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Bonnie H. Bowie

Understanding the Pathways for Pre-Adolescent Girls to Social Deviancy and
Possible Early Substance Use Initiation

Bonnie H. Bowie

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requirements for the degree of

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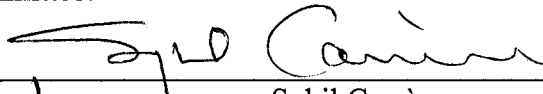
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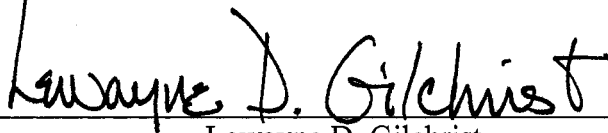


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Abstract

Understanding the Pathways for Pre-Adolescent Girls to Social Deviancy and Possible Early Substance Use Initiation

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While there has been significant progress in the epidemiology of drug use over the past several years, antecedents of early substance use initiation, particularly for girls, are still not well understood. One pathway to early substance initiation among girls may be reduced capacity to regulate negative emotions, heightened relational aggression, and deviant social behaviors. The purpose of this dissertation study was to examine the relationships among childhood emotion regulation, overt aggression, relational aggression and adolescent deviant social behaviors.

This dissertation was comprised of two studies based on data drawn from the Family Health Project: Marital Discord, Parenting and Child Outcomes, a 5 year longitudinal study with 3 waves of data (S. Carrère, P.I.). Study Aim 1 examined the psychometric properties of the Child Self-Report of Emotional

Experience, a new measure of emotion regulation. Study Aim 1 was based on baseline data (T1) collected from 126 children ages 5½ to 12 years. Two constructs, emotion regulation and parental support of negative emotions emerged. Discriminant and predictive validity tests demonstrated that emotion regulation was correlated with but separate from child's attention problems and predicted internalizing behavioral problems such as depressive symptoms.

The purpose of study Aim 2 and 3 was two fold: to describe the pattern of relational aggression (Aim 2) and to explore the relationship between emotion regulation and aggressive behaviors (Aim 3). Results revealed a stable pattern across time and no differences in relational aggression between girls and boys. The relationship between emotion regulation and relational aggression was moderated by gender, predicting relational aggression for girls but not boys. The same predictive relationship with overt aggression was not moderated by gender. Post hoc analysis suggested that a path to early deviant behaviors might be lower emotion regulation, depressive symptoms, relational aggression, deviant behaviors, particularly for those children who are low in prosocial behavior skills. These findings contribute to our understanding of the complexity of pathways to early adolescent behavior problems and potential links with substance abuse initiation, and will ultimately be helpful in designing early interventions aimed at enhancing emotion regulation and prosocial skills in young children.

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DEDICATION

To my loving and supportive parents, Charles and Donna Henry.

CHAPTER 1

INTRODUCTION AND OVERVIEW OF FRAMEWORK

Problem Statement and Specific Aims

Research has established that when antisocial or socially deviant behavior patterns are present, a child is at increased risk for early substance use initiation (Dishion, Capaldi, & Yoerger, 1999; Hawkins, Catalano, & Miller, 1992; Patterson, DeBaryshe & Ramsey, 1989; Webster-Stratton & Taylor, 2002). Much of the research about this relationship has focused on externalizing behaviors, such as overt aggression, exhibited predominantly by boys. While overt aggression is a meaningful predictor for future social deviance for boys, it has not proven relevant for understanding social deviance among girls (Crick & Grotpeter, 1995; Crick & Rose, 2000; Lagerspetz, Björkqvist & Peltonen, 1988; Österman et al., 1998).

Conversely, relational aggression, defined as the purposeful attempt to inflict harm on another through an interpersonal relationship, is a form of aggression observed predominantly in girls' behaviors (Crick & Grotpeter, 1995). It is unclear whether relational aggression, like overt aggression, is associated with deviant social behaviors, as research results are mixed in this area and few longitudinal studies have been conducted (Crick, 1996, Kaukiainen et al., 1999; Rys & Bear, 1997; Tomada & Schneider, 1997; Werner & Crick, 2004). Relational aggression has been shown to be harmful to others and result in peer

rejection, a known antecedent to social deviancy. With the exception of one study (Crick, 2006), however, the putative pathway from relational aggression to deviant social behavior has not been demonstrated (Crick, 1995; Rys & Bear, 1997; Tomada & Schneider, 1997; Patterson, DeBaryshe, & Ramsey, 1989). Like all human behaviors, the developmental trajectory of relational aggression is complex and cannot be examined as an antecedent for social deviancy in isolation. Overt aggression alone does not substantially increase the risk for deviant social behaviors, but does so when combined with other risk factors, such as poor academic performance (Magnusson & Bergman, 1990; Hawkins et al., 1992). Needed then are studies that incorporate relational aggression with other psychosocial factors such as emotion regulation to understand antecedents and correlates of early social deviance and potential substance use initiation among girls.

Effective emotion regulation, the capacity to monitor and modulate one's emotional responses, enables an individual to communicate effectively, influence others, and achieve one's goals (Walden & Smith, 1997). Ineffective emotion regulation, is linked to external problem behaviors such as overt aggression and social deviance and to internalized affective behaviors such as anxiety and depression (Gottman, Katz, & Hooven, 1996; Eisenberg et al., 1997; Silk, Steinberg, & Morris, 2003; Schultz, Izard, & Bear, 2004). Studies that identify problems in regulation of negative emotions, specifically anger and sadness, have

also found that regulation problems are antecedents to both internalized and externalized problem behaviors (Cole, Michel, & Teti, 1994; Eisenberg et al., 2001; Zeman, Shipman, & Suveg, 2002; Carrère, Mittmann, Woodin, Tabares, & Yoshimoto, 2005). Thus while anger and sadness are different affective responses, regulation of both are linked to emotional problems including anxiety and depression, particularly in girls (Chaplin, Cole, Zahn-Waxler, 2005). This dissertation incorporates the assessment of both anger and sadness regulation to determine if the management of these emotions are linked to relational aggression.

Purpose of the Study

To date, there are no studies linking emotion regulation to relational aggression and subsequent deviant social behaviors. Some evidence exists linking emotion regulation to overt aggression and social deviance. To understand pathways to social deviancy for adolescent girls and potential early substance use initiation, research must identify both gender specific risk factors and pathways to deviant behavior. One pathway to early substance initiation among girls may be reduced capacity to regulate negative emotions, heightened relational aggression, and deviant social behaviors. The purpose of this dissertation study is to examine the relationships among childhood emotion regulation, overt aggression, relational aggression and adolescent deviant social behaviors. The model tested is illustrated

in Figure 1.1 and is explicated in the Background and Significance section of Chapter Three.

Figure 1.1 illustrates the hypothesized relationships between emotion regulation and relational aggression, and deviant social behavior. Key variables in this study are highlighted in yellow: hypothesized paths are represented by solid arrows. Dashed arrows represent alternative pathways, not tested in this dissertation, but the effects of which will be controlled in the analysis. As depicted in the model, it is hypothesized that children less able to regulate their negative emotional states will be more apt to respond to their peers in an aggressive manner, overtly and/or relationally (path a & b). Negative signs indicate the direction of the effect of each variable. Gender is predicted to moderate the strength of the relationship between emotion regulation and the type of aggression observed. That is, it is posited that for boys compared to girls (f), the relationship between emotion regulation and overt aggression (path b) will be stronger; and for girls compared to boys (f') the relationship between lower emotion regulation and relational aggression will be stronger (path a).

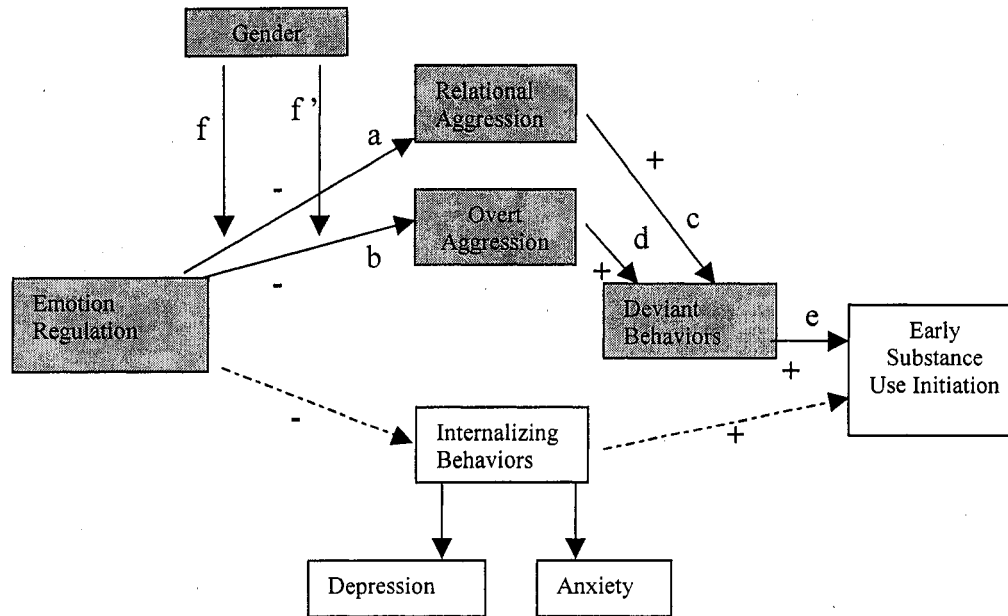


Figure 1.1 Heuristic model positing influence of emotion regulation on relational and overt aggression, deviant behavior and early substance use initiation. Yellow highlighted variables represent major study variables. Solid labeled arrows between variables represent hypothesized paths; arrows directed toward another path (*f* and *f'*) represent hypothesized moderating effects. Dashed arrows represent alternative pathways, not tested in this dissertation, but the effects of which will be controlled in the analysis.

The study of emotion regulation is relatively new, as is the formulation of its measurement. This dissertation study first evaluated the psychometric properties of the emotion regulation subscale, the Child Self-Report of Emotional Experience (Taylor & Carrère, 2002: CSREE), in Chapter 2. Validity of the CSREE was evaluated using internal construct validity, discriminant construct validity and predictive validity. Internal consistency reliability analysis was performed following establishment of empirically determined subscales through construct validation.

With properties of the CSREE established as acceptable, the study examined the hypothesized associations between emotion regulation, relational aggression, and deviant behaviors for boys and girls in Chapter Three. To contribute to understanding developmental aspects of those relationships, emotion regulation, relational and overt aggression, and deviant behaviors were studied across time, from late childhood to early adolescence. Thus, the study tested for the influence of emotion regulation on relational aggression, overt aggression, and deviant social behaviors as an antecedent to substance use initiation. The moderating effects of gender on the relationship between emotion regulation and overt and relational aggression were also examined. Specific aims for the dissertation studies were as follows.

Study Aims

Aim 1. To evaluate the psychometric properties (validity, internal consistency reliability) of the child emotion regulation subscale from the Child Meta-Emotion Interview.

Aim 2. To describe the pattern of relational aggression, including gender differences in mean levels, in girls and boys over a four-year period.

Aim 3. To explore the relationship between emotion regulation and relational and overt aggression in girls and boys over a four-year period, controlling for age, ethnicity, parent education and income. The moderating

effects of gender on the relationship between emotion regulation and overt and relational aggression will be explored.

In summary, this dissertation is organized into two studies. The first study, Study Aim1: A Psychometric Analysis of the Child Self-Report of Emotional Experience, is described in Chapter 2. The second study, Study Aims 2 and 3: An Exploration of the Patterns of Relational Aggression and the Relationship with Emotion Regulation and the Moderating Effects of Gender, explores the relationships posited in figure 1.1 and is described in Chapter 3. Chapter 4 summarizes both study findings and conclusions.

CHAPTER 2

STUDY AIM 1: A PSYCHOMETRIC ANALYSIS OF THE CHILD SELF-
REPORT OF EMOTIONAL EXPERIENCE

Introduction

Meta-Emotion

The construct of meta-emotion refers to human thoughts and feelings about personal emotions (Gottman, Katz & Hooven, 1996). Meta-emotion includes impressions about one's emotional responses, either negative or positive, during social interactions. The socialization of the expression of emotion occurs at a very young age and continues into adulthood (Thompson, 1991). Infants respond to the facial, verbal and body language presented by caretakers in forming an emotional response. During the toddler years, as children develop the ability to conceptualize emotion in verbal terms and through acquisition of language, they also are able to receive direction on formulating and interpreting emotional responses. By school age, most children can verbally identify not only the emotional states of those around them, but also in themselves. As children acquire broader experiences and more sophisticated knowledge, their ability to interpret their emotional responses become more sophisticated (Thompson, 1991). By the age of 7-8 years, children are able to regulate and understand a myriad of emotions during their social interactions (Eisenberg & Fabes, 1992); Doohan, Carrère & Taylor, 2005).

Measuring Emotion Regulation

The term emotion regulation encompasses the individual processes a person uses to monitor his or her emotional responses, as well as the subsequent behavioral reaction, to a given situation (Walden & Smith, 1997). Emotion regulation is an ongoing process incorporating the internal and external responses to moment-by-moment environmental stimuli (Fox & Calkins, 2003). Internal responses are the physiological changes, such as an increased heart rate, influenced by both the sympathetic and parasympathetic systems. External responses are the outward behaviors that an individual exhibits such as behavioral reactions or facial expressions. Running away from a perceived threat is an example of an internal and external responses to an environmental cue that is perceived as a threat. The external behavior results from both physiological arousal and learned behavior from similar environmental cues.

Research demonstrates associations between a child's ability to emotionally regulate him or herself and symptoms of psychopathology, often labeled as internalizing and externalizing behaviors (Zeman, Shipman & Suveg; 2002, Cole, Martin & Dennis, 2004; Gottman, Katz & Hooven, 1996; Calkins, Gill, Johnson, & Smith, 1999; McDowell, Kim, O'Neil, & Parke, 2002). To further scientific understanding of the relationship between a child's internal emotional state, capacity to regulate this state, and longer-term behavioral patterns, multiple indicators of emotion regulation are needed. Measures for emotion regulation in children have included physiological markers, such as heart

rate variability (Carrère et al., 2005; Porges, 1996), researcher observations of facial expression and behaviors (Diener & Mangelsdorf, 1999; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002; Grolnick, Bridges, & Connell, 1996) and parental reports of their children's feelings, attitudes and behavior around positive and negative emotions (Hooven, Gottman, & Katz, 1995, (Ramsden & Hubbard, 2002)). While each of these measures has merit, they are indirect indicators that may not provide complete information about internal emotional states of children.

Using a meta-emotion interview as an approach to measure emotion regulation provides researchers with the subject's perspective on how he or she copes with strong emotions. A meta-emotion interview is designed to provide specific information about the intensity, frequency and length of emotional experiences that may or may not be evident to an observer. Asking children to describe their own thoughts about experiences with and around negative emotions could provide both insightful and pragmatic information that may not be obtained through other types of measures for emotion regulation. By accurately assessing a child's thoughts about his or her negative emotional states, researchers will be better able to design effective interventions for the outcomes associated with lower emotion regulation such as depression, anxiety, and aggression.

The Child Meta-Emotion Interview (Taylor & Carrère, 2002; CMEI) is a measure of emotion regulation that uses a meta-emotion approach to help children interpret their thoughts and feelings about their internal and external responses to

anger and sadness. In addition, the CMEI asks children about their interpretation of their parent's support of negative emotions, a potential moderating variable of emotion regulation. A parent version of this meta-emotion interview has been empirically validated (Doohan & Carrère, 2005), however the CMEI has not.

The purpose of this study (dissertation study Aim 1) was to evaluate the psychometric properties of a closed-ended scale within the CMEI, The Child Self-Report of Emotional Experience (CSREE). Table 2.1 lists the questions and response options for the CSREE.

Background and Significance

Importance of Studying Child Self-Reports

To study children, researchers frequently query the adult caregivers, rather than the children directly. While the observations and opinions of adults are informative, they do not replace children's self-reports of their own thoughts and feelings. In fact, there may be low agreement between child and parent's reports. In a review of studies describing agreement child-parent parent across various domains of measurement, Eiser and Morse (2001) found that there was greater agreement for observable functioning such as completing physical tasks, but considerably less agreement for non-observable events, such as those related to emotional or social functioning. The CMEI was developed to explore with children their experiences with anger and sadness, their self-regulation strategies, and how comfortable they are interacting with their mothers and fathers about

their feelings of anger and sadness (Doohan & Carrère, 2005). The CMEI captures a child's ability to self-regulate his or her emotions and the child's perception of parental support of emotional states.

Interview Measures of Emotion Regulation

Related research has validated child interviews as an important research tool for measuring children's awareness of expression and management of emotion. For example, in interviews with 102 four to six year old children, Gilbert (1969) asked about feeling states using structured interviews and tasks, such as sorting pictures of facial expressions and telling stories about cards depicting different psychological states. Sessions were taped for transcribing and coding and then children were rated on six domains of affect awareness and verbal skills. Gilbert found that higher affect awareness was linked to higher awareness of self, maturity (independence, autonomy) and empathy with others. Reliability and validity of the measures were not reported, but repeated test results were reported to give identical results, although the author does not provide the time period between tests (Gilbert, 1969).

