

2010-06-11

# Mediators of the Association Between Risk for Mania and Close Relationship Quality in Adolescents

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UNIVERSITY OF MIAMI

MEDIATORS OF THE ASSOCIATION BETWEEN RISK FOR MANIA  
AND CLOSE RELATIONSHIP QUALITY IN ADOLESCENTS

By

Rebecca S. Siegel

A DISSERTATION

Submitted to the Faculty  
of the University of Miami  
in partial fulfillment of the requirements for  
the degree of Doctor of Philosophy

Coral Gables, Florida

June 2010

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Mediators of the Association Between Risk for Mania  
and Close Relationship Quality in Adolescents

(Ph.D., Psychology)  
(June 2010)

Abstract of a dissertation at the University of Miami.

Dissertation supervised by Professor Annette M. La Greca  
No. of pages in text. (104)

Bipolar disorder is an extremely devastating illness, and increasingly robust evidence indicates that it emerges during adolescence. Also during adolescence, peer relationships, particularly close friendships and romantic relationships, become a central mechanism for social maturation and emotional development. The consequences of mania on the development of peer relationships have received little attention. Thus, the purpose of the current study was to examine the association between mania and close peer relationship quality in a community sample of adolescents. Two types of close peer relationships, close friendships and romantic relationships, were evaluated. In addition, the current study examined two potential mediators of the association between mania and close relationship quality, social skills and social dominance. Due to the substantial overlap between symptoms of mania and Attention Deficit Hyperactivity Disorder (ADHD), and the documented peer relationship difficulties experienced by youth with ADHD, symptoms of ADHD were controlled in study analyses.

Participants were 571 adolescents (57% female; 19% 10<sup>th</sup> grade, 30% 11<sup>th</sup> grade, 51% 12<sup>th</sup> grade; 66% Hispanic, 17% White, 7% African-American and Caribbean American, 4% Asian, and 6% mixed or other ethnicity) from 2 public high schools in the Southeastern United States. Adolescents completed self-report questionnaires during school. The *Hypomanic Personality Scale (HPS)* was used to assess adolescents' risk for

mania. Adolescents reported on their social skills (empathy, cooperation, and assertion) using the *Social Skills Rating System (SSRS)*. The *Social Dominance Scale (SDS)* was used to assess adolescents' tendency to be overly intrusive or dominant in social situations. The *Conners-Wells' Adolescent Self-Report Scale (CASS)* was used to assess adolescents' self-reported symptoms of ADHD. Parent-report was obtained for 50 adolescents by phone interview. Parent-reported symptoms of mania, social skills, and symptoms of ADHD were assessed.

Four hypotheses guided study analyses. First, it was expected that greater levels of mania would be associated with fewer positive qualities and more negative qualities in a close friendship and romantic relationship. Second, it was hypothesized that more symptoms of mania would be associated with poorer social skills and greater levels of social dominance. Third, social skills and social dominance were expected to mediate the association between mania and close relationship quality. Fourth, it was expected that the hypothesized relationships between mania, social skills, social dominance, and close relationship quality would remain significant after controlling for the association between mania and symptoms of ADHD. Gender was examined as a moderator in the main study analyses. Ethnicity and age were used as control variables.

Data analyses were conducted using structural equation modeling with Mplus. Gender was found to be a moderator, and so all study analyses were examined separately for boys and girls. All adolescents reported having at least one close friend. Fifty-four percent ( $n = 307$ ) of adolescents reported having a romantic partner. Analyses examining qualities of adolescents' romantic relationships were conducted using only those adolescents who reported having a romantic partner. In terms of the first hypothesis, for

boys, higher levels of mania were directly associated with more positive qualities in a close friendship, and were also indirectly associated with more positive qualities in both a close friendship and romantic relationship. For girls, higher levels of mania were indirectly associated with more positive qualities in a close friendship, fewer negative qualities in both a close friendship and romantic relationship, and also more negative qualities in both a close friendship and romantic relationship. In terms of the second hypothesis, higher levels of mania were associated with greater empathy for both boys and girls. Higher levels of mania were also associated with more social dominance for both boys and girls. In terms of the third hypothesis, for boys, empathy mediated the association between mania and more positive qualities in a close friendship and romantic relationship. For girls, empathy mediated the association between mania and more positive qualities in a close friendship, and also mediated the association between mania and fewer negative qualities in a close friendship and romantic relationship. For girls, assertion also mediated the association between mania and fewer negative qualities in a close friendship. Finally, for girls, social dominance mediated the association between mania and more negative qualities in both a close friendship and romantic relationship. With regard to the fourth hypothesis, despite significant associations with some study variables, the associations described above remained significant with symptoms of ADHD entered as a control variable in the models.

