Understanding the Gender Differences in Pathways to Social Deviancy: Relational Aggression and Emotion Regulation

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This study explored the associations among childhood emotion regulation, overt aggression, relational aggression, and adolescent deviant social behaviors. Data were drawn from the Family Health Project, a longitudinal study conducted over 4 years. The sample consisted of 111 children at Time 1 who ranged in age from 51/2 to 12 years at Time 1 and 8 to 14 years at Time 3. A significant finding was that, for girls, lower emotion regulation predicted later relational aggression ($\beta = 2.95$, $P < .05$). Moreover, low prosocial skills coupled with relational aggression were associated with deviant social behaviors.

RESEARCH DEMONSTRATES THAT a common pathway for preadolescents to involvement in deviant social behaviors, such as substance abuse or rule breaking, is through repetitive overt aggression, which can then lead to peer rejection and association with deviant peers (Hawkins, Catalano, & Miller, 1992; Patterson, DeBaryshe, & Ramsey, 1989). Although overt aggression is a meaningful predictor of future social deviance for boys, it has not proven salient for understanding social deviance among girls (Crick & Grotpeter, 1995; Crick & Rose, 2000; Lagerspetz, Björkqvist, & Peltonen, 1988; Österman et al., 1998). To identify patterns of behavior that precede socially deviant behaviors among girls, Crick (1996) argued that researchers need to examine aggressive behaviors that are indicative of at-risk behaviors in girls. Relational aggression, the purposeful manipulation of a relationship for hurting another, might be one such marker. Although sometimes a socially acceptable response to interpersonal conflicts observed most often in girls, relational aggression, at times, has also been associated with peer rejection and other developmental psychopathology (Crick, 1996; Crick & Grotpeter, 1995; Rys & Bear, 1997; Tomada & Schneider, 1997). However, relational aggression is a complex behavior learned early, and although a common behavior, antecedents to and associations with relational aggression are not well understood (Crick, 1996; Crick & Grotpeter, 1995; Crick, Casas, & Mosher, 1997; Lagerspetz et al., 1988; Österman et al., 1998; Rys & Bear, 1997; Werner & Crick, 2004).

This study examined whether the ability of a child to regulate his or her emotional state might provide an additional psychosocial factor to facilitate the understanding of the path to deviant social behaviors in early adolescence. The paths that were tested in this study are illustrated in Figure 1 and include the moderating effect of gender on the relationship between emotion regulation and overt and relational aggression and the moderating effect of prosocial skills on the relationship between relational aggression and deviant behaviors. An overview of what is known about relational aggression and emotion

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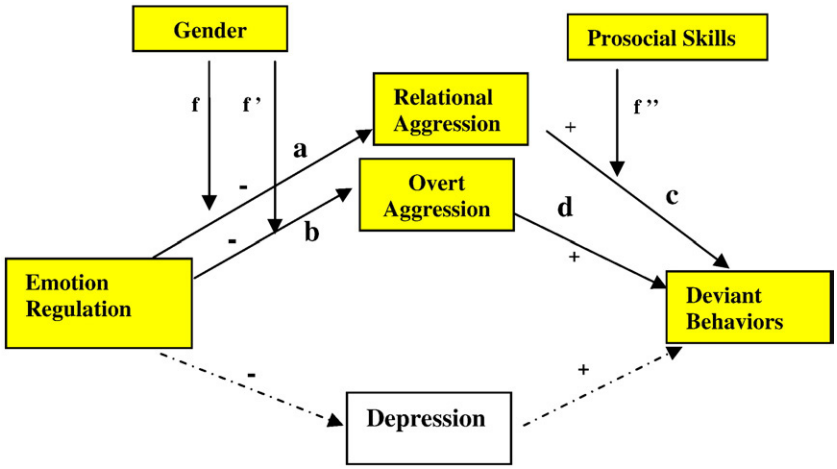

Fig 1. Heuristic model positing influence of emotion regulation on relational and overt aggression and deviant behaviors. Shaded variables represent major study variables. Solid labeled arrows between variables represent hypothesized paths; arrows directed toward another path (f, f′, and f ″) represent hypothesized moderating effects. Dashed arrows represent alternative pathways, which were not tested in this study but the effects of which were controlled in the analysis.

regulation as possible precursors to adolescent deviant behaviors is described first to provide rationale for the hypotheses tested.