In another study, Penza-Clyve and Zeman (2002) developed an Emotion Expression Scale for Children (EESC) that measured emotion awareness and motivation to express negative emotions (anger and sadness). The EESC was adapted from the Toronto Alexithymia Scale (Bagby, Taylor, & Ryan, 1986), a 30-item scale that measured a decreased ability to express emotion in adults.

Items were adapted for children by expert group consensus and were put into a 5-point Likert scale format. Ratings for scores were 1 “not at all”, 2 “a little true”, 3 “somewhat true”, 4 “very true”, and 5 “extremely true”. The researchers tested the instrument with 208 nine to twelve year old children. Two constructs emerged from a principal components analysis of a 16-item scale: poor awareness of emotion and expressive reluctance of emotion. Example items from the Poor Awareness subscale include “When I feel upset, I do not know how to talk about it” and “When something bad happens, I feel like exploding.” “I prefer to keep my feelings to myself” and “When I am upset, I am afraid to show it” are example items from the Expressive Reluctance subscale. The researchers established construct and convergent validity. An analysis of internal consistency reliability demonstrated a Cronbach alpha coefficient of .83 for the Poor Awareness factor and .81 for the Expressive Reluctance factor.

Zeman, Shipman and Suveg (2002) used the EESC as well as two other emotion measures (Children’s Sadness and Anger Management Scales) to examine the relationship between 10 to 11 year old children’s self-reported anger and sadness regulation and the presence of internalizing and externalizing symptoms. The researchers established predictive validity for both internalizing and externalizing symptoms for the EESC.

As Penza-Clyve and Zeman (2002) note, the EESC is unique in that it measures emotion regulation skill deficits. Prior instrument development for

children in this area focused on behavioral management of internalizing and externalizing behaviors in response to negative emotions (sadness and anger) (Zeman, Shipman, & Penza-Clyve, 2001) and range and frequency of experienced emotions (Blumberg & Izard, 1986). However, while the EESC is a valuable instrument for measuring emotion management skill deficits, it does not employ the CMEI meta-emotion approach where children are asked to describe their thoughts and feelings *about* their own emotions. Rather, like many instruments, the EESC asks children to self-rate themselves. The Child Self-Report of Emotional Experience also asks children to self-rate, however, the interviewer is able to further expand and clarify the child's answers to questionnaire items. In addition, unlike the aforementioned child interviews and instruments, the CSREE answer choices were developed such that a child as young as 5 could understand and answer without difficulty. As background to the development and rationale underpinning of the CMEI and the CSREE, a description of a similar instrument based on the meta-emotion approach is described next.

Development of an Emotion Regulation Measure

Using the meta-emotion approach. The CMEI is a child version of the Parenting Meta-Emotion Interview (PMEI) that was developed to gain an understanding of parent-child interactions around emotion and parent perceptions of their child's response to specific emotions, including sadness, anger, pride and love (Hooven, Gottman, & Katz, 1995); cf. Doohan, Carrère & Taylor, 2005).

Hooven, Gottman and Katz (1995) developed the interview to parallel a meta-cognition approach to exploring executive thinking about emotional experience and expression. The PMEI asks parents to describe their experiences around positive and negative emotions when they were growing up, how they express emotion at present and how others react to their expression of emotion. The questionnaire also asks parents to describe their child's emotional responses, the parents' response to the child's expression and parental teaching goals associated with their child's expression of emotion. In all, there are four parts to the PMEI, each consisting of 23 open-ended questions: The Interviewee's and Child's Sadness, The Interviewee's and Child's Anger, The Interviewee's Pride and Child's Pride and The Interviewee's and Child's Affection and Love (for the complete interview, see the appendix in (Doohan & Carrère, 2005). The PMEI is videotaped and then coded with regard to four dimensions: awareness of emotion, acceptance of emotion, emotion dysregulation and emotion coaching (of the child).

The PMEI has been tested for predictive validity in adults (Doohan & Carrère, 2005). Carrère et al (2005) reported an internal consistency at $\alpha = .78$ for the PMEI and an interclass correlation for independent observers coding for Anger Dysregulation to be .72. The PMEI has been shown to be a valuable research instrument for predicting depressive symptoms and health outcomes from anger dysregulation (Carrère et al. 2005). Based on research with adults, it

was expected that similar findings related to internalizing (depression and anxiety) and externalizing (aggression and socially deviance) behaviors might be obtained from children with the CMEI.

While the PMEI consists solely of open-ended questions, the CMEI consists of both open-ended and closed-ended questions to capture the range of children's abilities to describe their thoughts and feelings about their emotions. Open-ended questions give the child an opportunity to self-report on his or her emotional reactions and non-verbal behaviors during social interactions that evoke sadness or anger. For example the interview about sadness begins with, "Let's talk about feeling sad. What kinds of things make you feel sad?" Some children find it difficult to answer open-ended questions. The closed-ended questions, listed in Table 2.1 (CSREE), were designed to give the child another venue for expressing similar information regarding his or her emotional reactions, while still maintaining the flexibility of interviewer guidance and clarification. . Initially, When children were asked the closed-ended questions, they were asked to first choose which scenario was "really like you." A second question, "is that really like you, or sort of like you" was asked; the child's response was then categorized along a four point Likert scale (1 = really not like you, 2 = sort of not like you, 3 = sort of like you, 4 = really like you).

Table 2.1

The Child Self-Report of Emotional Experience (CSREE), Sadness Questions

Question	Response Options
1. How often do you feel sad? Some kids feel sad a lot of the time, other kids don't feel sad very much at all. Which is more like you? Is that really like you, or sort of like you?	<input type="checkbox"/> Gets angry often <input type="checkbox"/> Doesn't get angry often <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
2. Most of the time when you are sad, how sad would you say you feel? When some kids feel sad, they get really, really sad; when other kids feel sad they don't get very sad at all.	<input type="checkbox"/> Gets really, really angry <input type="checkbox"/> Doesn't get very angry at all <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
3. When some kids feel sad, they stay feeling sad for a really long time. When other kids feel sad, they don't stay feeling sad for very long at all. Which is more like you? Is it really like you, or sort of like you?	<input type="checkbox"/> Stays feeling sad for a really long time <input type="checkbox"/> Doesn't stay sad for very long at all <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
4. Some kids like feeling sad, other kids don't like feeling sad much at all. Which is more like you? Is that really like you, or sort of like you?	<input type="checkbox"/> Likes feeling sad <input type="checkbox"/> Doesn't like feeling sad <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
5. Some kids think it's okay to feel sad. Other kids don't think it's okay to feel sad. Which is more like you? Is that really like you, or sort of like you?	<input type="checkbox"/> Thinks it's okay to feel sad <input type="checkbox"/> Doesn't think it's okay to feel sad <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
6. Some kids don't show it on the outside when they feel sad, and other kids really show it on the outside when they feel sad. Which is more like you? Is that really like you, or sort of like you?	<input type="checkbox"/> Shows sad feelings on the outside <input type="checkbox"/> Doesn't show sad feelings on the outside <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
7. Some kids think they can control showing their sad feelings if they want to. Other kids don't think they can control showing their sad feelings if they want to. Which is more like you? Is that really like you, or sort of like you?	<input type="checkbox"/> Can control sad feelings <input type="checkbox"/> Cannot control sad feelings <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child

Table 2.1 continued

Question	Response Options
8. Some kids think people would make fun of them or tease them if they showed how sad they felt. Other kids don't think people would make fun of them or tease them if they showed how sad they felt. Which is more like you? Is that really or sort of like you?	<input type="checkbox"/> Thinks people would make fun or tease them when sad <input type="checkbox"/> Doesn't think people would make fun or tease when sad <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
9. Some kids think that you're not supposed to show your feelings when you feel sad. Other kids think that you are supposed to show your feelings when you feel sad. Which is more like you? Is that really like you or sort of like you?	<input type="checkbox"/> Thinks it's okay to show feelings when sad <input type="checkbox"/> Doesn't think it's okay to show feelings when sad <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
10. Some kids go to their moms (/dads) a lot of the time when they feel sad. Other kids don't really go to their moms very much at all when they feel sad. Which is more like you? Is that really like you or sort of like you?	<input type="checkbox"/> Goes to mom (/dad) when sad <input type="checkbox"/> Doesn't go to mom (dad) when sad <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child
11. Some kids think their moms (/dads) are very understanding when they feel sad. Other kids think their moms aren't very understanding at all when they feel sad. Which is more like you? Is that really like you or just sort of like you?	<input type="checkbox"/> Thinks mom (/dad) is understanding when sad <input type="checkbox"/> Doesn't go to mom (/dad) when feels sad <input type="checkbox"/> Really like child <input type="checkbox"/> Sort of like child

Note. From Taylor, M.G. & Carrère, S. (2002). The child meta-emotion interview and coding system for 7-8 year-olds. Unpublished manuscript, University of Washington at Seattle. Reprinted with permission.

Questions 10 and 11 are asked for each parent for a total of 13 items. All questions are repeated asking about anger.

Additional information on administering and scoring of the CSREE is provided in the measurement section on page 24. While the CSREE was embedded within the CMEI interview, it was also designed as a subscale that could be administered separately from the CMEI. The present study examined these 13 closed-ended questions, the CSREE, contained within the CMEI.

Because it is not possible to observe the internal feeling states of others (Eiser & Morse, 2001), it was expected that directly asking children about their own thoughts and feelings about how they manage emotion would yield more accurate insights into children's feeling states. It was also expected that the CSREE would provide researchers with an easily administered measure of a child's emotion regulation and parental support of negative emotions. The long-term goal for developing a reliable and valid measure for emotion regulation in children was to provide better information for designing interventions for prevention of socially deviant behaviors such as early substance use initiation. Lower levels of emotion regulation were hypothesized to predict externalizing and internalizing behaviors, such as conduct problems at school and depressive symptoms, respectively. A measure such as the CSREE that can be administered to young children, will enable researchers to better understand the possible antecedents to socially deviant behaviors and to design interventions for children as young as 5 years.

Purpose of the Study

Dissertation Aim 1 goals were to explore if the Child Self-Report of Emotional Experience questionnaire items formed a single dimension, and to assess the validity and internal reliability of the scale. Goals for this study were as follows:

- 1.1 Examine the internal construct validity of the Child Self-Report of Emotional Experience.
- 1.2 Establish internal consistency reliability of the Child Self-Report of Emotional Experience.
- 1.3 Describe discriminant construct validity of the emotion regulation subscale.
- 1.4 Describe predictive validity of the emotion regulation subscale.

Before the results of each of these tests are described, an overview of the research methods for both the parent study and study Aim 1 is provided.

The Family Health Project Study

Data for the current study were drawn from the Family Health Project: Marital Discord, Parenting and Child Outcomes. The purpose of The Family Health Project was, “to examine the meta-emotion processes in the family on the developmental trajectories of emotion regulation/dysregulation and internalizing and externalizing problems in middle childhood and early adolescence” (Carrère and Gottman, 2000, p. 5). Data were collected at three time points, referred to as Time 1, Time 2, and Time 3. At Time 1 (T1), there were four data collection sessions for each of the participating families; two of which were conducted in families’ homes and two were conducted in the Seattle research lab. At Time 2 (T2), there were 3 data collection sessions, two in the families’ homes and one in

the research lab. At Time 3 (T3), there were two data collection sessions, all occurring in families' homes.

Sample and recruitment. The sample consisted of 154 families recruited from the Puget Sound area in Washington State. Flyers were posted throughout the Greater Seattle/Tacoma area and sent to families through public and private schools. Articles about the study appeared in local newspapers. Couples who expressed an interest in participating in the study were screened through a telephone interview after oral consent was obtained. Because Interracial and African American families have not been well represented in many studies, a concerted effort was made to over-sample for families with these ethnic backgrounds. In addition, European American, African American and Interracial couples were matched on marital satisfaction and neighborhood crime level statistics. This was done to ensure equal numbers of distressed versus satisfied couples selected from neighborhoods with differing crime levels (Carrère, 2005) as socio-economic factors have been found to be associated with outcomes such as externalizing and internalizing behaviors (Hawkins, Catalano, & Miller, 1992).

Of the children enrolled in the parent study at T1, 35.7% (n = 55) were Euro-American, 16.9% (n = 26) African-American, 9.1% (n = 14) Asian American, 3.2% (n = 5) Hispanic American, .6% (n = 1) American Indian, 33.1% (n = 51) Interracial and 1.3% (n = 2) were missing this information because they dropped from the study very early in the process. At T1, 154 families consented to

be a part of the study. By the end of T1, 17 of the 154 families had dropped from the study and did not complete data collection for this time point. Reasons for dropping from the study included, “takes too much time,” “no longer interested,” and “too stressful for failing marriage.” A chi square analysis showed that there were no significant differences in ethnicity or socioeconomic status between the families who dropped and those remaining in the study.

Research Method

Sample

This psychometric analysis was based on data from 126 children from T1 of the Family Health Project. Subjects were excluded if both of the sadness and anger CSREE scales were missing from the data set. Of 154 children enrolled at the beginning of T1, 33 were missing scale data. Five of these 33 cases were missing one of the two scales, either anger or sadness. The missing scale was consistently the second scale administered during the interview. The remaining 28 cases were missing the entire CSREE and were removed from the analysis in this study. As described in the Sample and Recruitment section for the Family Health Project 17 families dropped from the study during T1. In addition to these 17 families, three families moved out of state and continued to be followed with questionnaire data only, seven children were unable to be scheduled for the CSREE and one child declined to be interviewed; thus data were missing for a total of 28 cases.

Of the 126 children included in this analysis, ages ranged from 5.7 to 12.3 years, averaging 9 years at the time the CSREE was administered in T1. In T3, children ranged in age from 8.4 to 14.7 years, averaging 11.5 years. Of the children included in this analysis, 60 were boys (48%) and 66 were girls (52%). Ethnicity of the children was 36.5% Euro-American, 18.2% African American, 9.5% Asian, 3.6% Hispanic, .7% Native American and 30.7% Multi-Racial. Fathers' reported annual income ranged from less than \$10,000 to greater than \$90,000, with 2% under \$10,000, 4% from \$10,000 to \$29,000, 26.6% from \$30,000 to \$49,999, 24.6% from \$50,000 to \$69,000, 17% from \$70,000 to \$89,000 and 19% at \$90,000 and above.

Measurement

Measures used in this study included the two 13-item measures of sadness and anger regulation drawn from the Child Meta-Emotion Interview (Taylor & Carrère, 2002) completed by children. To establish scale validity, five subscales of the Behavior Assessment System for Children (BASC) completed by children, parents and/or teachers were used (Reynolds & Kamphaus, 1992).

Emotion regulation and support. Taylor and Carrère (2005) developed a self-report measure for children as young as 5 years old to describe their meta-emotions. The CMEI examines the emotions of sadness and anger one emotion at a time. A series of both open-ended and closed-ended questions is asked for each emotion. The 13 closed-ended questions within the CMEI, the CSREE, measure

two dimensions: emotion regulation and the child's perception of parental support of negative emotions. The same questions are asked twice for each emotion, sadness and anger, for a total of 26 questions.

To enable the researchers to score the children's answers on a 4-point scale, the children were asked to further define their answers: "Is that really like you or sort of like you?" If a child answered she felt angry a lot of the time and that it was really like her, the answer was scored as a 4. If she answered that it was sort of like her, the answer was scored a 3. Similarly, if she answered that she did not feel angry often and that was sort of like her, the answer was scored as a 2. If she answered that it was really like her, the answer was scored a 1. An independent interviewer rated each of the closed-ended questions during the interview or watched the taped interview later in order to perform inter-rater reliability. The intraclass correlation coefficient was reported to range from .88 to 1.0 (The Family Health Project, 2005).

Behavioral assessment. The BASC (Reynolds & Kamphaus, 1992) has five components, three of which were used in the Family Health Project: the child's Self-Report of Personality (BASC-SRP), the Teacher Rating Scale (BASC-TRS), and the Parent Rating Scale (BASC-PRS). An overview of the BASC components is described first, followed by more detailed description of the subscales used in this study.

For the BASC-SRP, the child rates 152 items either true or false. The BASC-SRP for age 8 to 11 has 12 subscales, while the adolescent version, age 12 to 18, has two additional subscales. The adolescent version of the BASC-SRP was administered to 25% of the children at T3. The T2 Anxiety and Depressive symptoms subscales from the BASC-SRP were used to examine the predictive validity of the CSREE scale.

The BASC-PRS and BASC-TRS each have 14 subscales measuring behavior in the classroom or at home. Six subscales were selected to establish scale validity of the emotion regulation measures. These included the Conduct Problems, Attention Problems, External and Internal Behaviors, Depressive symptoms and Anxiety subscales. The BASC-TRS is composed of 148 items, while the BASC-PRS is composed of 130 items. Scale items are rated using a 4-point response option measuring the frequency each behavior occurs, ranging from never (0) to almost always (3).

Depression (child self-report). A subscale of the BASC -SRP was used to measure depressive symptoms (Reynolds & Kamphaus, 1992). Reynolds and Kamphaus (1992) define depression as “feelings of loneliness and sadness and an inability to enjoy life” (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’. There are 17 items measuring depression and depressive symptoms in the SRP-C and 13 items in the SRP-A. 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).