Findings suggest that empathy is an important strength associated with risk for mania in both boys and girls. Through empathy, close friendship and romantic relationship quality was positively associated with risk for mania in boys and girls. Social dominance was also strongly associated with risk for mania in both boys and girls,



indicating that social dominance might be one way to differentiate emerging mania from other disorders, such as ADHD, in adolescents. Social dominance, however, was only associated with relationship quality for girls, and specifically, was associated with more negative qualities in both close friendships and romantic relationships. This may be one area, therefore, that girls at-risk for mania might be able to target in order to improve peer relationships. Future research might examine these associations longitudinally in order to determine causality. Additionally, studying close peer relationship quality in adolescents diagnosed with bipolar disorder would be of interest in future research.

## ACKNOWLEDGEMENTS

I would like to thank my mentor, Dr. Annette La Greca, for her guidance and dedication to this project and to my graduate training. I would also like to thank my dissertation committee for their careful review and insightful suggestions. I am grateful to my parents and my husband, Jon, for their love and support. Finally, I would like to thank Lucy for making me laugh and providing me with endless distractions, especially when I didn't know I needed them.

## TABLE OF CONTENTS

List of Tables	vi
List of Figures	vii
<b>CHAPTER 1: INTRODUCTION</b>	<b>1</b>
Mania in Youth	2
Close Relationships in Adolescence	5
Peers and Mania in Youth	7
Social Skills	9
Social Dominance	10
Current Study	13
Hypotheses	14
Additional Considerations	15
<b>CHAPTER 2: METHOD</b>	<b>18</b>
Participants	18
Procedure	18
Adolescent-Completed Measures	20
Parent-Completed Measures	26
Data Analytic Plan	28
<b>CHAPTER 3: RESULTS</b>	<b>29</b>
Preliminary Analyses	29
Correlations	32
Overview of Main Study Analyses	32
Complete Model	33
Control Variables	39
Exploratory Analyses	39
Parent-Reported Variables	40
<b>CHAPTER 4: DISCUSSION</b>	<b>45</b>
Positive Association between Mania and Close Relationships	46
The Role of Empathy	49
Negative Association between Mania and Close Relationship Quality through Social Dominance	52
Symptoms of ADHD	57
Clinical Implications	59
Limitations and Future Directions	62
<b>REFERENCES</b>	<b>66</b>

<b>TABLES</b>	75
<b>FIGURES</b>	83
<b>APPENDICES</b>	
Appendix A: Background Information Questionnaire	86
Appendix B: Hypomanic Personality Scale	89
Appendix C: Social Skills Rating System, Adolescent-Report	92
Appendix D: Social Dominance Scale	94
Appendix E: Network of Relationships Inventory, Revised	95
Appendix F: Conners-Wells' Adolescent Self-Report Scale	97
Appendix G: Child Mania Rating Scale	98
Appendix H: Conners' Parent Rating Scale-Revised	100
Appendix I: Social Skills Rating System, Parent-Report	102

## List of Tables

Table 1: Means and Standard Deviations of Study Variables by Gender	75
Table 2: Study Variables by Romantic Relationships Status	76
Table 3: Correlations Among Study Variables	77
Table 4: Fit Indices for Best-Fitting Models	78
Table 5: Correlations Between Risk for Mania and Empathy Items on the Social Skills Rating System (SSRS)	79
Table 6: Means and Standard Deviations of Parent-Rated Variables	80
Table 7: Adolescent-Reported Study Variables of Adolescents With and Without Parental Participation	81
Table 8: Correlations Among Parent- and Adolescent-Reported Variables	82

## List of Figures

Figure 1: Hypothesized Model	14
Figure 2: Detailed Hypothesized Model	28
Figure 3: Hypothesized Models with Latent Variables Removed	83
Figure 4: Best-Fitting Models for Boys	84
Figure 5: Best-Fitting Models for Girls	85