BACKGROUND AND SIGNIFICANCE

Relational Aggression

Relational aggression includes behaviors intended to retaliate or harm another through a social relationship (Crick, Bigbee, & Howes, 1996). Excluding one's peers from a social gathering or withholding friendship are examples of relational aggression. Research is inconclusive with regard to whether relational aggression, like overt aggression, is also associated with deviant social behaviors. Because peer rejection is one known antecedent to association with deviant peers and involvement in deviant behaviors, researchers have examined the link between relational aggression and peer rejection. Crick (1996) found that relational aggression was not only associated with peer rejection, but the prediction for future peer rejection increased significantly when relational aggression was present with decreased prosocial behavior ($n = 245$). Crick (1995) also found that, for some girls, repeated experiences of rejection may contribute to the development of a relational hostile attribution bias where they are more likely to engage in relational aggression.

No evidence indicates that peer rejection specifically associated with relational aggression is predictive of deviant social behaviors. Crick, Ostrov, and Werner (2006) reported that relational aggression observed in third graders was a risk factor for future social–psychological adjustment in fourth grade, in particular, delinquent behaviors. In addition, children who exhibited both relational and overt aggression were at increased risk for adjustment problems.

Keenan, Coyne, and Lahey (2008) found that relational aggression is moderately correlated with oppositional defiant disorder and conduct disorder but concluded that there is not sufficient evidence to include relational aggression in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* at this time. Relational aggression is prevalent among school-aged and adolescent girls but is not always associated with deviant social behaviors and other negative outcomes. Expression of relational aggression is not only common from preschool through adolescence but also often socially acceptable. Perhaps, as Putallaz, Kupersmidt, Coie, McKnight, and Grimes (2004) argued, relational aggression serves to form connections with others and to provide information about relative social position in a peer group. Sharing negative information about a peer can facilitate a feeling of inclusion and popularity in a peer group, something that is particularly important in early adolescence.

Crick and Grotpeter (1995) reported an inverse relationship between prosocial behavior and relational aggression. Girls who were viewed by their

peers as more prosocial than other peers were less relationally aggressive. Relationally aggressive girls were at greater risk for social isolation, an antecedent to deviant behaviors (Crick & Grotpeter, 1995). Using a teacher measure of relational aggression, Crick (1996) confirmed that decreased prosocial behavior contributed an additive effect to relational aggression in the prediction of future social adjustment. When low prosocial behavior among girls was associated with relational aggression, social isolation from peers was more likely to occur.

Relational aggression is a complex phenomenon. One of many research questions remaining is, Are there other variable(s) which when combined with relational aggression act as antecedents to deviant social behavior? Crick (1995) discovered that children who reported heightened anger and distress in response to hypothetical relationship conflicts were more likely to engage in relationally aggressive behaviors. Aggressive responses to a heightened emotional state were moderated by gender. Girls were more likely to report higher levels of distress than were boys for relational provocation situations; they were also more likely to react with relational aggression (Crick, 1995). Crick (1995) concluded that the more intense level of distress felt by relationally aggressive children in relational conflict situations interfered with their cognitive processing and contributed to problem behaviors. Thus, although there is limited research on the relationship between emotion regulation and relational aggression, there appears to be a link between a child's underlying emotional state and problem behaviors such as overt and relational aggression.