Anxiety (child self-report). Similar to depression, a subscale of the BASC-SRP was used to measure anxiety in children (Reynolds & Kamphaus, 1992). Reynolds and Kamphaus (1992) define anxiety as “the tendency to be nervous, fearful, or worried about real or imagined problems” (p 48). Examples of items in this subscale include, ‘I worry a lot of the time’ and ‘I worry when I go to bed at night’. There are 17 items measuring anxiety in the SRP-C and 14 items in the SRP-A. Internal consistency reliabilities for the SRP-C are .87 (n=271) and .87 (n=140) for the SRP-A. Test-retest reliabilities for the SRP-C and SRP-A are .77 (n=119) and .80 (n=104) respectively (Reynolds & Kamphaus, 1992).

Attention problems (teacher & parent report). The Attention Problems Scale, a subscale of the BASC TRS and BASC-PRS (Reynolds & Kamphaus, 1992), was used to measure the child’s ability to focus attention on a given situation or task. Kamphaus et al. (p 456, 1997) describe this scale as, “the tendency to be easily distracted and unable to concentrate more than momentarily”. The scale was completed by both parents and teachers and included such items as, ‘is easily distracted from classwork’ and ‘acts without thinking’. There are 18 items in the Attention Problems Scale and, as in the Conduct Problems Scale, responses on the scale rate the frequency the behavior is observed from never (0) to almost always (3). Raw scores from the subscale are

totalled for use in the statistical analysis. Psychometric testing was done across 4 age groups, 6 to 7 years ($n = 383$), 8 to 11 years ($n=876$), 12 to 14 years ($n=489$) and 15 to 19 years ($n=320$). The internal consistency reliability coefficient ranged from .87 to .93 and there were no significant differences between genders (Reynolds and Kamphaus, 1992). Interrater reliability was reported as .69 ($n=30$) and test-retest reliability was .92 for children age 6 to 12 years ($n=90$) and .83 for adolescents age 12 to 19 years ($n=98$) (Reynolds and Kamphaus, 1992). The Cronbach alpha was reported as .94.

Depression (teacher report). A subscale of the BASC-TRS was also used to measure depressive symptoms in children (Reynolds & Kamphaus, 1992). The teacher report depression subscale is composed of 10 items including such items as, 'says, I don't have any friends' and 'complains about being teased'. Psychometric testing was done across 4 age groups, 6 to 7 years ($n = 383$), 8 to 11 years ($n = 876$), 12 to 14 years ($n = 489$) and 15 to 19 years ($n = 320$). The internal consistency reliability coefficient ranged from .82 to .90 and there were no significant differences between genders (Reynolds and Kamphaus, 1992). Interrater reliability was reported as .44 ($n = 30$) and test-retest reliability was .82 for children age 6 to 12 years ($n = 90$) and .80 for adolescents age 12 to 19 years ($n = 98$) (Reynolds and Kamphaus, 1992). The Cronbach alpha was reported as .94.

Anxiety (teacher report). A subscale of the BASC-TRS was used to measure anxiety in children (Reynolds & Kamphaus, 1992). The BASC-TRS

anxiety subscale consists of 8 items including such statements as, 'worries about things that cannot be changed' and 'says, I'm afraid I will make a mistake'.

Psychometric testing was also done across the same 4 age groups. The internal consistency reliability coefficient ranged from .80 to .82 and there were no significant differences between genders (Reynolds and Kamphaus, 1992).

Interrater reliability was reported as .72 (n = 30) and test-retest reliability was .87 for children age 6 to 12 years (n = 90) and .87 for adolescents age 12 to 19 years (n = 98) (Reynolds and Kamphaus, 1992). The Cronbach alpha was reported as .94.

Externalizing and internalizing problem behaviors (teacher report).

Children's externalized and internalized behaviors were measured using selected scales on the BASC-TRS and BASC-PRS (Reynolds & Kamphaus, 1992). The scales for externalizing and internalizing problem behaviors are composites built from subscales. The External Problems scale is a composite of the Hyperactivity, Aggression and Conduct Problems subscales. The Internal Problems scale is a composite of the Anxiety, Depression, and Somatization subscales. Research on the scale reveals gender differences in mean values on these scales. For instance, boys tend to score higher on the Aggression scale and girls tend to score higher on the Adaptability scale (Reynolds & Kamphaus, 1992). Gender-normed scores have been developed for each of the scales. For comparative purposes, the gender-normed scores were used when testing for predictive validity.

Deviant social behaviors (teacher report). The Conduct Problems scale 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.” There are 21 items in the Conduct Problems subscale. Responses on the scale rate the frequency the behavior occurs and range from never (0) to almost always (3). Raw scores from the subscale items are totaled for use in the statistical analysis.

Psychometric testing was done across 4 age groups, 6 to7 years (n = 383), 8 to11 years (n = 876), 12 to14 years (n = 489) and 15 to19 years (n = 320). The internal consistency reliability coefficient ranged from .62 to .92, increasing with the age of subjects (Reynolds and Kamphaus, 1992). In general, internal reliability was higher for males than females. Interrater reliability was reported as .77 (n = 30) and test-retest reliability was .80 for children age 6 to12 years (n = 90) and .78 for adolescents age 12 to19 years (n = 98) (Reynolds and Kamphaus,1992). The Cronbach alpha was reported as .94.

Data Collection Procedures

Child measures. At T1, the CSREE was administered during a peer session that occurred in the Family Health Project off-campus laboratory. The CSREE occurred after an observed play session with a peer of the child’s choosing. During the CSREE portion of the session, neither the child’s parents

nor peer were present. Oral assent was obtained from the child on videotape at the beginning of the peer session. While a trained interviewer asked the child the CSREE questions and recorded answers to the closed-ended questions, another trained research assistant videotaped the interview from an adjoining room and rated the child's answers to the closed-ended questions. In this way, interrater reliability was performed during the interview. Videotapes were later used to code the child's answers to the open-ended questions from the CMEI.

During T2, the procedure for administering the CSREE remained the same except that the interview took place in the child's home. Parents remained in another part of the home during the interview.

The Behavior Assessment System for Children (BASC) was administered during the second home session of T3. After obtaining oral assent, the child was either read each question or filled out the questionnaire him or herself, depending on age and reading ability.

Parent measures. Parent questionnaires about the child, including the BASC, were mailed to parents prior to the T1 peer session. Parents were asked to return their completed questionnaires when they brought their child to the peer session. If parents forgot the questionnaires, they were provided a stamped envelope to mail back the completed questionnaires.

Teacher measures. Teacher questionnaires were mailed to the child's teacher with a letter describing the study, risks and benefits and indicating that

parental informed consent had been obtained. The letter also stated that by returning the questionnaires, informed consent was implied. As children entered middle school with multiple teachers, questionnaires were sent to teachers identified by parents as “someone who knew their child best.” The return rate for the teacher questionnaires was 81% at T1 (n = 111), 79% at T2 (n = 104), and 70% at T3 (n = 88). Teachers were sent payments for their time after completed questionnaires were received. This procedure did not vary for each of the three time points.

Data Analysis Plan

Validity of the CMEI was evaluated using three approaches; internal construct validity, discriminant construct validity and predictive validity. First, internal construct validity was analyzed to establish which dimensions, if any, were being measured by the CSREE. Construct validation was addressed using principal components analysis (PCA), a statistical method for interpreting correlational patterns between variables and identifying underlying latent variables or constructs (Kerlinger & Lee, 2000). Prior to testing for discriminant construct validity, internal consistency reliability analysis was performed on the CSREE.

Second, discriminant construct validation was established through examining the correlation between the construct of emotion regulation and a similar construct, namely attention problems. Prior research on behavioral

outcomes typically associated with emotion dysregulation was used to determine an appropriate measure for the analysis of discriminant construct validation.

Because children who are emotionally dysregulated are unable to process social information as efficiently as other children and may react inappropriately in social interactions, external behaviors such as overt aggression and impulsivity are observed more frequently (Calkins, Gill, Johnson, & Smith, 1999; Dodge, 1991; Eisenberg et al., 2001). To test this hypothesis, correlations between the newly created emotion regulation variable and the BASC Attention Problems subscale (Reynolds & Kamphaus, 1992) were examined.

Third, predictive validity was analyzed using multiple regression analysis to determine if emotion dysregulation would predict externalizing and internalizing problem behaviors across time. Time 2 data was gathered approximately 18 months after baseline (T1), and Time 3 data was gathered approximately 30 months after baseline.

Results

Preliminary Analysis

The data were examined for missing values using frequency distributions. Less than 10 percent of items were missing from the CSREE scales, therefore, imputation methods for replacing missing data were not used. Descriptive statistics were calculated for the CSREE and for the BASC questionnaire data. Means, standard deviations, and minimum-maximum scores obtained generally

fell in expected ranges (Table 2.2). Reynolds and Kamphaus (1992) report that national average T-score ranges for Internal and External Behaviors range from 41 to 59, while average raw scores for Conduct Problems ranged from 0 to 4.

Table 2.2

Measure Means and Standard Deviations

Measure	Mean (SD)	Chronbach α	Scale Range
Child Measures			
T1 CSREE EmoReg Subscale	1.79 (.58)	.88	1 – 4
T2 CSREE EmoReg Subscale	1.83 (.51)	.88	1 – 4
T3 Anxiety	3.86 (3.89)	.94 ^a	0 – 24
T3 Depressive Symptoms	1.17 (2.18)	.94 ^a	0 – 33
Parent Measures of Child Behaviors			
T3 Father, Attention Problems	7.18 (3.60)	.94 ^a	0 – 42
T3 Mother, Attention Problems	7.36 (3.63)	.94 ^a	0 – 42
Teacher Measures of Child Behaviors			
T3 Attention Problems	5.31 (4.93)	.94 ^a	0 – 42
T3 Conduct Problem Behaviors	.86 (1.47)	.94 ^a	0 – 42
T3 Internalized Behaviors	45.60 (9.13)	.94 ^a	20 – 120
T3 Externalized Behaviors	45.75 (6.04)	.94 ^a	20 – 120
T3 Anxiety	2.88 (3.27)	.94 ^a	0 – 24
T3 Depressive Symptoms	1.66 (3.44)	.94 ^a	0 – 30

Note. T1 = time 1, T2 = time 2, T3 = time 3. Sample sizes at data collection points: Child Measures, CSREE (n=125, 122, T1, T2 respectively), Anxiety (n= 121 at T3), Depressive symptoms (n=121 at T3); Parent Measures, Father Attention (n=124 at T3), Mother Attention (n=126 at T3); Teacher Measures, Attention (n=85 at T3), Conduct Disorder Behaviors (n=85 at T3) Internalized Behaviors (n=83 at T3), Externalized Behaviors, (n=83 at T3), Anxiety (n=85 at T3), Depressive symptoms (n=85 at T3).

^aReported in Reynolds & Kamphaus (1992).

Average Attention Problems rated by teachers ranged from 4 to 13 and Attention Problems rated by parents ranged from 4 to 11. Average teacher rated Depressive symptoms ranged from 0 to 7 and for Anxiety from 2 to 7. Average self-ratings

for Depressive Symptoms ranged from 0 to 5 and for Anxiety from 3 to 10. At this time there is not adequate information to describe expected means for the CSREE scale. In this study the sample mean was below the median for the scale.

Internal Construct Validity

The first study goal was to examine the internal construct validity of the emotion regulation scale to evaluate whether the items reflected two distinct dimensions as designed: child emotion regulation and perceived parental support for anger and sadness.

Intercorrelations. Summarized in Table 2.3 and 2.4 are the intercorrelations among the items of the CSREE emotion regulation scale. Correlations ranged from $-.14$ to $.34$ for the anger scale and from $-.19$ to $.46$ for the sadness scale. The strongest correlations for the anger scale items were between length of anger and control of anger ($r = .24$) and between degree, frequency and length of anger ($r = .24, .30$ respectively). There was also a significant correlation between whether children felt they would be teased if they showed anger or sadness and their degree and length of anger or sadness ($r = .17, .33$ respectively). Frequency, length and degree of sadness were significantly correlated with how well children felt they could control their sad feelings ($r = .37, .36, .31$ respectively). For both anger and sadness, there were significant correlations between children feeling their parents were understanding of negative

emotions and the likelihood of children going to their parents when experiencing either anger or sadness (mother, $r = .21, .29$, father, $r = .27, .34$ respectively).

Component analysis. Principal components analysis (PCA) with varimax rotations was performed (SPSS 14) using both the anger and sadness 13 item CSREE scales. PCA results in a mathematical clustering of related items of the scale (Stevens, 2002). Because it could not be assumed that the underlying constructs were independent, oblique rotations were also used to facilitate the interpretability of the extracted factors (Harris, 1997; Stevens, 2002). PCA is well suited as a tool for empirical summary of a data set and factor analysis is more appropriate for testing a theoretically driven solution (Tabachnick & Fidell, 2007). Because two constructs (emotion regulation and parental support of negative emotions) were expected to emerge from the CSREE scale items, a two-factor solution was initially tested, followed by an unrestricted number of factors solution. There was no difference between these two solutions, nor was there a notable difference between the varimax and oblique rotated solutions. Thus, results reported in this paper are from the two-factor solution with varimax rotation.

Table 2.3

Correlation Matrix for Anger Emotion Regulation Scale Items

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Frequency of anger	1												
2 Degree of anger	.24**	1											
3 Length of anger	.30*	.23*	1										
4 Enjoys anger	.12	.06	.11	1									
5 Okay to feel angry	.02	-.07	-.02	.18*	1								
6 Shows anger	.06	.01	-.13	-.05	-.12	1							
7 Control of anger	-.07	.12	.24*	-.04	-.05	-.06	1						
8 Kids teasing when angry	.05	.17*	.17*	.12	.05	-.08	-.02	1					
9 Okay to show anger	-.07	-.05	.01	.14	.20*	-.08	-.10	-.03	1				
10 Goes to dad when angry	.01	.03	.13	-.01	.05	.15	-.06	-.11	.02	1			
11 Goes to mom when angry	.06	-.01	-.01	-.02	.06	.18*	-.17*	-.17*	.15	.31**	1		
12 Thinks dad is understanding	.01	.14	.05	.08	.09	-.15	.09	.05	.34**	.27**	.09	1	
13 Thinks mom is understanding	.03	-.14	.18*	.23**	.08	-.14	.14	-.02	.18*	-.04	.21*	.22**	1

* $p < .05$ ** $p < .01$

Table 2.4

Correlation Matrix for Sadness Emotion Regulation Scale Items

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Frequency of sadness	1												
2 Degree of sadness	.29**	1											
3 Length of sadness	.42**	.46**	1										
4 Enjoys sadness	.14	.11	.13	1									
5 Okay to feel sad	.15*	.01	.08	-.12	1								
6 Shows sadness	.06	.00	.03	.01	.03	1							
7 Control of sadness	.37**	.31**	.36**	.01	.28**	.05	1						
8 Kids teasing when sad	.29**	.16*	.33**	-.17*	.19*	.22**	.09	1					
9 Okay to show sadness	.05	.00	-.12	.04	.26**	-.04	.09	.02	1				
10 Goes to dad when sad	.14	-.12	-.08	.02	-.04	.01	.16*	-.19*	-.08	1			
11 Goes to mom when sad	-.01	-.06	.05	-.01	.20*	.13	-.06	.01	.12	.25**	1		
12 Thinks dad is understanding	.24**	.14	.23**	.04	.19*	-.01	.28**	.16	.19*	.34**	.15	1	
13 Thinks mom is understanding	-.01	.20*	.11	.03	.08	-.06	.10	-.09	.17*	.01	.29**	.30**	1

* $p < .05$ ** $p < .01$

PCA for the anger items resulted in the extraction of two components accounting for 55.2% of the variance. PCA for the sadness scale also resulted in the extraction of two components accounting for 54.5% of the variance. Tables 2.5 and 2.6 present the factor loadings for anger and sadness respectively.

Four criteria were used to determine the appropriate number of components to retain: eigenvalues, variance, scree plot and residuals. For both anger and sadness, the eigenvalues were > 1 for the first two components and the scree plots clearly leveled off after the first two factors. The pattern of loadings was similar for the anger and sadness measures, five items clearly loaded on the first component for each of the two scales and, as predicted, were indicative of the emotion regulation construct. And, six items loaded on the second component and were representative of the second construct, parental support of negative emotions (anger and sadness). The two items from each measure, “shows anger/sadness” and “enjoys feeling angry/sad” shared equivalent loadings on each of the two components. Reliability analyses were conducted for both the sadness and anger subscales including these two items and the Cronbach alpha coefficients were .54 and .40 respectively. Due to these low reliability scores as well as the overlapping variance, the two items were removed from the newly constructed subscales: emotion regulation and parental support.