## Chapter 1: Introduction

Bipolar disorder is a debilitating illness, which often goes untreated for years after the first presentation of symptoms (Craney & Geller, 2003; Hammen & Cohen, 2004; Lewinsohn, Seeley, Buckley, & Klein, 2002). Adolescents with symptoms of mania, the defining feature of bipolar disorder, experience a variety of severe psychosocial impairments even if they do not meet full DSM-IV-TR (American Psychiatric Association, 2000) criteria for bipolar disorder (Lewinsohn et al., 2002). Consequences of mania in adolescence include academic difficulties, frequent hospitalizations, drug and alcohol abuse, and elevated suicide risk (Biederman, Mick, Faraone, & Wozniak, 2004; Brent, Perper, Goldstein, & Kolko, 1988; Lewinsohn et al., 2002). Adolescence also marks a period of development in which peers surpass family as the most significant source of social support (Furman & Burhmester, 1992). Relationships with close friends and romantic partners facilitate identity formation, self-esteem, and emotional maturity (Hartup, 1992; Newcomb & Bagwell, 1995). Some evidence indicates that adolescents with symptoms of mania experience difficulties with peer relationships (Geller et al., 2000; Goldstein, Miklowitz & Mullen, 2006; Siegel, Freeman, La Greca, Johnson & Youngstrom, in preparation; Siegel, La Greca, Shaw & Rothe, 2007). However, the consequences of mania on the development of peer relationships in adolescents are largely unknown.

The current study provided an in-depth examination of the association between risk for mania and quality of close friendships and romantic relationships among a community sample of adolescents. This study focused on two areas of difficulty believed to be driving the core deficits in social functioning, social skills and social dominance.

Prior studies have found social skills deficits in adolescents with symptoms of mania (Goldstein, et al., 2006), but have not examined the effects of poor social skills on peer relationships in these adolescents. The current study examined poor social skills as a mediator between risk for mania and peer relationship dysfunction. Social dominance is a type of social skill and refers to one's tendency to dominate social situations. Social dominance has been linked to bipolar disorder (Gardner, 1982), but its effect on social functioning has not been explored. The current study examined social skills and social dominance as mediators between risk for mania and difficulties in close relationships. Symptoms of Attention Deficit-Hyperactivity Disorder (ADHD) were used as a control variable to identify which social deficits are uniquely related to risk for mania. Despite well-documented social deficits in youth with ADHD (e.g., Bagwell, Molina, Pelham & Hoza, 2001; Greene et al., 2001), it was hypothesized that risk for mania would be associated with social deficits beyond those explained by ADHD symptoms.

### *Mania in Youth*

Increasing evidence suggests that bipolar disorder emerges during childhood and adolescence (Carlson, 2005; Geller, Craney, Tillman & Bolhofner, 2004; Lewinsohn, Klein, & Seeley, 1995; Lewinsohn et al., 2005). In fact, one study found that, in a group of 983 adults with bipolar disorder, 272 (27.7%) experienced their first episode before age 13, while 370 (37.6%) experienced their first episode between 13 and 18 years of age (Perlis, et al., 2004). While the diagnostic criteria for adults are relatively well-established, there has been substantial debate about the diagnostic criteria that constitute mania in children and adolescents (e.g., Biederman, Faraone, et al., 2004; Geller et al., 2004; Youngstrom, Gracious, Danielson, Findling, & Calabrese, 2003). Despite a small



percentage of youth who present with bipolar disorder that adheres to the strict DSM-IV (APA, 2002) criteria, many youth are brought to treatment centers with a cluster of symptoms that resembles mania but does not meet the full diagnostic criteria (Leibenluft, Charney, Towbin, Bhangoo, & Pine, 2003). This phenomenon has been labeled severe mood dysregulation (SMD), and is characterized by chronic irritability and hyperarousal (Leibenluft et al., 2003).