Emotion Regulation

Emotion regulation, an ongoing internal process, consists of the internalized and externalized responses to moment-by-moment environmental stimuli (Fox & Calkins, 2003). Patterns of emotional response that develop in response to environmental stimuli are learned through interactions with others and the environment. The ability to calm oneself in a social interaction is necessary to temper aggressive responses (Gottman, Katz, & Hooven, 1996). Schultz, Izard, and Bear (2004) reported in a cross-sectional study of 182 first and second graders that emotion regulation significantly correlated with how children processed emotion information and how the emotional information, in turn, influenced the display of overt aggressive behaviors. In addition, gender is thought to moderate the influence of emotion regulation on aggressive response (Bierman, Smoot, & Aumiller, 1993, Dodge & Coie, 1987; Pope & Bierman, 1999).

The inability to effectively self-regulate one's emotional response is associated with internalized affective problems such as anxiety and depression, particularly among girls (Eisenberg et al., 2001; Silk, Steinberg, & Morris, 2003). Thus, early childhood emotional responses to arousing situations are rooted in physiological response patterns, are learned, and have implications for problem behaviors later in childhood. Aggression, depression, and anxiety are associated not only with an inability to self-regulate emotions but also possibly with deviant social behaviors.

Depression and lack of empathy are known to be associated with relational aggression. Zahn-Waxler, Park, Essex, and Slattery (2005) found that girls who were unhappy and had difficulty caring for others' needs at 7 years of age were more likely to engage in relational aggression in early adolescence. Sadness and lack of caring at the age of 7 years predicted increased anxiety in adolescence. The researchers reported that, as the children moved into adolescence, anxiety levels increased for both genders, but the increase was more dramatic for the girls. Again, girls' tendency to place more importance on interpersonal relationships is provided as a possible reason for increased anxiety and relational aggression.

Purpose of the Study

The central study aim was to examine the relationship between emotion regulation and relational and overt aggression in girls and boys over a 4-year period. Because relational aggression has been linked with girls and overt aggression with boys, it was hypothesized that gender would have a moderating effect on relationships between emotion regulation and each of the two types of aggression. It was also hypothesized that prosocial skills would moderate the association between relational aggression and deviant behaviors. The following hypotheses were posited:

Hypothesis 1. Emotion regulation is associated with relational aggression at each measurement and is predictive of relational aggression across time.

Hypothesis 2. Gender moderates the relationship between emotion regulation and both relational and overt aggression.

- The influence of emotion regulation on relational aggression is stronger for girls compared with boys at all time points.
- The influence of emotion regulation on overt aggression is stronger for boys compared with girls at all time points.

Hypothesis 3. Prosocial skills moderate the relationship between relational aggression and deviant behaviors at each time point.

Hypothesis 4. The association between relational aggression and deviant behaviors is stronger for lower prosocial skills compared with higher prosocial skills at each time point.

RESEARCH METHOD

Sample

The analysis for the study was based on data from children drawn from the Family Health Project (Carrère & Gottman, 2000), a longitudinal study spanning 4 years and utilizing three time point measures (Time 1 [T1], Time 2 [T2], and Time 3 [T3]). Of the 129 children who completed T1, 18 were missing the Children's Social Behavior Scale-Teacher Form (CSBS-T) scale (completed by teachers) and were removed from the analysis. Three of the families had moved out of state during T1 and continued to be followed with questionnaire data only. At T3, 125 families remained in the study, and questionnaires received from teachers totaled 87.

Children ranged in age from 5.6 to 11.9 years, averaging 8.7 years at the time the CSBS-T was administered in T1, and from 8 to 14.3 years, averaging 11.1 years at T3. Of the 111 children included in this analysis (T1), 51 were boys (46%) and 60 were girls (54%). Ethnicity of the children, reported by parents, was 38.2% Anglo American, 13.6% African American, 9.9% Asian American, 3.6% Hispanic American, and 34.5% multiracial. Fathers' reported annual income ranged from $10,000 to $90,000, with 6% under $29,000, 26.6% from $30,000 to $49,999, 24.6% from $50,000 to $69,000, and 36% at $70,000 and above.