Table 2.5

Factor Loadings for the CSREE Anger Scale Items

Item	Component 1 Emotion Regulation	Component 2 Parental Support
Length of anger	.773	--
Frequency of anger	.747	--
Degree of anger	.760	--
Kids teasing when angry	.684	--
Ability to control anger	.519	.384
Goes to dad when angry	.340	.724
Goes to mom when angry	--	.776
Thinks mom is understanding	--	.668
Thinks dad is understanding	.373	.682
Okay to show anger	--	.697
Okay to feel angry	--	.648
Enjoys feeling angry	.513	.541
Shows anger	.428	.447
% of variance explained	47.13	8.12

One goal of study Aim 1 was to develop an indicator for emotion regulation in children to be used in other studies. As the CSREE items for the anger and sadness emotion regulation subscales were highly correlated ($r = .66$); 5 items from each subscale were also combined to create a single broader measure of emotion regulation. Using the combined subscale, a mean value was calculated to create an emotion regulation variable. Similarly, a single mean variable for parental support was created combining the 12 items from the anger and sadness

subscales as these two subscales were also significantly correlated ($r = .57$). For the remaining validity tests, the emotion regulation variable was used in each analysis unless otherwise indicated.

Table 2.6

Factor Loadings for the CSREE Sadness Scale Items

Item	Component 1 Emotion Regulation	Component 2 Parental Support
Length of sadness	.847	--
Frequency of sadness	.751	--
Degree of sadness	.742	.314
Kids teasing when sad	.685	--
Ability to control sadness	.665	.376
Goes to dad when sad	--	.764
Goes to mom when sad	--	.748
Thinks mom is understanding	--	.694
Thinks dad is understanding	.373	.612
Okay to show sadness	--	.590
Okay to feel sad	.348	.572
Enjoys feeling sad	.423	.481
Shows sadness	.415	.472
% of variance explained	45.93	8.58

Reliability Analysis

Internal consistency reliability analysis was performed for the empirically determined subscales. The reliability coefficient, Cronbach alpha coefficient, reflects the proportion of variance measured and is actual sample variance (Kerlinger & Lee, 2000). The remaining variance is measurement error and

generally should not exceed .20 (Pallant, 2001). Cronbach alpha was shown to be .89 for the newly constructed subscale for emotion regulation. The parent support subscale, composed of 12 items, had a Cronbach alpha coefficient of .68. The value of the Cronbach alpha coefficient for the parent support subscale reflects marginally low internal consistency among the scale items. Future research will address refinements of this scale; the subscale was not the focus of this investigation.

Discriminant Construct Validity

To address the third goal of this psychometric analysis, discriminant construct validation was used to demonstrate that the new emotion regulation construct was empirically distinct from attention problems (Kerlinger & Lee, 2000). That is, emotion regulation was predicted to be a related but separate construct from attention problems. To obtain a range of comparative scores, correlations were calculated (Table 2.7) between emotion regulation and teacher, mother and father ratings of child attention problems. Generally, if the correlation between two variables exceeds .85, this indicates significant overlap exists between the variables and the variables cannot be used to establish discriminant construct validity (Tabachnick, & Fidell, 2007). There were moderate, but significant correlations between emotion regulation and both father and mother ratings of attention problems ($r = .23, .19$ respectively), supporting the hypothesis that emotion regulation is a related but separate construct from attention

problems. Teacher ratings of attention problems, however, were weakly correlated with emotion regulation.

Table 2.7

Correlation Matrix for Emotion Regulation and Parent Support Variables and Attention Problem Measures

Item	1	2	3	4	5
1 Emotion Regulation	1				
2 Parent Support	.11	1			
3 Teacher Attn Problems	.03	.10	1		
4 Father Attn Problems	.23**	.09	.43**	1	
5 Mother Attn Problems	.19*	.06	.43**	.63**	1

* $p < .05$ ** $p < .01$

Predictive Validity

The fourth goal of this psychometric analysis was to examine the predictive validity of emotion regulation. Thus, to determine whether the newly created emotion regulation subscale predicted externalizing problem behaviors across time, linear regression was used to predict T3 teacher ratings of Conduct Problems and Externalizing Problems (Reynolds & Kamphaus, 1992). Similarly, to test whether emotion regulation predicted internalizing behaviors across time, linear regression was used to predict T3 Internal Affective Behavior and then child and teacher reports of depressive symptoms and anxiety (Reynolds & Kamphaus, 1992). The results are listed in Table 2.8. As prior research has reported that externalizing and internalizing behaviors are associated with gender

(Eisenberg et al., 2001; Gottman, Katz, & Hooven, 1996), each of the regression analyses were conducted with general scores and gender-normed scores, that is, scores that were adjusted to remove gender differences (Reynolds & Kamphaus, 1992). With the exception of conduct disorder behaviors, the gender-normed scores did not alter results for each of the predictor variables. In other words, results did not differ significantly between general and gender controlled scores, therefore, with the exception of conduct disorder behaviors, only results from general scores are reported in Table 2.8. After an initial analysis determined that all covariates (age, gender, parent education and income) were non-significant, covariates were deleted from the equations to preserve the degrees of freedom.

Table 2.8

Linear Regression Analysis Examining the Effect of T1 Emotion Regulation on T3 Conduct Disorder Behaviors, Externalized and Internalized Behaviors, Depressive Symptoms and Anxiety

Outcome Variable	B ^a	β ^b	R ²
Child Reports			
Depressive Symptoms, T3	-.65*	-.20	.03
Anxiety, T3	-2.70***	-.39	.14
Teacher Reports			
Conduct Disorder Behaviors, T3	-.43	-.16	.01
Gender-normed, T3	-4.13*	-.23	.04
Internalized Behaviors, T3	-3.80*	-.23	.04
Externalized Behaviors, T3	-1.19	-.11	.01
Depressive Symptoms, T3	-1.43*	-.24	.05
Anxiety, T3	-1.00	-.17	.02

Note. T3 = time 3

^a Unstandardized ^b Standardized.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2.8 lists each Time 3 outcome variable used in this analysis with unstandardized and standardized beta scores and adjusted correlation values (R^2). In contrast to what was expected, T1 child report of emotion regulation did not predict T3 teacher ratings of conduct disorder behaviors or externalized behaviors. When gender-normed scores were used for T3 conduct disorder behaviors, T1 emotion regulation was a significant predictor. T1 child reported emotion regulation was a significant predictor of T3 internalized affective behaviors. To investigate this finding further, linear regression analysis was conducted using separate measures of internalized behaviors as the dependant variables, namely depressive symptoms and anxiety. For both teacher rated and child rated depressive symptoms at T3, T1 emotion dysregulation was a significant predictor. While T1 emotion regulation was not predictive of T3 teacher rated anxiety, it was a significant predictor of T3 child rated anxiety.

To determine whether the predictive validity of child emotion regulation was stable across time, T2 child emotion regulation was used to predict T3 outcomes. Results of this analysis are reported in Table 2.9.

Table 2.9

Linear Regression Analysis Examining the Effect of T2 Emotion Regulation on T3 Conduct Disorder Behaviors, Externalized and Internalized Behaviors, Depressive symptoms and Anxiety

Outcome Variable	B ^a	β ^b	R ²
Child Reports			
Depressive Symptoms, T3	-.77*	-.18	.02
Anxiety, T3	-3.48***	-.46	.21
Teacher Reports			
Conduct Disorder Behaviors, T3	-.68*	-.24	.04
Gender-normed, T3	-3.40	-.18	.02
Internalized Behaviors, T3	-6.49**	-.36	.12
Externalized Behaviors, T3	-1.62	-.14	.01
Depressive Symptoms, T3	-2.10**	-.31	.08
Anxiety, T3	-1.87**	-.29	.07

Note. T2 = time 2, T3 = time 3

^a Unstandardized ^b Standardized.

* $p < .05$ ** $p < .01$ *** $p < .001$

With the exception of T3 gender-normed conduct disorder behaviors, T2 emotion regulation compared to T1 remained a significant predictor of the same T3 variables. And, for T3 teacher-rated internalized behaviors and anxiety, the relationship was stronger. Where T1 emotion regulation was not a significant predictor for T3 teacher reported anxiety or conduct disorder behaviors, at T2 it was a significant predictor. T2 emotion regulation was not a significant predictor of externalized behaviors.

To explore the relationship between T1 emotion regulation and T3 internalized behaviors, linear regression analysis was conducted using separate

measures of T1 anger and sadness from the emotion regulation subscales with child and teacher-rated depressive symptoms and anxiety as the dependent variables. Results of this analysis are in Tables 2.10 and 2.11. While T1 anger emotion regulation predicted both T3 child-reported depressive symptoms and anxiety, it was not a significant predictor for T3 teacher-reported depressive symptoms and anxiety. Conversely, T1 sadness emotional regulation was a significant predictor of T3 teacher-reported depressive symptoms, but did not predict T3 child-reported depressive symptoms. Of interest, child-reported sadness emotion regulation at T1 was predictive of both teacher- and child-reported anxiety at T3.

Table 2.10

Linear Regression Analysis Examining Effect of T1 Anger Emotion Regulation Subscale on T3 Depressive Symptoms and Anxiety

Outcome Variable	B ^a	β^b	R ²
Child Reports			
Depressive Symptoms, T3	-.98**	-.29	.08
Anxiety, T3	-2.69***	-.374	.13
Teacher Reports			
Depressive Symptoms, T3	-.17	-.03	-.01
Anxiety, T3	-.08	-.01	-.01

Note. T1 = time 1, T3 = time 3

^a Unstandardized ^b Standardized.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2.11

Linear Regression Analysis Examining the Effect of T1 Sadness Emotion Regulation Subscale on T3 Depressive Symptoms and Anxiety

Outcome Variable	B ^a	β ^b	R ²
Child Reports			
Depressive symptoms, T3	-.29	-.12	.01
Anxiety, T3	-1.51**	-.28	.07
Teacher Reports			
Depressive symptoms, T3	-1.59**	-.34	.10
Anxiety, T3	-1.21*	-.28	.07

Note. T1 = time 1, T3 = time 3

^a Unstandardized. ^b Standardized.

* $p < .05$ ** $p < .01$

Discussion

Summary of Findings

Study Aim 1 provides evidence that an oral interview type questionnaire using a meta-emotion approach can provide a reliable and valid measure of emotion regulation in children age 5 ½ to 12 ½ years. Using principal components analysis to examine internal construct validity, two constructs, emotion regulation and parental support, clearly emerged from the scale items. The newly established subscale for emotion regulation demonstrated acceptable internal consistency reliability with a Cronbach alpha coefficient of .89.

In addition, the newly created measure for emotion regulation was successfully evaluated for discriminate and predictive validity. Through

discriminate construct validation, it was established that the emotion regulation measure could be empirically differentiated from a similar construct, attention problems. These results provide evidence that, while there may be some overlap, the construct of emotion regulation is also distinct from other constructs.

Currently, there is not a gold standard for measuring emotion regulation in children and so it was not possible to conduct concurrent criterion-related validation where results are correlated with a comparable, established test. Predictive validity, a type of criterion-related validity, was conducted and these results established that the CSREE was able to predict internalizing behavioral problems such as depressive symptoms and anxiety.

A psychometric evaluation of the Emotion Expression Scale for Children that measures a similar construct, revealed that poor emotion awareness was also predictive of internalizing symptoms, such as depressive symptoms and anxiety (Penza-Clyve & Zeman, 2002). Similar to findings in this study, there were also no gender differences in this finding. While emotion awareness differs as a construct from emotion regulation, Penza-Clyve and Zeman (2002) found a moderate correlation between the EESC and their measure of emotion regulation ($r = .36, p < .01$).

The finding that a child's reported anxiety and depressive symptoms are more likely to be significantly associated with lower emotion regulation than teacher observations of depressive symptoms supports prior findings by (Eiser & Morse, 2001) that more accurate information may be obtained directly from the

child for non-observable domains such as emotional functioning. This finding supports the assertion that not only is the child a valuable source of information about his or her own emotional state, but that researchers may be missing important information by limiting data collection to observation and interviews with parents, teachers and other adults.

Limitations

The predominant limitation for study Aim 1 was the sample size. A prior power analysis demonstrated that only moderate to large effects could be detected with the available sample size. Discriminant and predictive validity tests were dependent on measures collected for both child and teacher, therefore the sample size available for these two analyses decreased from 126 in T1 to 85 in T3, as the return rate for teacher questionnaires dropped.

An additional limitation, but also strength of the study, is the age of the participants. While the study has demonstrated that younger children are fully capable of answering questions related to the frequency, intensity and length of negative emotions, the predictive validity test results demonstrating no difference in anxiety and depressive symptoms in girls versus boys may change as children enter the developmental stage of adolescence. A follow-up study to further examine these growth trajectories in adolescence is planned for the sample.

Nursing Science Implications

Despite these limitations, the study provided empirical evidence that an interview with young children about their negative emotions can provide

researchers with a reliable and valid measure of emotion regulation. The mastery of emotion regulation is an important developmental task for children and if not achieved, might put children at risk for internalizing behaviors. It is important that as nurse scientists strive to develop early interventions for this population that they have reliable and valid instruments to accurately measure a child's ability to manage his or her emotional state in response to environmental stimuli.

Future Research

Further research is needed to validate the CSREE across a larger sample in order to generalize to a greater population of children. Research questions remaining include: Will gender differences emerge when predicting internalizing behaviors from the CSREE as children move into adolescence? With a larger sample, will the CSREE be predictive externalizing behaviors? It would also be helpful to test the CSREE with a more diverse family population, such as single parents and same-sex marriages. However, it should be noted that although this sample was relatively small, it was representative of a wide range of race and ethnicity.

Future research also needs to further explore and expand on the findings that by interviewing the child, a more complete assessment may be made of a child's internal state and potentially harmful behaviors, such as depressive symptoms and anxiety. Interestingly, this study did not corroborate prior research that found that the association between emotion dysregulation and internalizing behaviors occurs predominantly in girls (Eisenberg et al., 2001; Silk, Steinberg &

Morris, 2003). The finding that emotion dysregulation is associated with internalizing behaviors in both girls and boys is particularly interesting as it could challenge current approaches to assessment of school age children for precursors to at-risk behaviors in adolescence. Certainly the finding warrants further study.

In conclusion, the CSREE is a valid instrument for ascertaining valuable information about children's emotional states and their risk for developing internalizing problems such as depressive symptoms and anxiety. Lazerus (1995b) states that emotions are created by an individual mind and therefore need to be studied within that context. Potentially, the CSREE may provide researchers with the ability to capture the emotional states of each individual child's mind.

CHAPTER 3

STUDY AIMS 2 AND 3: AN EXPLORATION OF THE PATTERNS OF
RELATIONAL AGGRESSION AND THE RELATIONSHIP
WITH EMOTION REGULATION AND
THE MODERATING EFFECTS OF GENDER

Introduction

Although the rate of illicit drug use among middle school age youth has declined from 16.1% to 14.8% from 2003 to 2006, a significant number of adolescents continue to experiment with and use drugs (NIDA, 2006). National trends indicate that the male to female ratio of drug use from age 12 to 17 years is narrowing, particularly with regard to cocaine use (Sloboda, 2002). Substance use among girls is increasing rapidly, and girls compared to boys are more involved in the use of stimulants such as amphetamines and cocaine (Springer et al., 2002).

The motivation for drug use by girls, however, is not as apparent in their observable behaviors as it is for boys. In part this is because drug use by adolescent girls tends to be linked to internalizing behaviors, such as depression, eating disorders and relationship difficulties. Boys, on the other hand, tend to engage in substance use to increase social bonding and/or for sensation seeking (Liu & Kaplan, 1996; Hoffman & Su, 1998; Robbins, 1989). In support of this latter observation, peer influence in younger adolescence has been linked to the engagement in delinquent behaviors among boys, but not among girls (Barber, Bolitho & Bertrand, 1998).

While research in the area of drug use and experimentation by adolescent girls has increased, antecedents of substance use in this population are not well understood. To identify the patterns of behavior that precedes early substance use initiation by girls, Crick (1996) argued that researchers need to examine aggressive behaviors indicative of at-risk behaviors in girls. Relational aggression might be one such marker. Although sometimes a socially acceptable response to interpersonal conflicts, relational aggression has also been associated with peer rejection (Crick et al., 1999; Crick, 1996; Rys & Bear, 1997; Tomada & Schneider, 1997). Other studies demonstrate that peer rejection and association with deviant peers are strongly associated with deviant social behaviors, including early substance use initiation (Patterson, DeBaryshe, & Ramsey, 1989; Hawkins, Catalano, & Miller, 1992). Relational aggression is a complex behavior learned early, and developmental patterns are not completely understood at this time.

Study Aims 2 and 3 of this dissertation were:

Aim 2. To describe the pattern of relational aggression, including gender differences in mean levels, in girls and boys over a four-year period.

Aim 3. To explore the relationship between emotion regulation and relational and overt aggression in girls and boys over a four-year period, controlling for age, ethnicity, parent education and income. The moderating effects of gender on the relationship between emotion regulation and overt and relational aggression will be explored.

The overarching purpose of dissertation study Aims 2 and 3 was to explore the relationship between emotion regulation and aggressive behaviors as a possible antecedent to deviant behavior, as an entry point for early substance use initiation. Next, the foundation for a theoretical framework linking these variables is described.

Background and Significance

This section builds a framework for understanding and studying the interrelationships of the study variables and garners evidence for specifying relationships between the variables. The framework draws from several research disciplines contributing to understand adolescent deviant social behavior and substance use initiation. Figure 1.1 in chapter one illustrates the hypothesized relationships between emotion regulation and relational aggression, and deviant social behavior.