While many youth with SMD have been diagnosed with bipolar disorder in treatment and research settings, it remains unclear whether SMD is, in fact, a subtype of pediatric bipolar disorder. Research is just beginning to examine SMD as a distinct phenomenon independent from bipolar disorder. Brotman and colleagues (2006) examined an epidemiological sample to determine whether youth with SMD were more likely to develop bipolar disorder in young adulthood than youth without SMD. Results indicated that youth (*M* age 10.6 years) with SMD were more likely to have developed a depressive disorder, but not bipolar disorder, in young adulthood (*M* age 18.3 years). In a clinic sample of youth, Brotman and colleagues (2007) compared parental diagnoses of bipolar disorder in youth with SMD and youth with bipolar disorder that adhered to the DSM-IV diagnostic criteria. Results indicated that parents of youth with bipolar disorder (*M* age 11.58 years) were significantly more likely to have bipolar disorder themselves than parents of youth with SMD (*M* age 13.45 years). Although these studies suggest that SMD might, in fact, be distinct from the more narrowly defined pediatric bipolar disorder, more research is needed to determine the long-term outcomes and treatment needs of youth who experience SMD.

Existing literature suggests that, regardless of which definition of pediatric bipolar disorder one uses, youth with symptoms of mania experience significant functional impairment (Carlson & Kashani, 1988; Depue, 1981; Lewinsohn et al., 2002; Lewinsohn et al., 1995). Symptoms of mania in youth are associated with impairment in many areas, even if these symptoms do not meet full DSM-IV diagnostic criteria for bipolar disorder (subthreshold bipolar disorder). Multiple comorbidities, including ADHD, conduct disorder, anxiety disorders, and psychosis often accompany bipolar disorder in youth (Biederman, Mick, Faraone, Van Patten, et al., 2004; Wozniak, Biederman, Kiely, & Ablon, 1995; Youngstrom, Findling, & Calabrese, 2004). Many of these comorbidities, particularly conduct disorder, ADHD, and substance abuse disorders, are also common in youth with subthreshold symptoms of mania (Lewinsohn et al., 2002).

Hospitalizations and legal problems are also concerns for youth with symptoms of mania (Biederman, Faraone et al., 2004). Both typically result from the aggression and violence that often accompanies mania in youth (Biederman, Mick, Faraone, & Wozniak, 2004; Wozniak et al., 1995; Youngstrom, Findling, & Feeny, 2004). Suicidal behavior also accounts for a large portion of the hospitalizations in this population (Brent, et al., 1988). Bipolar disorder is a risk factor for suicide attempts and suicide completion in adolescents (Brent et al., 1988; Lewinsohn et al., 2002), while adolescents with subthreshold symptoms of mania experience more suicidal ideation than those with no psychopathology (Lewinsohn et al., 2002).

Several studies have found that youth with bipolar disorder experience a more severe course than adults suffering from the illness (Geller, et al., 2002). Evidence also indicates that adults who retrospectively report experiencing their first mood episode

during childhood or adolescence have a more severe course of the disorder, greater comorbidity for Axis I disorders, more lifetime mood episodes, greater risk of suicide attempts, and poorer quality of life than those with adult-onset bipolar disorder (Perlis et al., 2004). Despite the extreme functional impairment in youth with symptoms of mania, the social functioning of these youth is largely unknown. This study addressed this gap by examining the association between risk for mania and peer relationship quality in an unselected community sample of adolescents.

### *Close Relationships in Adolescence*

Close friendships and romantic relationships are integral to adolescent development, providing a context in which they can develop a sense of identity and independence (Furman & Buhrmester, 1992). In addition, friendships and romantic relationships in adolescence are likely to influence close relationships during adulthood (Collins, 2003; Connolly & Goldberg, 1999). Close friendships promote cognitive and emotional development in adolescence (Hartup, 1992; Newcomb & Bagwell, 1995), and serve as protective factors against stressful life events (Bukowski & Adams, 2005; East, Hess, & Lerner, 1987). Similarly, romantic relationships allow for the development of intimacy, an integral aspect of identity formation for adolescents (Collins, 2003; Connolly & Goldberg, 1999). In contrast, difficulties with close friendships and romantic relationships are associated with many negative consequences, including poor self-esteem, anxiety, and depression (e.g., Gowen, Feldman, Diaz, & Yisrael, 2004; La Greca & Harrison, 2005).

