text{agg} and internalizing problems is that perhaps relationally aggressive girls are more immune to internalizing problems than boys because RA\text{agg} is a protective factor for girls. Björkqvist and colleagues (2001) found that peers rated relationally aggressive girls as less lonely than both non-relationally aggressive girls and relationally aggressive boys. The authors suggested that this might have been because RA\text{agg} has a cohesive function within girls’ friendships, but not within boys’. RA\text{agg} in girls may be a protective factor against internalizing problems because it may help them build close-knit friendships.

In contrast to gender moderations, no age moderation was found for internalizing problems. This finding is in line with Card et al.’s (2008) finding that age did not moderate the relationship between RA\text{agg} and internalizing problems. Within the domain of externalizing problems, however, age moderation was found but not in the expected direction. RA\text{agg} was expected to be most linked to psychopathology outside of the developmental period in which it is most common. As previously discussed, the results showed that RA\text{agg} was modestly positively related to age, and so it was expected that RA\text{agg} would be most maladaptive in younger rather than older children. In contrast, the results showed that RA\text{agg} was related to externalizing problems more strongly in older age groups than it was in younger ones. This was found regardless of whether internalizing problems were partialled out.

There are a couple possibilities as to why RA\text{agg} might be more related to externalizing problems in older rather than in younger children. It may be reflective of declining rates of overt aggression, such as physical and verbal aggression, across adolescence. Björkqvist et al. (1992) suggested that RA\text{agg} begins to replace physical and verbal aggression as children develop the social intelligence necessary to use RA\text{agg} effectively. RA\text{agg} is also thought to become a preferred form of aggression as children age due to the fact that it does not involve placing oneself at the same risk for counter physical harm or attacks the way more overt and
direct forms of aggression do (Björkqvist et al., 1992). Perhaps individuals who were overtly aggressive as children convert to using RAgg as they approach adulthood and these children continue to suffer from externalizing problems that have been found to be highly associated overt aggression in children (Card et al., 2008). This study did not account for overt forms of aggression so this is one of several directions future investigations may choose to look into.

4.4 Limitations and Future Directions

The present study had several limitations that need to be addressed. First, as mentioned previously, RAgg and internalizing and externalizing problems were measured only by parental report. This means that the results are potentially confounded by informant source. Criticism has been voiced against using parents as informants for RAag because the covert nature of RAag leads some to question whether parents have access to valid information regarding their child’s RAag (Crick & Grotpeter, 1995; Keenan et al., 2008). As a result, RAag is frequently measured by teacher- and peer-reports, as is the case with a large amount of work by Crick and colleagues (e.g., Crick & Grotpeter, 1995; Crick, 1996; Crick et al., 2006; Murray-Close et al., 2006). Recent work, however, has validated parents as informants for RAag (Keenan et al., 2008; Tackett & Ostrov, 2010). Limited work has also addressed the utility of having different informants. One study found that children’s reports of their own RAag were not a unique predictor of their psychological problems after parent report and gender were taken into account (Tackett & Ostrov, 2010), lending support to using parental report of RAag in predicting maladjustment. What remains to be addressed in the literature is how teacher- and peer-reports compare to parent- and self-reports (Keenan et al., 2008; Tackett & Ostrov, 2010). Future research should determine the validity of overlapping and non-overlapping information provided by these different sources (Keenan et al., 2008; Tackett & Ostrov, 2010).

Another limitation of this study was that the exclusive focus was on RAag and did not include overt or physical aggression. As mentioned previously, an analysis of the use of overt aggression may aid in explaining the age moderation found here. Another concern is that
overt aggression is highly correlated with both internalizing and externalizing problems (Card et al. 2008). Considering that the use of RAgg and overt aggression is highly correlated in children and youth (Card et al., 2008), not partialling out overt aggression in this study deserves further justification. Several studies have investigated the unique association of RAgg with internalizing and externalizing problems after partialling out overt or physical aggression (Crick, 1996; Crick, 1997; Prinstein et al., 2001; Crick et al., 2006), and have found that RAgg is still uniquely predictive of both forms of psychopathology. Card et al.’s (2008) meta-analysis supported this finding, suggesting that RAgg would most likely remain uniquely predictive of psychopathology even if overt aggression had been partialled out. In addition, partialling out overt or physical aggression would change the research question posed in the current study. Partialling out overt aggression would partial out the underlying general aggressive component from the RAgg variable and would therefore investigate only the uniquely relational part of RAgg. This is an interesting question that future studies could investigate to gain a more nuanced understanding of the relationship between RAgg and maladjustment.