Below, the first section provides an overview of the concept of relational aggression; including what is currently known about the developmental patterns, gender differences, and antecedents and correlates of relational aggression. This section also provides a description of emotion regulation and the physiological and behavioral responses when a child is unable to effectively regulate her emotional state. An argument for why emotion regulation may be an antecedent to overt and relational aggression and subsequent deviant social behaviors is also presented. To understand the potential links between relational aggression and

later adolescent deviant social behaviors, it is necessary to first understand what is known about the developmental trajectory of relational aggression.

Relational Aggression

Developmental patterns and gender differences. While it has been documented that relational aggression is observed predominantly in girls from preschool through adolescence (Crick & Grotpeter, 1995; Crick, 1996; Casas, & Mosher, 1997; Lagerspetz, Björkqvist & Peltonen, 1988; Österman, 1998; Rys & Bear, 1997; Werner, 2004), how relational aggression changes across time is less clear. Crick (1996) found that for 3rd through 6th graders, relational aggression remained stable over a six month time period for both genders. Cross sectional studies report higher frequencies of relational aggression behaviors in older compared to younger children. For instance, Österman et al. (1998) in a same-sex peer-estimated survey of 2,094 youth, found that relational aggression was more pronounced among 11 and 15 year old girls compared to 8 year olds. Although their study was cross sectional, data were collected in four countries, which provided preliminary evidence for the reliability of these results across cultures. In an exploratory study Galen and Underwood (1997) observed social interactions among seven dyads of middle school girls (age 11 to 13 years) in a laboratory setting. A third girl was coached to be a difficult play partner during a pictorial game and engaged in behaviors such as bossiness, critical comments and boastfulness. Galen and Underwood (1997) reported that, in response to the third girl, the dyads used subtle means of expressing anger and contempt and the

frequency of those relational aggression acts was higher among older versus younger girls.

In a longitudinal study Cairns et al. (1989) followed 4th graders (116 girls; 104 boys) into 9th grade (mean age 10.2 years at recruitment) collecting teacher reported measures of relational and overt aggression each year for six years. The researchers found an increase in relational aggression between girls across time; they reported increased themes of social alienation and ostracism for girls in early adolescence compared to earlier in childhood. In another longitudinal study, Park et al. (2005) found that both relational and overt aggression decreased over time for both genders. Their aggression measures, however, were administered at a relatively young age, in first to third grades, which might account for discrepancies in study results. Measurements for relational aggression have differed across these studies, as well as the source of measurement. Peer, teacher, parental and self-reports have all been reported in the literature and may account for some of the discrepancies in findings.

With the exception of the Crick (1996) study, researchers who have examined aggression in children as they enter adolescence found that relational aggression in girls increased across this developmental trajectory (Cairns et al., 1989; Galen & Underwood, 1997; Österman et al., 1998). The increase in relational aggression in girls during adolescence might be related to the developmental task of identity formation or to establish a firm sense of self (Harter, 1990). For girls, formulation of self is based on the development of

relationships with others and the ability to manage those relationships (Cross & Madson, 1997). Girls place importance on nurturing and maintaining intimate relationships; boys tend to place importance on attaining independence (Crick, 1995; Cross & Madson, 1997). Therefore, it has been posited that boys are more likely to use overt aggression, among other strategies, to attain their goals, and girls more likely to use their relationships with others to attain goals (Bowie, in press; Cross & Madson, 1997). Cross and Madson (1997) argue that by engaging in non-confrontational aggression, girls are able to release aggressive feelings without endangering their existing relationships. For boys, the developmental trajectory of overt aggression is quite clear; it normally decreases with age, and if it does not decrease, it is associated with deviant peer associations and behaviors (Tremblay, 2000). For girls, the patterns and consequences of relational aggression are less clear. Relational aggression is prevalent among school age and adolescent girls, but as discussed in the next section, is not always associated with deviant social behaviors and other negative outcomes. A certain amount of relational aggression from preschool through adolescence is not only common, but is also socially acceptable. Perhaps, as Putallaz et al. (2004) argue, relational aggression also serves to form connections with others and provides information about another peer's relative social position in the group. In other words, 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.

Needed is greater understanding of the developmental patterns of relational aggression: what are its antecedents, when it is normal developmental behavior, and does it lead to deviant social behaviors? Dissertation study Aims 2 and 3 began to address this need by describing patterns of relational aggression in both boys and girls as they enter adolescence. It was posited that relational aggression would increase across time in girls, but not in boys, consonant with previous research. 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 the type of aggression observed. A remaining puzzle is the theoretical link between relational aggression and deviant social behaviors, which is addressed in the next section.

Relational aggression and deviant social behaviors. Research is inconclusive with regard to whether relational aggression, like overt aggression, is also associated with deviant social behaviors. Because peer rejection is a known antecedent to association with deviant peers and involvement in deviant behaviors, several researchers have examined the link between relational aggression and peer rejection. Crick (1996) found that relational aggression was associated with peer rejection, and the prediction for future peer rejection increased significantly when relational aggression was present with decreased prosocial behavior ($n = 245$). Conversely, Werner and Crick (2004) found that for second grade girls ($n = 979$), greater peer rejection predicted higher relational aggression one year later, which suggests an alternative hypothesis that among

girls early peer rejection might foster relationally aggressive behaviors. These results support Crick's (1995) finding 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. Werner and Crick (2004) also speculate that selection of friends might occur in part by default. As rejected peers have fewer choices for friends the pool of peers might become more homogeneous where overt and relationally aggressive behaviors are more common. Werner and Crick (2004) found that girls who associated with relationally aggressive peers at baseline continued to associate with relationally aggressive peers and engaged in higher levels of relational aggression one year later. It seems that peer rejection might be both an outcome as well as a moderator of relational aggression.

The Werner and Crick (2004) findings regarding the direction of this relationship have not been reported in other studies. Rather, other researchers report significant influence of relational aggression on peer rejection (Rys & Bear, 1997; Tomada & Schneider, 1997). Werner and Crick (2004) argue that because relationally aggressive children tend to associate with other relationally aggressive children and tend to be rejected by other peers, this association contributes to affiliation with deviant peers and subsequent deviant social behaviors. This process parallels that observed among children who are overtly aggressive. Thus, extrapolating from other research on deviant social behaviors provides one a logical explanation of the process. Unlike other studies of deviant

peer behaviors, however, no evidence indicates that peer rejection specifically associated with relational aggression is predictive of deviant social behaviors. In another paper, stemming from the same longitudinal study, Crick, Ostrov and Werner (2006) report that relational aggression was a risk factor for future social-psychological adjustment problems, in particular delinquent behaviors. In addition, children who exhibited both relational and overt aggression were at increased risk for adjustment problems. Children in this study were somewhat older (3rd grade at time one and 4th grade at time two) than in the previous study and therefore the results might have more relevance for hypothesizing outcomes in adolescence.

As stated in the previous section, identity formation and social acceptance by peers are important developmental tasks for adolescents. Relational aggression, particularly for girls, might be one method for achieving popularity within a peer group through the sharing of information and facilitating connections with others (Putallaz, Kupersmidt, Coie, McKnight, & Grimes, 2004). In a longitudinal study of 185 adolescents age 13 to 14 years, Allen et al. (2005) found that popularity, however, could increase the likelihood of deviant behaviors such as minor levels of drug use and delinquency. The researchers found that the most popular adolescents are also most likely to succumb to both negative and positive socializing influences by their peers in order to gain peer group approval. It is possible then that adolescents who are more likely to use relational aggression are also more likely to join peer groups where relational

aggression is the “norm.” Allen et al. (2005) also found that behaviors which were not well received by the peer group tended to decrease, therefore, in a relationally aggressive peer group, relational aggression might be reinforced and encouraged by the group. The Werner and Crick (2004) finding where a relationally aggressive peer group engaged in higher levels of relational aggression one year later supports this premise.

Relational aggression then is not only commonly observed among school age and adolescent children, but seems to be a complex phenomenon. Other factors, which are related to relational aggression but are not included in this study, include victimization, bullying, peer crowds, social identity and the effect of the media (Cairns, Cairns, Neckerman, Ferguson, & Garipey, 1989; Putallaz, Kupersmidt, Coie, McKnight, & Grimes, 2004). One of the many questions remaining in this area of research is: Are there other variable(s) which when combined with relational aggression act as antecedents to deviant social behavior? Other groundwork needs to be performed, however, before this question can be answered. Study Aims 2 and 3 examined whether the ability of a child to regulate her emotional state might provide an additional psychosocial factor to facilitate the understanding of the path to deviant social behaviors in early adolescence. To gain an understanding of this potential relationship, a short discussion of emotion regulation is now presented.

Emotion Regulation

The process of emotion regulation and its effect on human behavior. As stated in Chapter 2, 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. If a child is unable to calm him or herself (by engaging a parasympathetic response) in a social interaction, his or her behavioral response is likely to be aggressive (Gottman, Katz & Hooven, 1996). This inability occurs because heightened physiologic arousal reduces one's ability to accurately interpret the social cues presented. Dodge (1991) writes that emotional phenomena are a critical piece of processing information during each human interaction and experience. In other words, some level of emotion is a part of every human interaction that we experience. Lazarus (1984) identified cognitive elements in human interactions associated with cue interpretation and response: awareness of the social cue, interpretation of the cue, evaluation of potential responses to the cue, and finally, enactment of the response. Interpretation and response to a social cue is influenced by one's current physiologic state, past experiences with similar cues, and the social and emotional skill set brought to the interaction. If a child cannot elicit her parasympathetic system to counteract the sympathetic response, this aroused physiological state will remain heightened and she will be unable to focus on social cues or other environmental stimuli (Dodge, 1991, Eisenberg et al., 1998). If a child cannot accurately interpret social cues, he

or she might react inappropriately. For instance, if a child interprets a peer's social initiation of play as threatening, he or she might respond in an aggressive manner rather than a willingness to engage in play. Gender is thought to interact with the type of aggressive response. Therefore, it was posited that emotionally dysregulated girls compared to boys would be more likely to respond with relational aggression. Because both sadness and anger are associated with emotion regulation (Gottman et al., 1996; Calkins, Gill, Johnson, & Smith, 1999; Silk et al., 2003), the present study examined child self-reports of management and experiences with intensity, frequency and duration of both of these emotions.

In addition to externalized responses such as overt aggression, the inability to effectively self-regulate one's emotional response is also 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. This study examined childhood emotion regulation as a precursor to patterns of overt and relational aggression and possible subsequent early socially deviant behaviors in early adolescence, as guided by the model shown again in Figure 3.1.

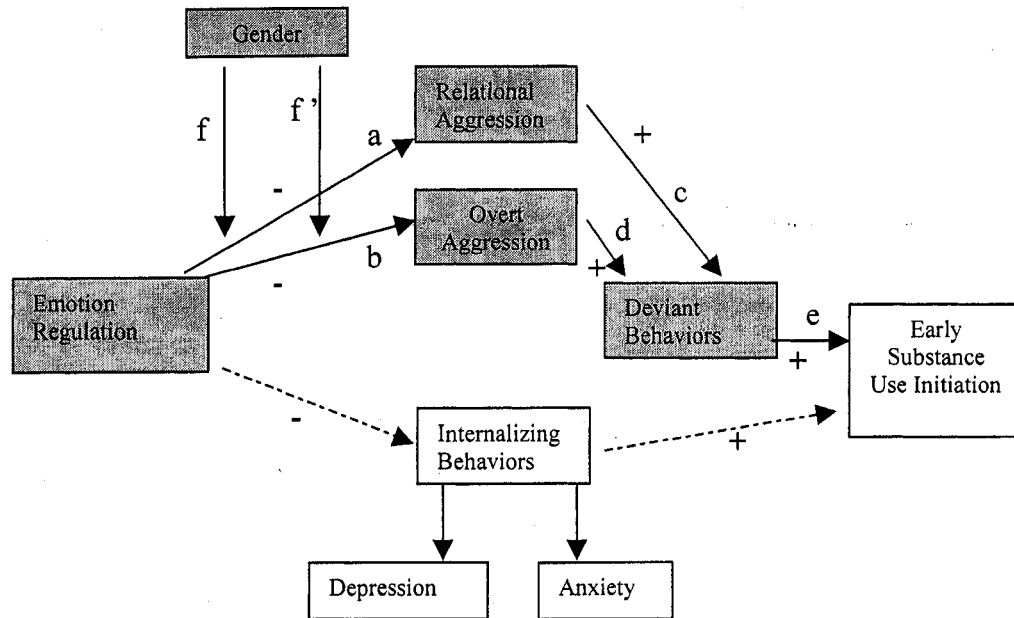


Figure 3.1 Heuristic model positing influence of emotion regulation on relational and overt aggression, deviant behavior and early substance use initiation. Yellow highlighted variables represent major study variables. Solid labeled arrows between variables represent hypothesized paths; arrows directed toward another path (f and f') represent hypothesized moderating effects. Dashed arrows represent alternative pathways, not tested in this dissertation, but the effects of which will be controlled in the analysis.

Emotion regulation and relational aggression. Research suggests that during social interactions, overtly aggressive children process their emotional responses differently than other children (Barth & Bastiani, 1997; Schultz, Izard & Bear, 2004). Schultz, Izard & Bear (2004) reported in a cross-sectional study of 182 first and second graders, emotion regulation significantly correlated with how children processed emotion information, and how the emotional information, in turn, influenced the display of overt aggressive behaviors. Anger-prone children tended to perceive other children's interactions as angry and responded with overt

aggression. A heightened sense of anger is one indicator of a lower level of emotion regulation or the inability to regulate one's emotional response (Hooven, Gottman & Katz, 1995; Calkens, Gill, Johnson & Smith, 1999). Thus, this research suggests that emotionally dysregulated children are more likely to perceive other children as threatening and respond in an overtly aggressive manner. Crick's (1995) research on heightened anger and relational aggression provides support for a similar link between a lower level of emotion regulation and relational aggression.

When Crick (1995) examined the relationship between heightened anger and relational aggression, she discovered that children who reported heightened anger and distress in response to hypothetical relationship conflicts were more likely to engage in relationally aggressive behaviors. Crick also found that aggressive responses to a heightened emotional state were moderated by gender. Girls were not only more likely to report higher levels of distress than 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. This research supports the hypothesis that emotionally dysregulated children will be more likely to respond with relationally aggressive behaviors to other children.

Dodge (1991) further explains this relationship by arguing that because cognitive processing is a prerequisite to formulation of a response within a social context, if an individual cannot adequately process the stimuli, a search will be made for a response that best matches the individual's goals and past personal experiences. Using more familiar responses that can be quickly retrieved from one's repertoire during an emotionally arousing situation, such as, "I'm not going to be your friend any more," might be indicative of a lower level of emotion regulation and the gender socialization of a relational aggressive response. Thus, while there is limited research on the relationship between emotion regulation and relational aggression, there appears to be a possible link between a child's underlying emotional state and subsequent behavioral responses, including problem behaviors such as overt and relational aggression.

Antecedents and correlates of relational aggression. Other variables reported to be associated with or to influence the development of relational aggression include, socioeconomic status, language skills and ethnicity. Bonica, Arnold, Fisher and Zeljo (2003) found those girls of high versus lower socioeconomic status were more relationally aggressive. Of interest, socioeconomic status interacted with language development such that lower socioeconomic girls with greater language development were more relationally aggressive than lower socioeconomic girls with less language development. Estrem (2005) reported that expressive language is a better predictor of relational aggression for girls than boys, and Bonica et al. (2003) found a significant

positive association between language development and relational aggression. Thus, both socioeconomic status and language skills can affect the development and use of relational aggression. In the present study, to control the effect of socioeconomic status, income was incorporated as a covariate. Because there was not a specific measure for language development available in this study, it was not possible to control for this variable.

In addition, depression and lack of empathy are known to be associated with relational aggression. Zahn-Waxler et al. (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 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. In the present study, the Behavior Assessment System for Children Depression subscale (Reynolds & Kamphaus, 1992) was used to control for any variance associated with depression.

Purpose of the Study

To summarize, the purpose of study Aims 2 and 3 was to explore a posited relationship between emotion regulation, relational aggression and risk factors for early substance use initiation. Relational and overt aggression were used as the

risk factors for early substance use initiation. The specific aims and hypotheses are stated below.

Aim 2.

To describe the pattern of relational aggression, including gender differences in mean levels, in girls and boys over a four-year period at three time points (T1, T2, T3).

- H₁ Boys compared to girls will report lower mean levels of relational aggression at T1, T2 and T3 controlling for, age, ethnicity, depression, parent education, and income.
- H₂ Mean levels of relational aggression in girls will increase across T1, T2, and T3, whereas mean levels of relational aggression in boys will remain stable across T1, T2, and T3, controlling for age, ethnicity, depression, parent education and income.

Aim 3.

To explore the relationship between emotion regulation and relational and overt aggression in girls and boys over a four-year period, controlling for age, ethnicity, parent education and income. The moderating effects of gender on the relationship between emotion regulation and overt and relational aggression will be explored.

- H₁ Emotion regulation will be associated with relational aggression controlling for gender, age, ethnicity, depression, parent education, and income at each measurement (T1, T2, T3).