Of particular importance in adolescents' peer relationships is the quality of close friendships and romantic relationships. Many studies have found an association between

friendship quality, romantic relationship quality, and adjustment in adolescence (e.g., Hussong, 2000; La Greca & Harrison, 2005; La Greca & Mackey, 2007; Waldrip, Malcolm, & Jensen-Campbell, 2008). For example, in a study of high school juniors and seniors, Hussong (2000) examined positive and negative friendship qualities and their association with depression, substance abuse, and positive affect. The study found that positive friendship quality was associated with more positive affect, although negative friendship quality was unrelated to measures of adjustment. In another study of adolescents age 15-19, La Greca and Harrison (2005) examined friendship and romantic relationship quality and their association with symptoms of social anxiety and depression. The study found that both fewer positive qualities and more negative qualities in a close friendship were associated with more feelings of social anxiety, while more negative qualities in both a close friendship and romantic relationship were associated with more symptoms of depression.

In addition to adjustment difficulties, adolescents' close friendship and romantic relationship quality can influence concurrent and future intimate relationships. For example, Connolly, Furman, and Konarski (2000) studied students in grades 9-11 and found that both social support and negative interactions in a close friendship predicted social support and negative interactions in a romantic relationship one year later. The association, however, was fully mediated by romantic relationship quality at Time 1. In addition, positive qualities in romantic relationships, such as intimacy and nurturance, are associated with more stability in adolescent romantic relationships, and also more positive quality relationships in young adulthood (Collins, 2003).

It is important, therefore, to understand the influence of mania on adolescents' functioning in close relationships. In particular, examining the association between risk for mania and qualities of close friendships and romantic relationships in adolescents would provide valuable information that might be used to inform assessment and intervention. With this knowledge, specific areas of difficulty might be identified that could potentially help differentiate emerging mania from other forms of psychopathology in adolescents. In addition, interventions can be designed to target these areas of impairment, perhaps improving the social functioning of these youth and preventing further psychological distress.

#### *Peers and Mania in Youth*

Although largely neglected in the literature, three known studies to date have examined peer relationship functioning in youth with bipolar symptoms (Geller et al., 2000; Siegel, La Greca, et al., 2007; Siegel et al., in preparation), and another has examined the influence of peer relationship stress on the course of bipolar disorder in adolescents (Kim, Miklowitz, Biuckians, & Mullen, 2007). Geller and colleagues (2000) studied the psychosocial functioning of youth, ages 7-16 years, who met DSM-IV-TR symptom criteria for bipolar disorder (APA, 2000), and compared them to youth with ADHD and to healthy community controls. This study used a semi-structured interview administered separately to youth and their mothers to assess relationships with family and friends, as well as other psychosocial variables. Peer variables included number of friends, trouble keeping friends, frequent teasing, and social skills. This study found that participants with bipolar disorder were more likely to report having few or no friends than were ADHD or community control participants. Youth with bipolar disorder were

also reported to have poorer social skills than the other comparison groups. The other peer variables did not differ among the three groups. These results indicated that the close friendships and social skills of youth with bipolar disorder may be impaired, but the results did not point to specific areas of impairment.

Siegel and colleagues (2007) examined the association between mania and peer relationship difficulties in a sample of children and adolescents, ages 10-17, being treated in an outpatient psychiatric clinic. Symptoms of bipolar disorder, internalizing symptoms, attention difficulties, and social skills were measured via parent-report, and peer relationship variables including peer victimization, social anxiety, and quantity and quality of close friendships, were assessed via self-report. Findings revealed that positive qualities in a best friendship were uniquely negatively associated with symptoms of mania, indicating that fewer positive qualities in a best friendship were associated with more symptoms of mania. No associations were found between symptoms of mania and peer victimization or social anxiety.

In a second sample of children and adolescents, ages 11-17 years, being treated in an outpatient psychiatric clinic, Siegel and colleagues (in preparation) examined the association between mania and peer relationship difficulties. Bipolar diagnosis and youth- and parent-reported symptoms of mania and depression were examined as predictors of difficulties with peers, including peer victimization, social anxiety, and quality of close friendships. Findings revealed that more negative qualities in a close friendship, more overt and relational peer victimization, and greater levels of social anxiety were all associated with more symptoms of mania and depression. Having a

diagnosis of bipolar disorder, however, was not associated with peer relationship difficulties.