Data Collection

Data were collected in participants' homes, in an off-campus research laboratory site, and through mailings for teacher questionnaires for each of the three time points (see Bowie, 2009 for a more complete description of data collection procedures). Time points occurred as follows: T1 at baseline, T2 at 18 months after baseline, and T3 at 30 months after baseline.

Human Subjects Approval

The Family Health Project Human Subjects Application was approved by the University of Washington Institutional Review Board (Human Subjects Division) for study recruitment and procedures in February 2002 (Human Subjects Review Committee Approval 01-0494-C/E-4). Written informed consents were obtained from parents and oral assents from children at the time of each data collection. Letters to teachers stated that, by returning the questionnaires, informed consent was implied.

Measurement

Table 1 summarizes which measurements were collected at which time points and the age ranges of the children at each time point.

Emotion Regulation

The Child Self-report of Emotional Experience (CSREE; Taylor & Carrère, 2002) was used to measure emotion regulation at T1 and T2. The CSREE is a subscale from the Family Health Project Child Meta-emotion Interview (Taylor & Carrère, 2002), a child self-report measure. The CSREE is composed of 13 questions each asked for

Table 1. Data Collection Time Intervals

	T1 (baseline)	T2 (18 months)	T3 (30 months)
Age of child	6–12 years	8–13 years	8–14 years
Child measures			
Emotion regulation	√	√	
Depressive symptoms		√	√
Teacher measures			
Relational aggression	√	√	√
Overt aggression	√	√	√
Prosocial behavior	√	√	√
Deviant social behaviors	√	√	√

NOTE. √ indicates that measure was collected at this time point.

sadness and anger, for a total of 26 questions. Each question is scored on a Likert-type scale, ranging from 1 to 4 (1 = *really not like you*, 2 = *sort of not like you*, 3 = *sort of like you*, and 4 = *really like you*). The intraclass correlation coefficient ranged from .88 to 1.0 (Family Health Project, 2005); Cronbach's alpha was .89 (Bowie, 2009).

Depression

A 17-item subscale of the Behavior Assessment System for Children-Self Report of Personality (BASC-SRP) used to measure depressive symptoms defined *depression* as "feelings of loneliness and sadness and an inability to enjoy life" (Kamphaus, Huberty, DiStefano, & Petosky, 1997, p 60). Examples of items in this subscale include "nothing ever goes right for me" and "I think I am dumb next to my friends." Internal consistency reliabilities for the SRP-C are .88 (n = 271) and .89 (n = 140) for the SRP-A. Test–Retest reliabilities for the SRP-C and SRP-A are .75 (n = 119) and .77 (n = 104), respectively (Reynolds & Kamphaus, 1992).

Relational Aggression

A teacher report measure, the CSBS-T (Crick, 1996) was used to measure relational aggression at each of the three time points. The Relational Aggression scale consists of six items such as, "When this child is mad at a peer, she or he gets even by excluding the peer from his or her clique or peer group," and, "This child spreads rumors or gossips about some peers" (Crick, 1996). The item response options are based on a 4-point Likert scale, with choices ranging from *strongly agree* (1) to *strongly disagree* (4). A principal component analysis revealed a single dimension. Psychometric analysis, with a sample consisting of 491 third- through sixth-grade children, demonstrated a Cronbach's alpha of .94 (Crick, 1996).

Overt Aggression

The Overt Aggression scale, completed by teachers, is also a subscale of the CSBS-T (Crick, 1996) and measures physical and verbal aggression toward peers. The scale consists of three items such as, "Child pushes and shoves others." The response options are based on a 4-point Likert scale, with choices ranging from *strongly agree* (1) to *strongly disagree* (4). A psychometric analysis was performed with the same sample cited earlier, and a principal component analysis revealed a single dimension and Cronbach's alpha of .94 (Crick, 1996).