A third limitation of this study was that it included participants only up to age 18. It was expected that RAgg would be related to age in a curvilinear fashion, such that RAgg would increase until around age 14-15 and then decrease until age 18. RAgg, however, did not follow this pattern and instead was positively related with age. One potential explanation is that RAgg may peak at a later age. Unfortunately, the current study was not able to observe such a later peak due to the sample’s age range. It would be useful to investigate how RAgg relates to age across adolescence and emerging adulthood in order to test if RAgg does peak in emerging adulthood.

The present results provide some evidence for the gender normative hypothesis, despite RAgg being equally common in boys and girls. I have argued that the gender normative hypothesis would still apply regardless of actual differences in prevalence of RAgg in boys and girls as long as RAgg is perceived by society to be more normative and acceptable for girls than for boys, which is currently the case (Crick et al., 1996; Giles & Heyman, 2005;
Crick & Werner, 1998). It would be interesting to empirically test if parents’ perceptions of gender norms for RAgg moderate the relationship between RAgg and psychopathology. Presumably, boys whose parents believe RAagg is more common in girls than it is in boys would be more likely to suffer negative responses to their RAagg and this rejection may exacerbate their psychological problems.

Another potential direction related to the gender normative hypothesis is whether boys and girls discourage RAagg and overtly aggressive behavior equally in their peers. Crick et al., (1992) found that although physical aggression is viewed by both boys and girls as the normative behavior for boys, girls and boys disagreed on what was normative for girls. Girls thought that RAagg was the most normative form of aggression for girls whereas boys thought that both physical aggression and tattle-telling were the most normative forms of aggression for girls. According to this finding, only girls would negatively sanction overtly aggressive behaviors in other girls whereas both boys and girls would negatively sanction RAagg behaviors in boys. This would be an interesting hypothesis to test empirically perhaps through an experimental paradigm where children are asked to rate a child based on a video of the child acting either overtly or relationally aggressive.

This study failed to support the age-normative hypothesis. There are several possibilities as to why the hypothesis was unsupported and these possibilities point to possible future directions of study. Firstly, it may be that using RAagg outside of the normative age range does not lead to maladjustment concurrently but rather the effects take time to show up. A longitudinal study would be necessary to test this hypothesis to determine if children who are relationally aggressive outside of the normative age range would suffer increased maladjustment in later years. Secondly, it may also be that the normative hypothesis does not apply to age. The mechanism by which the gender normative hypothesis was proposed to work was through social sanctions and peer rejection imposed on children who do not conform to gender norms. Such a mechanism may not apply to age because there may not be a socially perceived age at which RAagg is normal. It would be interesting to empirically investigate whether people perceive RAagg as being more normative in certain ages compared
to others. Further, it may also be that the age norms vary by gender. Future studies could investigate this by testing whether an age-by-gender interaction would moderate the relationship between age and perceived normality of the aggression.

4.5 Conclusion

This study was the first to test for moderation of the relationship between RAgg and psychopathology both in the domains of gender and age. The aim of this study was to test the gender normative hypothesis in a large sample covering a broad age range and to extend this hypothesis to the domain of developmental norms. The results of this study partially support the normative hypothesis within the domain of gender. Specifically, boys who were relationally aggressive were more likely to suffer from both internalizing and externalizing problems than were non-relationally aggressive boys. Relationally aggressive girls, however, were more likely to suffer only from externalizing problems compared to non-relationally aggressive girls. Evidence for age moderation was not supportive of the normative hypothesis. Age moderation was found only in the domain of externalizing problems, where older relationally aggressive children were reported as more likely to suffer externalizing problems than were younger relational aggressive children.

The results of this study point to the importance of considering gender and age when evaluating the harm caused by RAgg, specifically among the aggressors. These findings are especially important regarding gender, as RAgg appears to effect boys and girls differentially. This study further contributes to the literature by highlighting the importance and need for additional investigations into how RAgg differs in boys and girls.