- H₂ Greater emotion regulation at T1 will predict decreased relational aggression across time (T2, T3) controlling for gender, age, ethnicity, depression, parent education, and income.
- H₃ The predictive influence of emotion regulation on relational aggression will be stronger for girls compared to boys at all time points (T1 to T2 and T1 to T3) controlling for age, ethnicity, depression, parent education, and income.
- H₄ The predictive influence of emotion regulation on overt aggression will be stronger for boys compared to girls across longitudinal time points (T1 to T2 and T1 to T3) controlling for age, ethnicity, depression, parent education, and income. That is, gender is expected to moderate this relationship.

Research Method

Sample and Recruitment

The analysis for Aim 2 was based on data from children drawn from T1, T2 and T3 of the The Family Health Project (see Chapter Two for a description). Subjects were excluded if all three of the Children's Social Behavior Scale-Teacher Form (Crick, 1996; CSBS-T) scales (T1, T2 or T3) were missing from the data set. Of 154 children at T1, 43 were missing the CSBS-T scale and were removed from the analysis in study Aims 2 and 3. Seventeen cases removed were families who had dropped during T1, three of which moved out of state and

continued to be followed with questionnaire data only. Twenty-six teachers did not answer key items or did not return questionnaires in T1. At T2, 5 more families dropped from the study and 28 teachers did not answer key items or did not return questionnaires leaving 104 CSBS-T scales for analysis. At T3, 130 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. In T3, children ranged in age from 8 to 14.3 years, averaging 11.1 years. Of the 111 children included in this analysis, 51 were boys (46%) and 60 were girls (54%). Parent self-report determined ethnicity of the children. If the mother and father reported different ethnicities, the child's ethnicity was identified as Multi-Racial. Ethnicity of the children was 38.2% Euro-American, 13.6% African American, 9.9% Asian, 3.6% Hispanic, and 34.5% Multi-Racial. Fathers' reported annual income ranged from less than \$10,000 to greater than \$90,000, with 2% under \$10,000, 4% from \$10,000 to \$29,000, 26.6% from \$30,000 to \$49,999, 24.6% from \$50,000 to \$69,000, 17% from \$70,000 to \$89,000 and 19% at \$90,000 and above.

Data Collection

Data was collected in subjects' homes, in an off-campus research laboratory site and through mailings for teacher questionnaires for each of the three time points. For a full description of data collection procedures, see Chapter 2.

Measurement

Measurements used in this study included the Child Self-Report of Emotional Experience (Taylor & Carrère, 2002; CSREE) for emotion regulation, Depression subscale of the Behavior Assessment System for Children (Reynolds and Kamphaus, 1992; BASC) for depressive symptoms, and the Children's Social Behavior Scale-Teacher Form (CSBS-T) for relational and overt aggression. Detailed descriptions of the psychometric properties of the CSREE and BASC measurements are provided in Chapter 2. The CSBS-T is described below. Table 3.1 summarizes which measurements were collected at which time points and the age ranges of the children at each time point.

Table 3.1

Data Collection Time Intervals

Data Collection (Time Interval)	Time 1 (Baseline)	Time 2 (18 months)	Time 3 (30 months)
Age of Child	6-12 years	8-13 years	8-14 years
Child Measures			
Emotion Regulation	√	√	
Depressive symptoms		√	√
Anxiety		√	√
Teacher Measures			
Relational Aggression	√	√	√
Overt Aggression	√	√	√
Deviant Social Behaviors	√	√	√
Anxiety	√	√	√
Depressive symptoms	√	√	√

Note: √ indicates that measure was collected at this time point

Relational aggression. Relational aggression is defined as the purposeful use of social relationships to harm others (Crick & Grotpeter, 1995). A teacher report measure, the Children's Social Behavior Scale-Teacher Form (Crick, 1996; CSBS-T) was used to measure relational aggression at each of the three time points. The Relational Aggression scale consists of 6 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 four point Likert scale with choices ranging from strongly agree (1) to strongly disagree (4) (See Appendix A). A principal component factor analysis revealed a single dimension with an eigenvalue of 1.8 accounting for 62.7% of the variation. A mean scale score was constructed from the six items. Psychometric analysis, with a sample consisting of 491 3rd through 6th grade children, demonstrated a Cronbach's alpha of .94 (Crick, 1996).

Overt aggression. Overt aggression refers to extrinsic aggressive behaviors directed at another child, such as pushing, hitting or verbally threatening behaviors. 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 four point Likert scale with choices ranging from strongly agree (1) to strongly disagree (4). A mean scale score was constructed using the 3 items. A psychometric analysis was

performed with the same sample cited above, and a principal component factor analysis revealed a single dimension with an eigenvalue of 1.8 and accounted for 12.3% of the variance. The Cronbach's alpha was reported as .94 (Crick, 1996).

Prosocial behavior. Prosocial behavior consists of behavior that is viewed by others as helpful toward a child's peers. The Prosocial Behavior scale is the third and final subscale of the CSBS-T (Crick, 1996) and consists of 4 items. Examples of scale items are "The child is helpful to peers" and "The child is kind to peers." The scale response options are also based on a four point Likert scale with choices ranging from strongly agree (1) to strongly disagree (4). A mean scale score was constructed using the 4 items. A psychometric analysis was performed with the same sample cited above, and a principal component factor analysis revealed a single dimension with an eigenvalue of 1.8 and accounted for 6.4% of the variance. The Cronbach's alpha was reported as .93 (Crick, 1996).

Analysis Plan

Aim 2. T-tests were used to test for differences in mean levels of relational aggression of girls compared to boys across T1, T2 and T3. Descriptive statistics was used to describe the pattern of relational aggression in girls and boys over T1, T2 and T3, with graphic representations to illustrate changes and differences. Mean relational aggression by gender was calculated for the three time points to plot and describe trends in the measurements across time. For H₂, planned comparisons were conducted using paired t-tests examining differences within gender groups and across time (T1 verses T2, T2 verses T3 and T1 verses T3).

Aim 3. Correlational analysis was used to examine the zero-order and partial associations between emotion regulation and aggressive behaviors. Evaluation of normality of the relational aggression (CSBS-T) scale demonstrated positive kurtosis and suggested use of logistic regression at all three time points for the analysis of relationships between the main study variables. This variable was recoded into a dichotomized variable and logistic regression was used for the analysis in Aim 3, Hypotheses 1, 2 and 3, controlling for gender, age, ethnicity, parent income, parent education and child depressive symptoms. As the CSREE was not administered at T3, only T1 and T2 could be tested for this hypothesis.

Multiple regression analysis was used to determine the predictive influence of emotion regulation on relational aggression and overt aggression for Hypothesis 4. Linear regression analyses was conducted using hierarchical entry of sets of predictor variables in the following order: Block 1: demographic variables (age, gender, ethnicity), Block 2: parent SES factors (education, income), and Block 3: emotion regulation and depression, and Block 4: interaction term of gender x emotion regulation. This method was used to predict overt and relational aggression using separate equations, and allowed assessment of the cumulative influence of these factors on the aggressive behaviors.

An interaction term was created between emotion regulation and gender to test for the moderating effect of gender on the relationship between emotion regulation and aggression. To reduce the otherwise inflated size of the

correlations between the interaction term and its constituent terms, the variables were centered (put in deviation score form) so that the means were zero. Results of the first set of regression equations predicting to relational aggression yielded non-significant results for all covariate variables with the exception of father's level of education and self-report depressive symptoms. Therefore, the regression equations were run without age, gender and ethnicity in block one and education and mother's education in block two. When the interaction term between emotion regulation and gender was statistically significant, follow-up analysis was conducted separately for boys and girls. Given the sample size, there was not sufficient power to identify small to medium effects. In which case, a $p < .10$ was used and the results were interpreted cautiously.

Standardized and unstandardized regression coefficients were examined to determine the effect of emotion regulation on relational aggression and overt aggression in separate analyses. The adjusted R^2 was used to describe the proportion of variance explained in the dependent variable by the independent variables.

Power analysis. For Aim 2, using an alpha of .05 and either a medium (.50) or large (.80) effect size, the sample size of 88 produced power of .75 and .98, respectively for independent group t-tests for Aim 2. Power using alpha of .05 and a small effect size (.20) yielded a power of .24 for a one tail t-test. Using the same sample size and effect size, an alpha of .10 provides power of .78. Thus

the sample size was adequate to detect moderate to large effect sizes, but not small effect sizes. For Aim 3, power analysis estimated for linear regression yielded power of .80, $\alpha = .05$ for a moderate ($R^2 \sim .15$) or greater effect size when including four covariates and one key predictor. For this study, the sample size of 88 was thus also adequate to detect moderate to large effects using a linear regression model. The power to detect small effects or to conduct subgroup analyses was below the recommended .80 value.

Results

Preliminary Analysis

The data were examined for missing values using frequency distributions. Missing data were low, generally less than ten percent were missing in the CSREE and CSBS-T scales, for instance; therefore, imputation methods for replacing missing data were not used.

An examination of the relational aggression measures (CSBS-T) over the three time points revealed that only 60 children had scales across all three time points. Chi square analysis showed that 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, however, a significant difference in mother's educational 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 were calculated for the major study variables and are reported in Table 3.2.

Table 3.2

Medians, Means and Standard Deviations for Child and Teacher Measures Across Time

	Median/Mean (SD)				Cron- bach α	Scale Range	Data Range
	Boys		Girls				
Child Measures							
Emotion Regulation							
T1	1.65/1.75	(.52)	1.8/1.84	(.63)	.88	1-4	1-3.8
T2	1.85/1.81	(.51)	1.75/1.85	(.52)	.88	1-4	1-3.3
Depressive Symptoms, T3	0/1.36	(2.12)	0/1.0	(2.23)	.94 ^a	0-33	0-15
Teacher Measures							
Aggression							
Relational Aggression							
T1	1.33/1.56	(.59)	1.33/1.58	(.59)	.84	1-4	1-3
T2	1.33/1.46	(.47)	1.33/1.48	(.61)	.77	1-4	1-4
T3	1.5/1.56	(.46)	1.33/1.53	(.48)	.76	1-4	1-3
Overt Aggression							
T1	1/1.17	(.41)	1/1.22	(.40)	.75	1-4	1-3
T2	1/1.20	(.46)	1/1.14	(.44)	.78	1-4	1-3
T3	1/1.30	(.56)	1/1.05	(.19)	.76	1-4	1-3
Prosocial Skills							
T1	3.25/3.25	(.59)	3.50/3.75	(.47)	.80	1-4	2-4
T2	3.13/3.25	(.71)	3.46/3.50	(.57)	.87	1-4	1-4
T3	3.15/3.25	(.57)	3.20/3.25	(.54)	.83	1-4	1.75-4
Deviant Behavior, T3	0/0.85	(1.21)	0/0.62	(1.15)	.94 ^a	0-30	0-6

Note. T1 = Time 1, T2 = Time 2, T3 = Time 3. Sample sizes at data collection points: Emotion Regulation (n=125, 122, T1, T2 respectively), Depressive symptoms (n=121 at T3), Relational Aggression, Overt Aggression & Prosocial Skills (n=111, 104, 87 at T1, T2 and T2 respectively), Deviant Behavior (n=85 at T3).

^aReported in Reynolds & Kamphaus (1992).

Aim 2. Examining the Patterns of Relational Aggression

To describe the patterns of relational aggression across time, mean values of relational aggression were calculated for boys and girls at each time point. The values are plotted in figure 3.2 below. It was hypothesized that mean levels of relational aggression in girls would increase over time whereas mean levels of relational aggression in boys would remain stable. For both genders, relational aggression remained relatively stable and slightly decreased rather than increased for girls, while the opposite was true for boys. In contrast to what was hypothesized, there were no significant changes found in relational aggression levels for either gender group across time (T1 versus T2, T2 versus T3 and T1 versus T3). Patterns of relational aggression were also examined by dividing the baseline sample into age groups (less than 9 years and 9 years or greater) and then plotting the group patterns over the three time points. Again, relational aggression remained stable over the three time points.

It was also hypothesized that boys compared to girls would report lower mean levels of relational aggression at each time point (T1, T2 and T3) controlling for age, ethnicity, parent education and income. T-tests used to examine for gender differences revealed no significant differences between boys' and girls' relational aggression at any of the three time points.

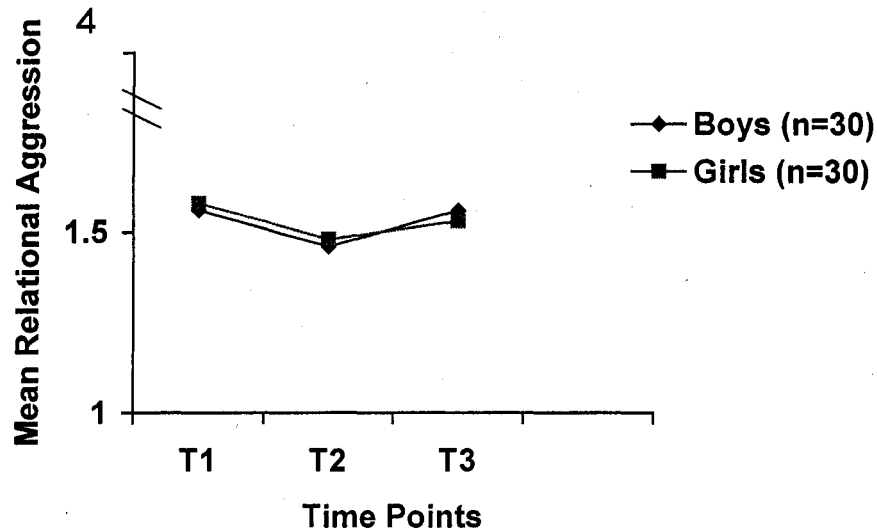


Figure 3.2 Mean levels of relational aggression by gender at T1, T2 and T3. Relational aggression measured by Children's Social Behavior Scale-Teacher Form (Crick, 1996). (n=60)

Aim 3. Emotion Regulation and Aggressive Behaviors.

Correlations between the main study variables were calculated. Table 3.3 displays the correlation matrix for major study variables. There was a significant moderate relationship between overt and relational aggression within each of the time points ($r = .55, .62, \text{ and } .42$ respectively) and also between deviant behaviors and overt aggression at time points 2 and 3 ($r = .21$ and $.32$ respectively).

Relational aggression at T3 was significantly correlated with deviant behaviors at T3 ($r = .38$). There was also a small but significant relationship between overall emotion regulation, sadness and anger regulation at T2 and deviant behaviors at T3 ($r = .24, .19, \text{ and } .22$ respectively). And, the relationship between anger

regulation at T2 and relational aggression at T3 was significant ($r = .27$). It is interesting to note that relational aggression does not correlate across time.

Aim 3, Hypothesis 1: Emotion regulation is associated with relational aggression. To test the hypothesis that 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.

Aim 3, Hypothesis 2: Emotion regulation predicts relational aggression. The second hypothesis in Aim 3 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 non-significant, therefore, covariates other than depression were deleted from the equations to preserve the degrees of freedom due to the very small sample size. The results of these analyses did not reveal a significant predictive relationship between emotion regulation at T1 or T2 for relational aggression at T2 or T3 respectively. From T1 to T2, self-reported depressive symptoms approached significance ($\beta = .65, p < .08$) as a predictor of relational aggression, however was not significant from T1 to T3 or T2 to T3.

Table 3.3

Correlation Matrix of Emotion Regulation and Anger and Sadness Subscales, Relational Aggression, Overt Aggression, and Deviant Behavior for Time 1, Time 2 and Time 3.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1 ER,T1	1												
2 ER,T2	.42**	1											
3 ERANG, T1	.82**	.31**	1										
4 ERSAD, T1	.90**	.38**	.47**	1									
5 ERANG, T2	.38**	.88**	.31**	.33**	1								
6 ERSAD, T2	.35**	.87**	.23**	.33**	.52**	1							
7 RA,T1	-.03	-.09	-.01	-.06	-.01	-.14	1						
8 RA,T2	-.02	.09	.043	-.01	.05	.13	.11	1					
9 RA,T3	-.04	.15	-.06	-.04	.27**	-.04	-.02	.04	1				
10 OA,T1	.02	-.11	-.06	.08	.02	-.22*	.55**	.19*	.12	1			
11 OA,T2	-.12	-.05	-.09	-.09	.01	-.09	.09	.62**	.19	.48**	1		
12 OA,T3	-.01	.15	-.06	.03	.29**	-.05	.12	.08	.42**	.17	.28**	1	
13 DB,T3	.16	.24*	.05	.19	.22*	.19*	.02	.09	.38**	.07	.21*	.32**	1

Note. Abbreviations are as follows: Emotion Regulation (ER); Relational Aggression (RA); Overt Aggression (OA); Deviant Behavior (DB); Time 1 (T1); Time 2 (T2); Time 3 (T3)
* $p < .05$. ** $p < .01$, one-tailed.

Emotion regulation was measured for both sadness and anger regulation. To explore if the predictive effect of emotion regulation were 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 with relational aggression at T2 or T3 respectively. Thus, there was no support for the hypothesis that emotion regulation would predict to relational aggression across time.

Aim 3, Hypothesis 3: The relationship between emotion regulation and relational aggression will be stronger for girls. It was hypothesized that the relationship between emotion regulation and relational aggression would be stronger for girls compared to 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 for relational aggression for girls. The results from this

set of analyses are summarized in Table 3.4. First, the beta, standard errors, odds ratios and Wald statistics are reported for the test of gender moderating effect for the entire sample (n = 59). Then, the results of emotion regulation as a predictor of relational aggression is reported separately for girls (n = 31) and boys (n = 28).