Prosocial Behavior

The Prosocial Behavior scale, from the CSBS-T (Crick, 1996), consists of four items. Examples of scale items are, "The child is helpful to peers," and, "The child is kind to peers." Response options are based on a 4-point Likert scale, with choices ranging from *strongly agree* (1) to *strongly disagree* (4). Principal component analysis revealed a single dimension and Cronbach's alpha of .93 (Crick, 1996).

Deviant Social Behaviors

The Conduct Problems scale (21 items) was completed by teachers and measures deviant social behaviors or "the tendency to engage in antisocial and rule-breaking behavior, including destroying property" (Kamphaus et al., 1997, p. 456). Items include, "has been suspended from school," and "has friends who are in trouble." Response options range from *never* (0) to *almost always* (3). Values from the subscale items are summed. The internal consistency reliability coefficient ranged from .62 to .92, increasing with the age of participants (Reynolds & Kamphaus, 1992).

Analysis Plan

Correlational analysis was used to examine the zero-order and partial associations between emotion regulation and aggressive behaviors. Relational aggression (CSBS-T) had a positive kurtosis; therefore, relational aggression was dichotomized, and logistic regression was used for the analysis of Hypotheses 1 and 2, controlling for gender, age, ethnicity, parent income, parent education, and child depressive symptoms.

Multiple regression analysis was used to examine the influence of emotion regulation on both relational aggression and overt aggression. Sets of predictor variables were ordered into the question in the following order: Block 1: demographic variables (age, gender, and ethnicity), Block 2: parent socioeconomic status factors (education and income), and Block 3: emotion regulation and depression, and Block 4: interaction term of Gender × Emotion Regulation.

An interaction term was created to test for the moderating effect of gender on the relationship

between emotion regulation and aggression. The variables were centered to reduce multicollinearity. Results of the first set of regression equations predicting to relational aggression yielded nonsignificant results for all covariate variables, with the exception of father's education and self-report depressive symptoms. Subsequent regression equations were run without age, gender, and ethnicity in Block 1 and without mother's education in Block 2. The interaction term between emotion regulation and gender was statistically significant, and thus follow-up analyses were conducted separately for boys and girls.

An interaction term was created between relational aggression and prosocial skills to test for the moderating effect of prosocial skills on the relationship between relational aggression and deviant behaviors. Linear regression analysis was conducted using teacher-rated conduct disorder behaviors (for deviant behaviors) as the dependent variable and relational aggression, prosocial behavior, and interaction term for Relational Aggression × Prosocial Skills as independent variables to determine if there were significant associations within each time point and if T1 predicted to either T2 or T3. For Hypotheses 3 and 4, linear regression was used rather than logistic regression because the dependent variable (conduct disorder behaviors) had a more normal distribution. Results are organized around each of the hypotheses stated previously.

RESULTS

Preliminary Analysis

Data were examined for missing values using frequency distributions. Missing data were generally less than 10%; therefore, imputation methods for replacing missing data were not used. Only 60 children had CSBS-T scales across all three time points. There were no significant differences in ethnicity or economic status between cases with complete data versus those missing data at one or two of the time points. There was a significant difference in mother's education level between the two groups. Those children who had all CSBS-T measures present were more likely to have mothers who had completed at least some college education; thus, mother's education was included as a covariate in each analysis. Descriptive statistics for the major study variables are reported in Table 2.

Table 2. Means and Standard Deviations for Child and Teacher Measures Across Time

	Boys		Girls	
Child measures				
Emotion regulation				
T1	1.75	(0.52)	1.84	(0.63)
T2	1.81	(0.51)	1.85	(0.52)
Depressive symptoms, T3	1.36	(2.12)	1.0	(2.23)
Teacher measures				
Aggression				
Relational aggression				
T1	1.56	(0.59)	1.58	(0.59)
T2	1.46	(0.47)	1.48	(0.61)
T3	1.56	(0.46)	1.53	(0.48)
Overt aggression				
T1	1.17	(0.41)	1.22	(0.40)
T2	1.20	(0.46)	1.14	(0.44)
T3	1.30	(0.56)	1.05	(0.19)
Prosocial skills				
T1	3.25	(0.59)	3.75	(0.47)
T2	3.25	(0.71)	3.50	(0.57)
T3	3.25	(0.57)	3.25	(0.54)
Deviant behavior, T3	0.85	(1.21)	0.62	(1.15)