This study also has implications for intervention programs targeting RAgg. Parents and the general public have recently awoken to the problem of RAgg in youth as evidenced by the best-selling books Queen Bees & Wannabes (Wiseman, 2002; 2009) and Odd Girl Out (Simmons, 2002; 2011), which explain RAgg and offer parents solutions to this problem. Unfortunately, these books consider RAgg only in girls. As this study points out, RAgg is not a problem exclusively for girls and in fact may be more detrimental to boys. As a result, any
intervention method developed in the future must consider how RAgg varies between the sexes in order to be effective.
References


**Tables**

Table 1  
*Hierarchical Regression Analysis Testing Gender and Age Moderation of the Relationship between RAgg and Internalizing Problems while Partialling out Externalizing Problems.*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\Delta R^2$</th>
<th>$\beta$</th>
<th>$B$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Externalizing problems</td>
<td>.30***</td>
<td>.51***</td>
<td>0.48***</td>
<td>[0.43, 0.53]</td>
</tr>
<tr>
<td>RAgg</td>
<td></td>
<td>.08**</td>
<td>0.17**</td>
<td>[0.05, 0.30]</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>.05*</td>
<td>0.29*</td>
<td>[0.00, 0.57]</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>.00</td>
<td>0.00</td>
<td>[-0.09, 0.10]</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td>.01*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAgg x Gender</td>
<td></td>
<td>-.07**</td>
<td>-0.15**</td>
<td>[-0.27, 0.04]</td>
</tr>
<tr>
<td>RAgg x Age</td>
<td></td>
<td>-.01</td>
<td>-0.01</td>
<td>[-0.05, 0.03]</td>
</tr>
<tr>
<td>Total $R^2$</td>
<td></td>
<td></td>
<td></td>
<td>.31***</td>
</tr>
</tbody>
</table>

*Note.* RAgg = relational aggression, CI = confidence interval.

*p < .05, ** p < .01, *** p < .001.*
Table 2
Hierarchical Regression Analysis Testing Gender and Age Moderation of the Relationship between RAgg and Internalizing Problems.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>ΔR²</th>
<th>β</th>
<th>B</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.09***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td>.29***</td>
<td>0.65***</td>
<td>[0.52, 0.78]</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.02</td>
<td>0.11</td>
<td>[-0.21, 0.44]</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.01</td>
<td>0.02</td>
<td>[-0.08, 0.12]</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAgg x Gender</td>
<td>-.05</td>
<td>-0.12</td>
<td>[-0.25, 0.10]</td>
<td></td>
</tr>
<tr>
<td>RAgg x Age</td>
<td>.05</td>
<td>0.03</td>
<td>[-0.01, 0.08]</td>
<td></td>
</tr>
<tr>
<td>Total R²</td>
<td>.09***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. RAgg = relational aggression, CI = confidence interval.
*p < .05, ** p < .01, *** p < .001.*
Table 3
Regression Analyses Predicting Internalizing problems from RAgg Conducted Separately for Boys and Girls

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>$B$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>.34***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>5.31***</td>
<td>[4.91, 5.71]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td></td>
<td>.15***</td>
<td>0.35*** [0.18, 0.53]</td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>.28***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>5.88***</td>
<td>[5.48, 6.29]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td></td>
<td>.01</td>
<td>0.02 [-0.15, .20]</td>
<td></td>
</tr>
</tbody>
</table>

*Note. RAgg = relational aggression, CI = confidence interval. Not shown are the statistics for the control variables: internalizing problems and age.  
*p < .05, **p < .01, ***p < .001.*
### Table 4

*Hierarchical Regression Analysis Testing Gender and Age Moderation of the Relationship between RAgg and Externalizing Problems while Partialling out Internalizing Problems.*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\Delta R^2$</th>
<th>$\beta$</th>
<th>$B$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.37***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing problems</td>
<td>.46***</td>
<td>0.49***</td>
<td>[0.43, 0.54]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td>.28**</td>
<td>0.67**</td>
<td>[0.56, 0.79]</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.07**</td>
<td>-0.41**</td>
<td>[-0.70, -0.13]</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.01</td>
<td>0.03</td>
<td>[-0.07, 0.12]</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.01***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAgg x Gender</td>
<td>.05*</td>
<td>0.12*</td>
<td>[0.01, 0.24]</td>
<td></td>
</tr>
<tr>
<td>RAgg x Age</td>
<td>.09***</td>
<td>0.08***</td>
<td>[0.04, 0.11]</td>
<td></td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>.38***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* RAgg = relational aggression, CI = confidence interval.