Finally, Kim and colleagues (2007) examined the influence of psychosocial stress on the course of adolescent bipolar disorder. Life stress was measured at 3-month intervals over the course of one year in 38 adolescents participating in a larger treatment study for bipolar disorder. Factor analysis revealed an “intimate relationships” factor, comprised of chronic stress in family and romantic relationships, and a “peer relationships” factor, comprised of chronic stress in close friendships and social activities. Findings indicated that higher levels of stress in intimate relationships were associated with less improvement in bipolar symptoms (mania and depression), and that higher levels of peer relationship stress were associated with less improvement in symptoms of mania. These findings indicate that difficulties in close friendships and romantic relationships among adolescents with bipolar disorder are associated with a poorer course of the disorder. Findings in the proposed study may point to specific social deficits to target in treatment of adolescents with bipolar disorder.

### *Social Skills*

Social skills are behaviors that allow an individual to interact with others and to avoid negative responses from others (Gresham & Elliott, 1984). Social skills deficits are associated with difficulties in peer relationships in adolescents (Champion, Vernberg & Shipman, 2003), and some evidence suggests that youth with bipolar disorder have social skills deficits (Geller et al., 2000; Goldstein, et al., 2006). In the study described above, Geller and colleagues (2000) found that youth with bipolar disorder exhibited poorer social skills than youth with ADHD and healthy community controls. In another study of

social skills and bipolar disorder, Goldstein and colleagues (2006) assessed social skills knowledge and behavior in adolescents with bipolar disorder. The study found that, although adolescents with bipolar disorder knew the appropriate reactions to social situations when asked during a structured interview, they exhibited poorer social skills in real-life situations than healthy control adolescents, according to both self- and parent-report. Thus, social skills behavior appears to be impaired in adolescents with bipolar disorder, and may be one mechanism through which they experience difficulties in their close friendships and romantic relationships.

It has been well-documented in the literature that youth with ADHD also experience social skills deficits (e. g., Bagwell, et al., 2001; Greene et al., 2001). Nevertheless, findings from Geller and colleagues (2000) indicate that the social skills deficits associated with symptoms of mania are beyond those that can be explained by symptoms of inattention and hyperactivity. The current study examined social skills as a mediator of the association between risk for mania and difficulties with close relationships, controlling for symptoms of ADHD.

### *Social Dominance*

Social dominance is a specific type of social skill. Social dominance refers to the tendency to be overly intrusive or dominant in a social situation (Gilbert, 2005). In animal species, dominance and submission are behaviors that maintain social hierarchies. Status in the social group may shape the tendency to exhibit dominant or submissive behaviors in a conflict situation (Alan & Gilbert, 1997). Submissive behaviors can include avoiding eye contact, crouching, and fleeing the situation, whereas dominant behaviors include staring others down and not submitting to others in an aggressive



encounter (Gardner, 1982; Raleigh, McGuire, Brammer, Pollack, & Yuwiler, 1991). Submissive behaviors may be advantageous for low-ranking individuals, allowing them to conserve energy and form alliances with higher-ranking individuals (Sloman & Gilbert, 2000). According to evolutionary theory, dominance and submission are inherited traits (Gardner, 1982; Edwards & Kravitz, 1997).

The social rank theory of depression links evolutionary theory to mood disorders by hypothesizing that, while all people are innately attuned to social cues regarding dominance and submission, individuals with mood disorders may misinterpret or be overly sensitive to these social cues. Dominant or submissive behavior in people with mood disorders may be out of context and inappropriate to the situation, thus becoming maladaptive and resulting in mania or depression (Gardner, 1982). According to the social rank theory, people with depressive disorders have a biologically based tendency to exhibit submissive behaviors (e.g., avoiding eye contact, running away) or self-deprecating cognitions (e.g., low self-esteem, being overly self-critical). Depression is hypothesized to result when an individual with a genetic predisposition towards submission is involuntarily forced into a position of oppression or a low-ranking social situation (Gilbert, 2000). The social rank theory does not explore the mechanisms behind mania as thoroughly, but hypothesizes that mania is partially caused by dysregulated dominant behavior (Gardner, 1982).