NOTE. Sample sizes at data collection points: emotion regulation (n = 125 and 122 at T1 and T2, respectively); depressive symptoms (n = 121 at T3); relational aggression, overt aggression, and prosocial skills (n = 111, 104, and 87 at T1, T2, and T3, respectively), and deviant behavior (n = 85 at T3).

Emotion Regulation and Aggressive Behaviors

To test Hypothesis 1, emotion regulation is associated with relational aggression; logistic regression analysis was run at T1 and T2 testing for this relationship (emotion regulation was not measured at T3). The hypothesis was not supported. At T1 and T2, emotion regulation was not significantly associated with relational aggression.

Hypothesis 1 also posited that greater emotion regulation at T1 would predict decreased relational aggression across time. Logistical regression was used to explore the relationship between emotion regulation and relational aggression across time. The initial analysis determined that all covariates but depression were nonsignificant; therefore, covariates other than depression were deleted from the equations to preserve the degrees of freedom due to the small sample size. The results of these analyses did not reveal a significant predictive relationship between emotion regulation at T1 or T2 and relational aggression at T2 or T3, respectively. From T1 to T2, self-rated depressive symptoms approached significance (β = .65, P < .08) as a

predictor of relational aggression; however, it was not significant from T1 to T3 or T2 to T3.

Emotion regulation was measured for both sadness and anger regulation. To explore if the predictive effect of emotion regulation was due to either of these separate facets of emotion regulation, logistic regression analyses were conducted separately for the anger and sadness regulation measures at T1 and T2. There were, however, no significant relationships between anger and sadness regulation at T1 or T2 and relational aggression at T2 or T3, respectively. Thus, there was no support for the hypothesis that emotion regulation would predict relational aggression across time.

Hypothesis 2 posited that the relationship between emotion regulation and relational aggression would be stronger for girls compared with boys. In other words, it was posited that gender would interact with emotion regulation to predict relational aggression. The relationship between the interaction term from T1 and T2 and relational aggression at T2 and T3, respectively, were not significant. T1 emotion regulation and the interaction term were both significant predictors of T3 relational aggression, indicating that gender was a moderating effect on this relationship.

To further explore the moderating effect of gender, logistic regression analyses predicting the influence of emotion regulation on relational aggression were conducted separately for each gender. As hypothesized, emotion regulation was a significant predictor of relational aggression for girls. The results from this set of analyses are summarized in Table 3. First, the beta, standard errors, odds ratios, and Wald statistics are reported for the test of moderating effect of gender for the entire sample ($n = 59$). Then, the results of emotion regulation as a predictor of relational aggression are reported separately for girls ($n = 31$) and boys ($n = 28$).

Hierarchical logistic regression analysis was used to test for gender as a moderator of the relationship between emotion regulation and overt aggression. The T1 interaction term of Gender × Emotion Regulation was not a significant predictor of T2 or T3 overt aggression, nor was the T2 interaction term was a significant predictor to T3 overt aggression. This null finding indicated that gender did not have a moderating effect on these predictive relationships as hypothesized. To explore further the possible effect of gender on overt aggression, logistic regression analyses was conducted by gender. Each of these analyses also yielded nonsignificant results. Thus, although there was support for the hypothesis positing gender differences in the relationship between emotion regulation and relational aggression, findings did not support the hypothesis positing gender differences in the relationship between emotion regulation and overt aggression.