*p < .05, ** p < .01, *** p < .001*
Table 5
Hierarchical Regression Analysis Testing Gender and Age Moderation of the Relationship between RAgg and Externalizing Problems.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\Delta R^2$</th>
<th>$\beta$</th>
<th>$B$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAgg</td>
<td>.18***</td>
<td>.42***</td>
<td>0.99***</td>
<td>[0.86, 1.12]</td>
</tr>
<tr>
<td>Gender</td>
<td>-.06*</td>
<td>-0.36*</td>
<td>[-0.68, -0.03]</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.02</td>
<td>0.04</td>
<td>[-0.07, 0.14]</td>
<td></td>
</tr>
</tbody>
</table>

Step 2

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\Delta R^2$</th>
<th>$\beta$</th>
<th>$B$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAgg x Gender</td>
<td>.03</td>
<td>0.07</td>
<td>[-0.06, 0.20]</td>
<td></td>
</tr>
<tr>
<td>RAgg x Age</td>
<td>.11***</td>
<td>0.09***</td>
<td>[0.05, 0.14]</td>
<td></td>
</tr>
</tbody>
</table>

Total $R^2$ .19***

Note. RAgg = relational aggression, CI = confidence interval.

*p < .05, ** p < .01, *** p < .001.
Table 6

Regression Analyses Predicting Externalizing Problems from RAvg Conducted Separately in Boys and Girls

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>$B$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boys</strong></td>
<td>.34***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>5.80***</td>
<td>[5.37, 6.23]</td>
<td></td>
</tr>
<tr>
<td>RAvg</td>
<td>.19***</td>
<td>0.48***</td>
<td>[0.29, 0.67]</td>
<td></td>
</tr>
<tr>
<td><strong>Girls</strong></td>
<td>.41***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>4.98***</td>
<td>[4.60, 5.36]</td>
<td></td>
</tr>
<tr>
<td>RAvg</td>
<td>.37***</td>
<td>0.81***</td>
<td>[0.66, 0.96]</td>
<td></td>
</tr>
</tbody>
</table>

*Note. RAvg = relational aggression, CI = confidence interval. Not shown are the statistics for the control variables: internalizing problems and age.  
*p < .05, ** p < .01, *** p < .001.
### Table 7

**Regression Analyses Predicting Externalizing Problems from RAgg Conducted Separately Across Age Groups**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>$B$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 &amp; 7</td>
<td>.33***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>5.44***</td>
<td>[4.82, 6.06]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td>.15*</td>
<td>0.38*</td>
<td>[0.05, 0.72]</td>
<td></td>
</tr>
<tr>
<td>8 &amp; 9</td>
<td>.33***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>5.32***</td>
<td>[4.85, 5.80]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td>.28***</td>
<td>0.55***</td>
<td>[0.36, 0.74]</td>
<td></td>
</tr>
<tr>
<td>10 &amp; 11</td>
<td>.38***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>5.39***</td>
<td>[4.74, 6.03]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td>.26***</td>
<td>0.57***</td>
<td>[0.33, 0.81]</td>
<td></td>
</tr>
<tr>
<td>12 &amp; 13</td>
<td>.49***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>4.46***</td>
<td>[3.62, 5.31]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td>.48***</td>
<td>1.13***</td>
<td>[0.78, 1.48]</td>
<td></td>
</tr>
<tr>
<td>14 &amp; 15</td>
<td>.51***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>5.17***</td>
<td>[4.33, 6.01]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td>.19**</td>
<td>0.53**</td>
<td>[0.15, 0.91]</td>
<td></td>
</tr>
<tr>
<td>16 to 18</td>
<td>.32***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>6.01***</td>
<td>[4.81, 7.21]</td>
<td></td>
</tr>
<tr>
<td>RAgg</td>
<td>.42***</td>
<td>1.26***</td>
<td>[0.77, 1.74]</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* RAgg = relational aggression, CI = confidence interval. Not shown are the control variables: internalizing problems and gender.

*p < .05, ** p < .01, *** p < .001.
Figure 1. Mean relational aggression scores across age. Error bars represent one standard deviation from the mean.
Figure 2. The relationship between relational aggression and internalizing problems across gender, partialing out externalizing problems and age. Unstandardized scores were used.
Figure 3. The relationship between relational aggression and externalizing problems across gender, partialling out internalizing problems and age. Unstandardized scores were used.
Figure 4. The relationship between relational aggression and externalizing problems across different age ranges, partially out internalizing problems and gender. Unstandardized scores were used.