Table 3.4

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 x Emotion Interaction (n = 59)				
Emotion Regulation, T1	-2.02	1.04	7.57	3.81*
Gender	.36	.82	1.43	.19
Interaction Gender x ER, T1	-3.13	1.56	.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	.05	1.51

* $p < .05$

Note: Interaction term = gender x emotion regulation, Time 1

Aim 3, Hypothesis 4: The relationship between emotion regulation and overt aggression will be stronger for boys. 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 x emotion regulation was not significant predicting to T2 or T3 overt aggression, or at T2 predicting 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 non-significant results.

Thus, while there was support for hypothesis 3 positing gender differences in the relationship between emotion regulation and relational aggression, findings did not support hypothesis 4 positing gender differences in the relationship between emotion regulation and overt aggression. Other research has found relational aggression to be a complex behavior influenced by gender, the media, peers, early socialization and prosocial behaviors (Coyne & Archer, 2005; Crick, 1996; Crick, Ostrov, & Werner, 2006; Galen & Underwood, 1997; Putallaz, Kupersmidt, Coie, McKnight, & Grimes, 2004; Rys & Bear, 1997). In particular, Crick and Grotpeter (1995) found that prosocial behaviors significantly influenced relational aggression and social-psychological adjustment. Therefore, to examine further the path posited in Figure 3.1 between relational aggression and deviant behavior, a post hoc analysis was conducted examining the influence of prosocial behavior on these measures.

Post Hoc Analysis

Crick and Grotpeter (1995) found a significant inverse relationship between prosocial behavior and relational aggression. In their study, girls who were viewed by their peers as significantly more prosocial than their peers were also significantly less relationally aggressive. The researchers also found that relationally aggressive girls were at greater risk for social isolation, an antecedent

to deviant behaviors (Crick & Grotpeter, 1995). In a later study, using a teacher measure of relational aggression, Crick (1996) found that lower prosocial behavior contributed an additive effect to relational aggression in the prediction of future social adjustment. In other words, when lower prosocial behavior was present, girls were more likely to engage in relational aggression and become socially isolated from peers.

Building on these prior findings, an ad hoc analysis was conducted to elucidate the potential relationship between relational aggression and deviant behaviors. The questions addressed were: Is there a direct effect of prosocial behavior on relational aggression? Is there a moderating effect of prosocial behavior on the relationship between relational aggression and deviant behaviors?

Linear regression analysis was conducted using teacher reported conduct disorder behaviors (for deviant behaviors) as the dependent variable and relational aggression, prosocial behavior and interaction term for relational aggression x prosocial skills as independent variables. Linear regression was used rather than logistic regression because the dependent variable (conduct disorder behaviors) had a more normal distribution. Tests within each of the three time points, yielded a significant moderating effect of prosocial behavior x relational aggression at T1 only ($\beta = -1.06, p < .005$).

To examine whether high versus low prosocial behavior 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 this relationship, with relational aggression as the independent variable and conduct disorder behaviors as the dependent variable. Reported in Table 3.5 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.

Table 3.5

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, T3)

Variable	Low Prosocial Behavior		High Prosocial Behavior	
	B ^a	β^b	B ^a	β^b
Relational Aggression				
Time 1	.92***	.42	.21	.18
Time 2	1.37***	.57	.79	.25
Time 3	1.42***	.45	.44	.14

^a Unstandardized ^b Standardized.

* $p < .05$ ** $p < .01$ *** $p < .001$

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 non-significant.

To summarize, the post hoc 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

Major findings for study Aims 2 and 3 include the following:

- Girls and boys did not differ in relational aggression over time
- Relational aggression remained stable over time for both genders
- The relationship between emotion regulation and relational aggression was moderated by gender
- The relationship between emotion regulation and overt aggression was not moderated by gender
- The relationship between relational aggression and deviant behavior was moderated by prosocial behavior

Contrary to previous research on relational aggression developmental trajectories, this study did not support prior findings that girls demonstrate higher levels of relational aggression as they move into adolescence (Crick & Grotpeter, 1995; (Lagerspetz, Björkqvist, & Peltonen, 1988; Österman et al., 1998). Nor did girls compared to boys, in this study, report significantly higher levels of relational aggression at any of the three time points. However, these results

support Crick's findings (1996) that relational aggression is relatively stable over time.

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 age 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. And this finding may also partially explain the "queen bee" syndrome (Hadley, 2003) where girls with higher prosocial behavior are able to use relational aggression more effectively.

Consistent with prior research (Zahn-Waxler et al., 2005), depressive symptoms was a significant predictor of relational aggression. These findings

suggest that children who have higher levels of depressive symptoms might be more prone to engage in relational aggression.

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 boys with lower emotion regulation are more likely to exhibit externalizing behaviors such as aggression (Eisenberg et al., 2001, Gottman, Katz & Hooven, 1996). Sample bias, due to self-selection of study participants may have been partially responsible for this result. As stated earlier in this chapter, mothers of retained subjects were, on average, more educated than those subjects who dropped. A higher educational level of mothers may have resulted in less overtly aggressive children compared to a larger population.

Limitations

A smaller sample size and thus low statistical power were limitations in this study, particularly with regard to describing the pattern of relational aggression across time for Aim 2. Data available from teacher reports 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 as well 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 time 3 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 subjects and availability of subjects 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 subjects at age 14 to 18 years when in middle to later adolescence.

Clinical Implications

As indicated by the age of children who were able to describe their emotion regulation (as young as 5 ½ years), interventions aimed at enhancing emotion regulation need to be studied in children as early as first grade. Assessing a child's emotion regulation early might also be an important step in preventing later socially deviant behaviors. Nurses are often in a position to assess risk

factors in children as they frequently interact with and assess children on a one-on-one basis at school, in the community or a primary health care setting. Nurses also possess the skills to develop and implement interventions across a myriad of settings, including schools, community clinics, centers and in the home.

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 addition, further research needs to be conducted to replicate the finding that relational aggression levels remained stable across time for both boys and girls from middle childhood to early adolescence. To further clarify whether child developmental stages are associated with relational aggression, measures need to occur within each developmental stage; middle childhood (8 to 10 years), early adolescence (11 to 13 years), and middle adolescence (14 to 16 years).

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.

CHAPTER 4

SUMMARY AND CONCLUSIONS

Introduction

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 by the time a child enters early adolescence, he or she has not mastered the developmental task of emotion regulation, that child might not be successful at mastering the important tasks of adolescence and might also follow a path to deviant social behaviors, including early substance use initiation. The two studies within this dissertation have presented findings that support this alternative path. Results from these studies emphasize the importance of developing support systems to assist young children to master the developmental task of emotion regulation.

Summary of Method and Findings

Method

To summarize, this dissertation was composed of two studies: study Aim 1 analyzed the psychometric properties of the Child Self-Report of Emotional

Experience (Taylor & Carrère, 2002) and study Aims 2 and 3 described patterns of relational aggression over three time points and the relationship between emotion regulation and aggressive behaviors. Both studies used data from an exploratory longitudinal study, the Family Health Project: Marital Discord, Parenting and Child Outcomes (Carrère and Gottman, 2000). Data on measures of emotion regulation, externalizing and internalizing disorders, conduct problems, depressive symptoms, anxiety, attention problems, relational and overt aggression were collected at three time points over four years. The sample was composed of 126 children at time point 1 (T1), 104 children at time point 2 (T2) and 87 children at time point 3 (T3). There were sixty children who had teacher reported measures collected at all three time points.

Findings

Study Aim 1. For study Aim 1, it was hypothesized that the CSREE would provide a reliable and valid measure of a child's ability to emotionally regulate him or herself. Tests of internal reliability and construct validity demonstrated that CSREE is not only a reliable and valid measure of emotion regulation, but is also valuable for predicting to internalizing disorders in children, namely depressive symptoms and anxiety. A finding that is potentially valuable to child researchers is that children who have lower sadness regulation are at risk for anxiety, but not depressive symptoms. However, these same children may be erroneously identified by teachers and caregivers as depressed. Conversely, children with lower anger regulation are at risk for depressive symptoms and

anxiety, but may not be identified by adults as at risk for depression. These findings underscore the importance of asking children directly about their perceptions of their own emotional states and indicators of internalizing disorders such as depressive symptoms and anxiety, rather than relying solely on observations and reports by teachers and parents.

Overall, the CSREE was more effective at predicting later internalizing behavioral problems such as depressive symptoms and anxiety than externalizing behaviors for children in this age group. In this study, both girls and boys with lower levels of emotion regulation were found to be at risk for developing internalizing behavioral problems. This finding is particularly significant in that it does not support prior research that internalizing behavioral problems are more predominant in emotionally dysregulated girls versus boys. Although gender-normed data demonstrated that lower T1 emotion regulation predicted T3 conduct disorder behaviors, this relationship did not hold when T2 emotion regulation was used as the predictor. It may be that as children mature, gender associated differences in external behaviors are not as relevant. Overall, children's reports of emotional states one year later (T2) explained more of the variance in internalizing and externalizing behaviors than in T1.

Study Aims 2 and 3. Aim 2 hypothesized that boys compared to girls would report lower levels of relational aggression across time, however, findings did not support this hypothesis. Nor did findings support the second hypothesis

that relational aggression in girls would increase across time. As hypothesized for boys, relational aggression remained stable across time.

In Aim 3 an exploration of the relationship between emotion regulation and aggressive behaviors did not support the hypothesis that emotion regulation would be associated with relational aggression at each time point. Gender was found to have a moderating effect on this relationship and, for girls, lower emotion regulation was a significant predictor of relational aggression across time (T1 to T3). Self-reported depressive symptoms at T2 and T3 was also significantly associated with relational aggression at T3, supporting prior findings in this area.

Revised Model and Post Hoc Path Analysis

In Chapters 1 and 3, a heuristic model was presented depicting the hypothesized pathway between emotion regulation, relational aggression, deviant behaviors and early substance use initiation. This model in Figure 4.1 has been revised to show the significant paths found in the dissertation studies (study Aim 1 and study Aims 2 and 3).

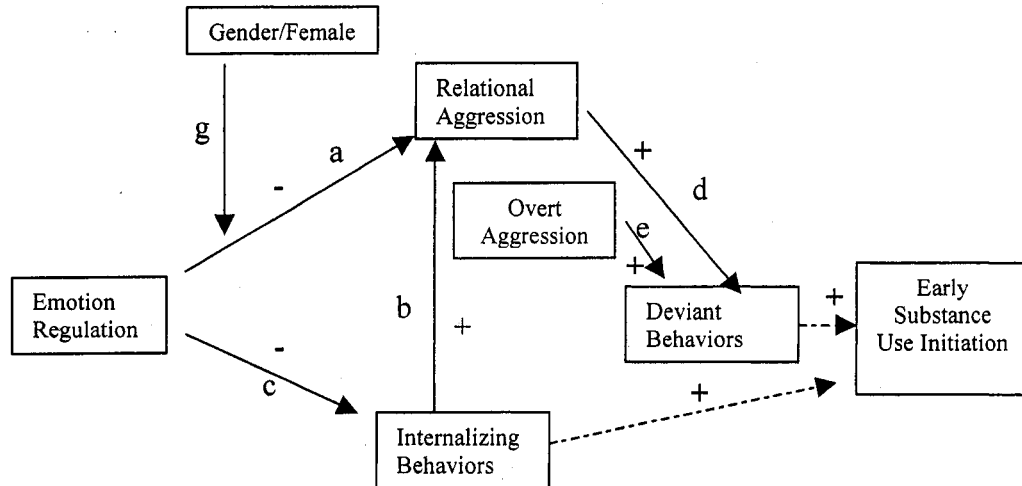


Figure 4.1 Model depicting influence of emotion regulation on relational and overt aggression, deviant behavior and early substance use initiation after analysis.

Solid arrows between variables represent hypothesized paths that were verified in this study; the arrow directed toward another path (g) represents a significant moderating effect of gender. A missing arrow indicates that a significant effect was not observed. Dashed arrows represents a path not tested in this dissertation. Signs indicate directional influence of one variable on next.

To summarize, for children reduced emotion regulation is associated with relational aggression and internalizing behaviors. The relationship between emotion regulation and relational aggression is moderated by gender. That is reduced emotion regulation is associated with increased relational aggression for girls but not boys. Depressive symptoms predicted increased relational aggression and both relational and overt aggression predicted deviant behaviors. Based on these findings, a post hoc path analysis was conducted to examine the direct paths illustrated in Figure 4.2. In Figure 4.2 the standardized beta scores are indicated for each significant pathway.

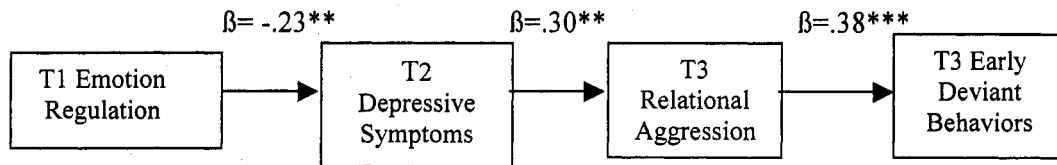


Figure 4.2 Path analysis predicting deviant behaviors from emotion regulation across time 1, 2 and 3.

As illustrated, decreased emotion regulation predicted depressive symptoms at T2, and depressive symptoms in turn predicted increased relational aggression at T3. Relational aggression and early deviant behaviors were significantly correlated at T3. While depressive symptoms are related to relational aggression and emotion regulation, it does not appear to be a mediator of the relationship of emotion regulation on relational aggression. In the second dissertation study (Aim 2 and 3), post hoc analysis revealed that prosocial behavior interacted with relational aggression in predicting teachers' rating of children's deviant behavior. Analyses of the above model were conducted for children with low prosocial behavior versus children with high prosocial behavior. Each of the paths remained significant for children with low prosocial behaviors, however none were significant for high prosocial behaviors. In other words, children with lower versus higher prosocial behaviors were more likely to show stronger relationships among the variables depicted in Figure 4.2. While the relationship between relational aggression and deviant behaviors in this model

cannot be said to be causal since these measures are from the same time period, there is a significant relationship between these variables. What is needed is further testing of these paths as well as additional mediational analysis of the effect of prosocial behavior.

Summary

In summary, the two studies in this dissertation present important new findings that are of interest to the fields of child development, education, nursing and substance use. Study Aim 1, A Psychometric Analysis of the Child Self-Report of Emotional Experience provided evidence that a reliable and valid measure of emotion regulation can be obtained through a short, easily administered questionnaire. In addition, the CSREE may be administered to children as young as five years to measure a child's progress in this important developmental task.

Prior studies, which have linked lower emotion regulation to behavior outcomes, have found that internalized behaviors are typically associated with girls, and externalized behaviors are associated with boys (Eisenberg et al., 2001; Gottman, Katz & Hooven, 1996; Silk, Steinberg & Morris, 2003). Study Aim 1 provides evidence that there are not always gender differences in internalized or externalized behaviors associated with lower emotion regulation. What seems to be more important than gender in determining internalized behavioral outcomes is the type of negative emotion that exhibits lower regulation, e.g., sadness or anger. Gender norms held true for predicting externalized behaviors when emotion

regulation was measured in younger children, however, were not present for emotion regulation measurements at T2. This finding may indicate that as children grow older, externalized behaviors resulting from lower levels of emotion regulation are not moderated by gender. Clearly, conclusions regarding gender and externalizing and internalizing behaviors from lower emotion regulation need to be studied further.

A finding that also warrants further study and replication is the lack of gender differences in relational aggression within each of the three time points. As stated in Chapter 3, this finding may be related to the pre-adolescent age of the study participants and sample size, however, it contradicts prior research in this area with similar age groups. A unique feature of this study sample is the wide diversity of ethnic backgrounds, including a large percentage of mixed race children. Although ethnicity was not a significant covariate in the analyses performed, replication with a similarly diverse population is recommended to determine whether gender differences in relational aggression remain non-significant.

Third, the finding that a path to early deviant behaviors and early substance use initiation might be lower emotion regulation, depressive symptoms, relational aggression, deviant behaviors, particularly for those children who are low in prosocial behavior skills, could be helpful in designing early interventions aimed at enhancing emotion regulation and prosocial skills in young children. There are several efficacious substance use prevention programs aimed at

improving communication skills, self-efficacy, peer relationships, mood management and drug resistance skills for pre-adolescents (Botvin, Baker, Dusenbury, E, & Diaz, 1995; Dishion, Kavanagh, Schneiger, Nelson, & Kaufman, 2002; Springer, Sambrano, Sale, Kasim, & Hermann, 2002; Thompson, Eggert, Randell, & Pike, 2001; Webster-Stratton & Smith, 1997). What is now needed are substance use prevention programs that are directed toward children as young as kindergarten that teach children skills to enhance emotion regulation.

Relational aggression is a complex behavior shaped by external influences, such as the media, peer groups and early gender socialization and internalized variables, such as depression and the ability to accurately interpret social cues. It is possible however, that by teaching children to regulate their negative emotions in early childhood coupled with enhancing prosocial behavior skills, subsequent relationally aggressive and deviant behaviors could be decreased significantly.