Prosocial Skills as Moderator

To test Hypothesis 3, prosocial skills moderate the relationship between relational aggression and deviant behaviors, an interaction term was created and tested using linear aggression analysis. Tests within each of the three time points yielded a significant moderating effect of Prosocial Behavior × Relational Aggression at T1 only ($\beta = -1.06$, $P < .005$). To examine whether high versus low prosocial behavior (Hypothesis 4) had a direct effect on the association between relational aggression and conduct disorder behaviors, children were split into two levels of prosocial behavior (at or above and below the median value for each time point). Linear regression analysis was used to test

Table 3. Logistic Regression Analysis Examining the Influence of Gender on the Relationship Between T1 Emotion Regulation and T3 Relational Aggression

Variable	β	*SE*	Odds ratio	Wald statistic
Model with Gender × Emotion interaction ($n = 59$)				
Emotion regulation, T1	−2.02	1.04	7.57	3.81*
Gender	0.36	0.82	1.43	0.19
Gender × Emotion regulation, T1	−3.13	1.56	0.04	4.01*
Model for girls ($n = 31$)				
Emotion regulation, T1	−2.95	1.31	19.02	5.05*
Model for boys ($n = 28$)				
Emotion regulation, T1	−3.05	2.48	0.05	1.51

* $P < .05$.

Table 4. Linear Regression Analysis Examining the Influence of Prosocial Behavior on the Relationship Between Relational Aggression and Conduct Disorder Behaviors Within Each Time Point (T1, T2, and T3)

	Low prosocial behavior		High prosocial behavior	
Variable	B*	β†	B*	β†
Relational aggression				
T1	0.92‡	.42	0.21	.18
T2	1.37‡	.57	0.79	.25
T3	1.42‡	.45	0.44	.14

NOTE.
* Unstandardized.
† Standardized.
‡ $P < .001$.

this relationship, with relational aggression as the independent variable and conduct disorder behaviors as the dependent variable. Reported in Table 4 are unstandardized and standardized regression coefficients for high and low prosocial behavior groups, within each time point. For all three time points, there was a significant association between relational aggression and conduct disorder for children with lower prosocial behavior, whereas the opposite was true for children with higher prosocial behavior.

A similar analysis approach was used to predict conduct disorder behaviors from relational aggression for low versus high prosocial skills. Predictions from T1 to T2, T1 to T3, and T2 to T3 were all nonsignificant.

To summarize, this analysis revealed that, within each time point, prosocial behavior significantly moderated the relationship between relational aggression and deviant behaviors. When lower prosocial behavior was present, a significant relationship between relational aggression and deviant behaviors was more likely to occur.

DISCUSSION

Summary of Findings

As predicted, the relationship between emotion regulation and relational aggression was moderated by gender. For girls, lower emotion regulation was a significant predictor for later relational aggression. This finding is extremely important as it is the first evidence of a relationship between these two variables. It is evident from the literature that relational aggression is a common behavior, particularly among school-aged and adolescent girls (Bonica, Fisher, & Zeljo, 2003; Crick & Grotpeter, 1995; Lagerspetz et al., 1988). What has not been clear in prior research are the antecedents to relational aggression and whether it is a path to deviant social behaviors. The finding that lower emotion regulation is an antecedent to relational aggression might provide a partial answer to the aforementioned question.

This study also provides evidence that children with higher prosocial behavior are less likely to be classified with conduct disorder behaviors, even if relational aggression is present. This finding may partially explain why some children who engage in relationally aggressive behaviors are more at risk for deviant behaviors than other children are. This finding may also partially explain the "queen bee" syndrome (Hadley, 2003) where girls with higher prosocial behavior skills are able to use relational aggression more effectively.

An unexpected finding was that the relationship between emotion regulation and overt aggression was not moderated by gender, nor was there a significant relationship between emotion regulation and overt aggression. This finding is in contrast to other studies that demonstrate that boys with lower emotion regulation are more likely to exhibit externalizing behaviors such as aggression (Eisenberg et al., 2001; Gottman et al., 1996). Sample bias, due to self-selection of study participants, may have been partially responsible for this result. As stated earlier in this article, mothers of retained participants were, on average, more educated than were those participants who dropped. A higher education level of mothers may have resulted in less overtly aggressive children compared with a larger population.