In support of the social rank theory, research has shown that depression is positively correlated with submissive behavior in both clinical and community samples (Allan & Gilbert, 1997). Observations from clinical experience provide preliminary evidence for the link between mania and social dominance. Individuals with bipolar

disorder are often controlling during therapy sessions and also often report dominant behavior in work and their personal life (e.g., arguing with superiors, asserting one's opinion). Dominant behaviors resemble some of the symptoms of mania in the DSM-IV-TR (APA, 2000) such as increased talkativeness, irritability, and grandiosity (Gardner, 1982). Individuals with bipolar disorder, however, typically exhibit dominant behaviors during periods of euthymia, indicating that dominance may be a trait and is not simply a result of current manic symptoms (Gardner, 1982).

Although there is little direct empirical support for the social rank theory, substantial evidence supports the role of serotonergic deficits in both mood disorders (e.g., Yatham, Srisurapanont, Zis, & Kusumakar, 1997) and dominant and submissive behavior in animals (e.g., Arregi, Azipiroz, Fano, & Garmendia, 2006; McGuire, Fawzy, Spar, & Triosi, 2000; Raleigh et al., 1991). In humans, serotonin has also been implicated in dominant behavior, such as increased scores on the assertiveness and boldness subscales of the Catell 16 Factor Personality Inventory (Tse & Bond, 2002). Serotonin may provide neurobiological support for the social rank theory. However, few studies have directly measured the association between submissive behavior and mood disorders.

One known study has provided preliminary evidence that social dominance may be associated with risk for mania in a sample of college students (Siegel, Johnson, & Greenhouse, 2007). In this study, the Social Dominance Scale, a new measure created by Johnson and colleagues (in preparation), was used to assess social dominance. This measure was created based on clinical experience with adults with bipolar disorder, and examples of dominant behavior on the scale include trying to convince or coerce others

(e.g. “When others have not shared my opinion, I’ve tried to change their minds”), approaching strangers (e.g. “I’ve been striking up conversations with strangers”), and difficulties in close relationships as a result of excessive social behavior (e.g. “My spouse, significant other, or best friend and I have been arguing over my social activity”). To assess the relationship between social dominance and symptoms of mania, partial correlations were examined between the social dominance scale and the Hypomanic Personality Scale (HPS; Eckblad & Chapman, 1986), controlling for current symptoms of mania and depression. Partial correlations were highly significant, indicating that socially dominant traits may be associated with risk for mania.

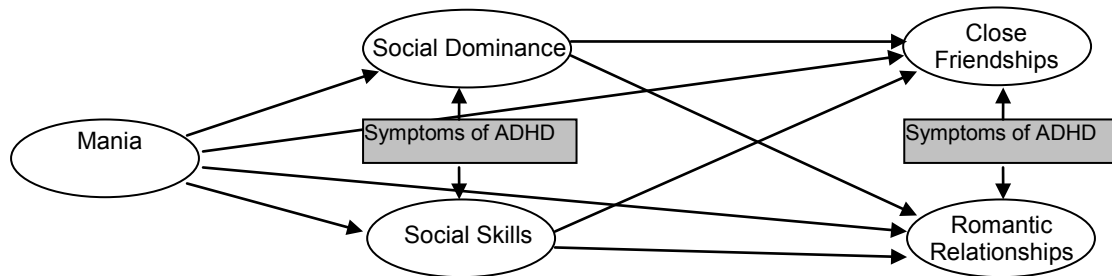
These findings suggest that social dominance is related to risk and does not appear to be state-dependent. It remains unclear, however, whether these socially dominant behaviors influence peer relationships. The proposed study replicated these findings in a sample of adolescents, and also examined social dominance as a mediator of the relationship between mania and close peer relationship quality.

### *Current Study*

Research suggests that adolescents who experience mania also experience difficulties with close peer relationships. The current study expanded upon this knowledge by examining potential mediators of this relationship in an unselected community sample of adolescents. Specifically, since research has found some social skills deficits associated with mania in youth, poor social skills were examined as a mediator of the relationship between mania and close relationship difficulties in adolescents. Additionally, social dominance was examined as a second mediator of this relationship. The current study assessed mania using the Hypomanic Personality Scale

(HPS; see below), which is a self-report measure assessing risk for mania, rather than specific DSM-IV-TR (APA, 2000) symptoms of mania. Therefore, the term “mania” used in the current study will refer to “risk for mania” as measured by the HPS.