Methodological limitations include concerns related to sample size and statistical power, as well as ages at T3 not fully representing the developmental stage of preadolescents. Recommendations for this research are for future studies to focus on further clarifying the role of emotion regulation, and its influence on relational aggression as a risk factor for early substance initiation, particularly as children enter middle adolescence.

BIBLIOGRAPHY

- National Institute of Drug Abuse (2006, December). *High school and youth trends*. Retrieved March 14, 2007, from www.nida.nih.gov/Infofacts/HSYouthtrends.html
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park: Sage Publications.
- Allen, J. P., McFarland, F. C., Marsh, P., & McElhaney, K. B. (2005). The two faces of adolescents' success with peers: Adolescent popularity, social adaptation, and deviant behavior. *Child Development, 76*(3), 747-760.
- Barber, J. G., Bolitho, F., & Bertrand, L. D. (1998). Age and gender differences in the predictors of adolescent drinking. *Social Work Research, 22*(3), 164-172.
- Bagby, R. M., Taylor, G. J., & Ryan, D. (1986). Toronto Alexithymia Scale: Relationship with personality and psychopathology measures. *Psychotherapy and Psychosomatics, 45*, 207-215.
- Barth, J. M., & Bastiani, A. (1997). A longitudinal study of emotion recognition and preschool children's social behavior. *Merrill-Palmer Quarterly, 43*, 107-128.
- Blumberg, S. H., & Izard, C. E. (1986). Discriminating patterns of emotions in 10- and 11-year-old children's anxiety and depression. *Journal of Personality and Social Psychology, 51*(4), 852-857.
- Bonica, C., Fisher, D. H., & Zeljo, A. (2003). Relational aggression, relational victimization, and language development in preschoolers. *Social Development, 12*(4), 551-562.

- Botvin, G., Baker, E., Dusenbury, L., E, B., & Diaz, T. (1995). Long-term follow-up results of a randomized drug-abuse prevention trial in a white middle class population. *Journal of the American Medical Association*, 273, 1106-1112.
- Bowie, B. H. (2006). Emotional regulation in children and aggressive behaviors (abstract). *Communicating Nursing Research Conference Proceedings: Western Institute of Nursing*, 39, 144.
- Bowie, B. H. (in press). Relational aggression, gender and the development process. *Journal of Child and Adolescent Psychiatric Nursing*.
- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Ferguson, L. L., & Garipey, J. L. (1989). Growth and aggression: 1. Childhood to early adolescence. *Developmental Psychology*, 25(2), 320-330.
- Calkins, S. D., Gill, K. L., Johnson, M. C., & Smith, C. L. (1999). Emotional reactivity and emotional regulation strategies as predictors of social behavior with peers during toddlerhood. *Social Development*, 8(3), 310-334.
- Carrère, S., & Gottman, J. M. (2000). *Marital discord, parenting and child outcomes*. Unpublished manuscript, National Institute of Mental Health.
- Carrère, S., Mittmann, A., Woodin, E., Tabares, A., & Yoshimoto, D. (2005). Anger dysregulation, depressive symptoms, and health in married women and men. *Nursing Research*, 54(3), 184-192.
- Carrère, S., Yoshimoto, D., Mittmann, A., Woodin, E., Tabares, A., Ullman, J., et al. (2005). The roles of marriage and anger dysregulation in biobehaviors stress-responses. *Biological Research for Nursing*, 7(1), 30-43.

- Carrère, S. (2005). *Like parent, like child: Parent and child emotion dysregulation*. Unpublished manuscript, University of Washington at Seattle.
- Casey, R. J. (1996). Emotional competence in children with externalizing and internalizing disorders. In M. S. Lewis (Ed.), *Emotional development in atypical children*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Chaplin, T. M., Cole, P. M., & Zahn-Waxler, C. (2005). Parental socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion, 5*(1), 80-88.
- Cohen, J. C. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cole, P. M., Michel, M. K., & Teti, L. O. (Eds.). (1994). *The development of emotion regulation and dysregulation: A clinical perspective* (Vol. 59): Monographs of the Society for Research in Child Development.
- Conway, A. M. (2005). Girls, aggression, and emotion regulation. *American Journal of Orthopsychiatry, 75*(2), 334-339.
- Crick, N. R. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology, 7*(2), 313-322.
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development, 66*, 710-722.
- Crick, N. R. (1996). The role of overt aggression, relational aggression and prosocial behavior in the prediction of children's future social adjustment. *Child Development, 67*, 2317-2327.

- Crick, N. R. (1997). Engagement in gender normative versus nonnormative forms of aggression: Links to social-psychological adjustment. *Child Development, 66*, 710-722.
- Crick, N. R., Casas, J. E., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33*, 579-588.
- Crick, N. R., Ostrov, J. M., & Werner, N. E. (2006). A longitudinal study of relational aggression, physical aggression, and children's social-psychological adjustment. *Journal of Abnormal Child Psychology, 34*(2), 131-142.
- Cross, S. E., & Madson, L. (1997). Models of the self: Self construals and gender. *Psychological Bulletin, 122*(1), 5-37.
- Cuddleback, G., Wilson, E., Orme, J. G., & Combs-Orme, T. (2004). Detecting and statistically correcting sample selection bias. *Journal of Social Service Research, 30*(3), 19-33.
- Diener, M. L., & Mangelsdorf, S. C. (1999). Behavioral strategies for emotion regulation in toddlers: Associations with maternal involvement and emotional expressions. *Infant Behavior and Development, 22*, 569-583.
- Dishion, T. J., Capaldi, D. M., & Yoerger, K. (1999). Middle childhood antecedents to progressions in male adolescent substance use: An ecological analysis of risk and protection. *Journal of Adolescent Research, 14*(2), 175-205.
- Dishion, T. J., Kavanagh, K., Schneiger, A. K. J., Nelson, S., & Kaufman, N. (2002). Preventing early adolescent substance use: A family centered strategy for the public middle school. *Prevention Science, 3*(3), 191-202.
- Dodge, K. A. (Ed.). (1991). *Emotion and social information processing*. Cambridge: Cambridge University Press.

- Doohan, E., & Carrère, S. (Eds.). (2005). *The meta-emotion interview*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Eggert, L. L., Herting, J. R., & Thompson, E. A. (2005). High school questionnaire: Profile of experiences. Seattle, WA: University of Washington.
- El-Sheikh, M., Harger, J. & Whitson, S.M. (2001). Exposure to interparental conflict and children's adjustment and physical health: The moderating role of vagal tone. *Child Development*, 72(6), 1617-1636.
- Eisenberg, N., & Fabes, R. A. (1992). Emotion, regulation and the development of social competence. In M. S. Clark (Ed.), *Emotion and social behavior* (Vol. 14, pp. 119-150). Thousand Oaks, CA: Sage Publications, Inc.
- Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry*, 9(4), 241-273.
- Eisenberg, N., Cumberland, A., Spinrad, T. L., Fabes, R. A., Shepard, S. A., & Reiser, M. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development*, 72(4), 1112-1134.
- Eiser, C., & Morse, R. (2001). Can parents rate their child's health-related quality of life? Results of a systematic review. *Quality of Life Research*, 10(4), 347-357.
- Estrem, T. L. (2005). Relational and physical aggression among preschoolers: The effect of language skills and gender. *Early Education and Development*, 16(2), 207-231.
- Family Health Project, The (2005). [The child meta-emotion interview]. Unpublished data.

- Fox, N. A., & Calkins, S. D. (2003). The development of self-control of emotion: Intrinsic and extrinsic influences. *Motivation and Emotion*, 27(1), 7-26.
- Galen, B. R., & Underwood, M. K. (1997). A developmental investigation of social aggression among children. *Developmental Psychology*, 33(4), 589-600.
- Garner, P. W., & Estep, K. M. (2001). Emotional competence, emotion socialization, and young children's peer-related social competence. *Early Education and Development*, 12(1), 29-48.
- Gilbert, D. C. (1969). The young child's awareness of affect. *Child Development*, 40(2), 629-640.
- Gilliom, M., Shaw, D. S., Beck, J. E., Schonberg, M. A., & Lukon, J. L. (2002). Anger regulation in disadvantaged preschool boys: Strategies, antecedents and the development of self-control. *Developmental Psychology*, 38, 222-235.
- Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Parental meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology*, 10(3), 243-268.
- Gottman, J. M. (2001). Meta-emotion, children's emotional intelligence, and buffering children from marital conflict. In C. D. Ryff & B. H. Singer (Eds.), *Emotion, social relationships, and health*. New York: Oxford University Press.
- Grolnick, W. S., Bridges, L. J., & Connell, J. P. (1996). Emotional regulation in two-year olds: Strategies and emotional expression in four contexts. *Child Development*, 67, 928-941.
- Guadagnoli, E., & Velicer, W. (1988). Relation of sample size to the stability of component patterns. *Psychological Bulletin*, 103(2), 265-275.

- Hadley, M. (2003). Relational, indirect, adaptive, or just mean: Recent work on aggression in adolescent girls-part I. *Studies in Gender and Sexuality*, 4(4), 367-394.
- Harris, M. B. (1997). *Basic statistics for behavioral science research* (2nd ed.). Boston: Allyn and Bacon.
- Harter, S. (1990). Self and identity development. In S. Feldman & G. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 352-387). Cambridge, MA: Harvard University Press.
- Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*, 112(1), 64-105.
- Hoffman, J. P., & Su, S. S. (1998). Stressful life events and adolescent substance use and depression: Conditional and gender differentiated effects. *Substance Use and Misuse*, 33(11), 2219-2262.
- Hooven, C., Gottman, J. M., & Katz, L. F. (1995). Parental meta-emotion structure predicts family and child outcomes. *Cognition and Emotion*, 9(2/3), 229-264.
- Kamphaus, R. W., Huberty, C. J., DiStefano, C., & Petosky, M. D. (1997). A typology of teacher-rated child behavior for a national U.S. Sample. *Journal of Abnormal Child Psychology*, 25(6), 453-463.
- Kaukiainen, A., Björkqvist, K., Lagerspetz, K. M., Österman, K., Salmivalli, C., Rothberg, S., et al. (1999). The relationships between social intelligence, empathy, and three types of aggression. *Aggressive Behavior*, 25, 81-89.
- Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioral research*. Australia: Thomson Learning.

- Lagerspetz, K. M., Björkqvist, K., & Peltonen, T. (1988). Is indirect aggression more typical of females? Gender differences in aggressiveness in 11 to 12-year old children. *Aggressive Behavior, 14*, 403-414.
- Lazarus, R. A. (1984). *Stress, appraisal, and coping*. New York: Springer-Verlag.
- Lazarus, R. A. (1995a). Vexing research problems inherent in cognitive-medication theories of emotion-and some solutions. *Psychological Inquiry, 6*(3), 183-196.
- Lazarus, R. A. (1995b). Emotions express a social relationship, but it is an individual's mind that creates them. *Psychological Inquiry, 6*(3), 253-265.
- Liu, X., & Kaplan, H. (1996). Gender related differences in circumstances surrounding initiation and escalation of alcohol and other substance use/abuse. *Deviant Behavior: Interdisciplinary Journal, 17*, 71-106.
- Magnusson, D., & Bergman, L. R. (1990). A pattern approach to the study of pathways from childhood to adulthood. In L. N. Robins & M. Rutter (Eds.), *Straight and devious pathways from childhood to adulthood* (pp. 101-115). Cambridge: Cambridge University Press.
- McDowell, D. J., Kim, M., O'Neil, R., & Parke, R. D. (2002). Children's emotional regulation and social competence in middle childhood: The role of maternal and paternal interactive style. *Marriage & Family Review, 34*(3/4), 345-364.
- Monro, B. H. (2001). *Statistical methods for health care research*. Philadelphia: Lippincott.
- Österman, K., Björkqvist, K., Lagerspetz, K. M., Kaukiainen, A., Landau, S. F., Fraczek, A., et al. (1998). Cross-cultural evidence of female indirect aggression. *Aggressive Behavior, 24*, 1-8.

- Pallant, J. (2001). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows*. Philadelphia: Open University Press.
- Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist*, *44*(2), 329-335.
- Penza-Clyve, S., & Zeman, J. (2002). Initial validation of the emotion expression scale for children (EESC). *Journal of Clinical Child and Adolescent Psychology*, *31*(4), 540-547.
- Porges, S. W. (1996). Physiological regulation in high-risk infants: A model for assessment and potential intervention. *Development and Psychopathology*, *8*, 43-58.
- Putallaz, M., Kupersmidt, J. B., Coie, J. D., McKnight, K., & Grimes, C. L. (2004). A behavioral analysis of girls' aggression and victimization. In M. Putallaz & K. L. Bierman (Eds.), *Aggression, antisocial behavior, and violence among girls* (pp. 110-134). New York: The Guilford Press.
- Ramsden, S. R., & Hubbard, J. A. (2002). Family expressiveness and parental emotion coaching: Their role in children's emotion regulation and aggression. *Journal of Abnormal Child Psychology*, *30*(6), 657-667.
- Reynolds, C. R., & Kamphaus, R. W. (1992). *Behavioral assessment system for children manual*. Circle Pines, MN: American Guidance Service.
- Robbins, C. (1989). Sex differences in psychosocial consequences of alcohol and drug abuse. *Journal of Health and Social Behavior*, *30*, 117-130.
- Rys, G. S., & Bear, G. G. (1997). Relational aggression and peer relations: Gender and developmental issues. *Merrill-Palmer Quarterly*, *43*(1), 87-106.

- Schultz, D., Izard, C. E., & Bear, G. (2004). Children's emotion processing: Relations to emotionality and aggression. *Development and Psychopathology, 15*, 371-387.
- Silk, J. S., Steinberg, L., & Morris, A. S. (2003). Adolescents' emotion regulation in daily life: Links to depressive symptoms and problem behavior. *Child Development, 74*(6), 1869-1880.
- Sloboda, Z. (2002). Changing patterns of "drug abuse" in the United States: Connecting findings from macro and microepidemiologic studies. *Substance Use and Misuse, 37*(8-10), 1229-1251.
- Springer, J. F., Sambrano, S., Sale, E., Kasim, R., & Hermann, J. (2002). *The national cross-site evaluation of high-risk youth programs. Making prevention effective for adolescent boys and girls: Gender differences in substance abuse prevention*. Rockville, MD: National Clearinghouse for Alcohol and Drug Information.
- Steinberg, L. (2002). *Adolescence* (6th ed.). Boston: McGraw-Hill.
- Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson/Allyn & Bacon.
- Taylor, M. G., & Carrère, S. (2002). *The child meta-emotion interview and coding system for 7-8 year-olds*. Unpublished manuscript, University of Washington at Seattle.
- Thompson, E. A., Eggert, L. L., Randell, B. P., & Pike, K. C. (2001). Evaluation of indicated suicide risk prevention approaches for potential high school dropouts. *American Journal of Public Health, 91*(5), 742-752.

- Thompson, R. A. (1991). Emotional regulation and emotional development. *Educational Psychology Review*, 3(4), 269-307.
- Tomada, G., & Schneider, B. H. (1997). Relational aggression, gender, and peer acceptance: Invariance across culture, stability over time, and concordance among informants. *Developmental Psychology*, 33(4), 601-609.
- Tremblay, R. E. (2000). The development of aggressive behavior during childhood: What have we learned in the past century? *International Journal of Behavioral Development*, 24(2), 129-141.
- Walden, T. A., & Smith, M. C. (1997). Emotional regulation. *Motivation and Emotion*, 21(1), 7-25.
- Webster-Stratton, C., & Smith, M. C. (1997). Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children. *Prevention Science*, 2(3), 165-192.
- Werner, N. E., & Crick, N. R. (2004). Maladaptive peer relationships and the development of relational and physical aggression during middle childhood. *Social Development*, 13(4), 495-514.
- Zahn-Waxler, C., Park, J. H., Essex, M., & Slattery, M. (2005). Relational and overt aggression in disruptive adolescents: Prediction from early social representations and links with concurrent problems. *Early Education and Development*, 16(2), 259-282.
- Zeman, J., Shipman, K., & Penza-Clyve, S. (2001). Development and initial validation of the children's sadness management scale. *Journal of Nonverbal Behavior*, 25, 187-205.

Zeman, J., Shipman, K., & Suveg, C. (2002). Anger and sadness regulation: Predictions to internalizing and externalizing symptoms in children. *Journal of Clinical Child and Adolescent Psychology, 31*(3), 393-398.

APPENDIX A

Children's Social Behavior Scale-Teacher Form (Crick, 1997)

Instructions: Please read each of the statements below. Then use the following boxes to indicate to what extent you believe each statement is true for the child you are evaluating.

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Do Not Know
1. Child cheers up others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. When the child is mad at a person, (s)he ignores them or stops talking to them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Child tells other kids that (s)he will beat them up unless the kids do what (s)he says.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Child helps others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Child calls others mean names	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Child tells friends (s)he will stop liking them unless friends do what (s)he says.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Child pushes and shoves others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Child tries to keep certain people from being in their group during activity or play.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Child hits, kicks, or punches others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Child does nice things for others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. When child is mad, (s)he gets even by keeping the person from being in their group of friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Child is a good leader.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Child says mean things to insult others or put them down.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VITA

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