Limitations

A smaller sample size and thus low statistical power were limitations in this study. Data available from teacher ratings for all three time points reduced the sample size for this analysis to 60 children, thus limiting the interpretation of the data. Using logistic regression with dichotomized variables rather than linear regression also decreased power and possibly limited significant findings.

An additional limitation was the large spread of ages of children at each time point. The mean age of children at T3 was 11.2 years, with children as young as 8 years for data collection. Although the developmental period of early adolescence can be

said to begin at 10 years (Steinberg, 2002), this sample may not be fully representative of the developmental trajectory of relational aggression as children move into adolescence. One of the aims of the Family Health Project longitudinal study was to examine the developmental trajectory of emotion regulation during middle childhood and early adolescence (Carrère & Gottman, 2000); thus, measurement time intervals were designed to gather data representing these developmental stages. Recruitment of participants and availability of participants for timely testing, however, did not consistently support the planned temporal design. Thus, the timing of measures may have further decreased the study's ability to detect developmental differences in relational aggression across time. What is needed to fully understand this growth trajectory is additional data collection from these participants at age 14 to 18 years when in middle to later adolescence.

Implications for Psychiatric Mental Health Nurses

The results of this study emphasize the importance of screening for a child's ability to emotionally regulate himself or herself as a routine part of an initial nursing assessment. The implications of the results are twofold: early screening and education and, if interventions do not occur, possible later adverse outcomes. The early identification of lower emotion regulation in children can provide practitioners with an opportunity for education of the child in self-regulation techniques, as well as parental education in coaching emotional self-awareness and coping strategies for young children. Although psychiatric mental health nurses frequently screen their patients for emotion regulation, they most likely do not see children as patients until later in this trajectory. Therefore, it is important that psychiatric and mental health nurses raise awareness and provide education about early screening and interventions for emotion regulation in children to practitioners who provide well child care.

The inability of a child to use his or her parasympathetic system effectively to calm himself or herself is an important risk factor for the development of behavioral outcomes that may hinder a child's social skills and emotional development. One such outcome, relational aggression, can lead to both social isolation and negative behavioral outcomes such as conduct problems, particularly when paired with low prosocial skills. When treating patients in a mental health setting, evidence of relational aggression should be considered as both a possible outcome of lower emotion regulation and a possible precursor to adverse outcomes. Finally, it is important that practitioners do not treat relational aggression as a normal developmental behavior.

Future Research

Future research in this area needs to explore further the finding that for girls, a lower level of emotion regulation may be a risk factor for subsequent relational aggression and social deviant behaviors. It would be helpful to know if other variables such as receptive and expressive language interact with emotion regulation to affect relational aggression and deviant behaviors. In addition, replication of the finding that prosocial behavior mediates the relationship between relational aggression and deviant behaviors is recommended.

In conclusion, it appears that emotion regulation might be an important risk factor for relational aggression and that prosocial behavior might have a significant effect on risk of relational aggression as an antecedent to deviant social behaviors; however, more research is needed in this area to determine other mediating variables. In addition, the patterns of relational aggression in this population need to be studied further as children enter middle adolescence.

Adolescence is a time of many transitions, and although most children move successfully through the developmental tasks of identity formation, autonomy, intimacy, sexuality, and achievement, some children lack the necessary skills and support systems to master these developmental tasks (Steinberg, 2002). The ability to regulate one's emotions is also a critical developmental task, starting with infancy and remaining throughout adolescence (Cole, Michel, & Teti, 1994). If a child enters early adolescence without mastering the developmental task of emotion regulation, he or she might not be successful at mastering the important tasks of adolescence and might also follow a path to deviant social behaviors. The results of this study emphasize the importance of developing support systems to assist young children to master the developmental task of emotion regulation.

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