*Figure 1: Hypothesized Model (a more detailed model will follow).*



### *Hypotheses*

*Hypothesis 1.* The current study first examined the association between mania and close relationship quality (friendships and romantic relationships) in a community sample of adolescents. Based on current research suggesting that youth with bipolar disorder and symptoms of mania experience peer relationship difficulties (Geller et al., 2000; Kim, et al., 2007; Siegel, La Greca, et al., 2007; Siegel et al., in preparation) it was expected that mania would be related to poorer quality in close friendships and romantic relationships.

*Hypothesis 2.* The second aim of the current study was to determine whether mania was associated with poor social skills and high levels of social dominance. As found in prior studies (Geller et al., 2000; Goldstein, et al., 2006), social skills were expected to be negatively associated with mania. In addition, as hypothesized by the social rank theory (Gilbert, 2005), social dominance was expected to be positively associated with mania.

*Hypothesis 3.* The third aim of the current study was to assess whether social skills and social dominance mediate the relationship between mania and functioning in close relationships. Due to evidence that social skills deficits lead to impairments in peer relationships in adolescents (Champion, Vernberg & Shipman, 2003), it was hypothesized that poor social skills would mediate the relationship between mania and difficulties with close friendships and romantic relationships. Although the relationship between social dominance and peer relationships is unknown, high levels of social dominance were expected to mediate the relationship between mania and difficulties in close relationships.

*Hypothesis 4.* The fourth aim of the current study was to examine the unique associations between mania and these areas of social functioning, beyond what can be explained by symptoms of ADHD. Several studies have shown that youth with symptoms of mania have greater social skills and close relationship deficits than youth with ADHD (Geller et al., 2000; Siegel, La Greca, et al., 2007; Siegel, et al., in preparation). Additionally, social dominance was hypothesized to be specific to mania and not associated with ADHD symptoms. Therefore, it was expected that mania would be associated with poor functioning in close friendships and romantic relationships, poor social skills, and high social dominance, beyond the associations between these variables and symptoms of ADHD.

#### *Additional Considerations*

Age and ethnicity were examined as control variables and gender was examined as a moderator variable in the current study. Age is an important consideration, as adolescence is a time of transition, and significant changes occur within this stage of

development. In adolescence, friends surpass family as the most important source of social support (Furman & Burhmester, 1992). Thus, throughout adolescence, peers take on a more important role and the significance of peer relationships increases as adolescents mature. Additionally, the nature of romantic relationships changes significantly throughout adolescence. Romantic relationships begin primarily as mixed-gender group interactions, gradually changing into dyadic, exclusive relationships in late adolescence (Collins, 2003). In addition, older adolescents are more likely to be dating than younger adolescents (Kuttler & La Greca, 2005). Thus, the meaning and influence of romantic relationships might change throughout adolescence. Finally, the expression of mania might change as adolescents mature, transforming from more chronic irritability to a more episodic presentation (Masi, et al., 2006). Due to the potential differences in peer relationships and mania throughout adolescence, age was used as a control variable in the current study.

Ethnicity was important to control in the current study, as the study was conducted in South Florida, which has a very large Hispanic population. Findings on ethnic differences in the adolescent peer relationship literature have been mixed. Many studies have not found differences in close friendship quality between Hispanic and White adolescents (e.g., Kuttler & La Greca, 2004; La Greca & Harrison, 2005). Romantic relationships, however, may differ by ethnicity, as younger Hispanic adolescent girls have been found to rely less on their romantic partners for support than younger White adolescent girls (Kuttler & La Greca, 2004). In terms of ethnic differences in the presentation of mania in adolescents, no known studies have

specifically compared mania in Hispanic and White adolescents. Nevertheless, ethnicity was used as a control variable in the current study.

In terms of gender, there are many differences in peer relationships between adolescent boys and girls. The nature of girls' and boys' close friendships differs, as girls' friendships are characterized by self-disclosure, while boys typically share activities with close friends (McNelles & Connolly, 1999; Rose & Rudolph, 2006). In addition, previous studies have found that adolescent girls report more positive qualities in their close friendships than boys, while boys report more negative qualities in their close friendships and romantic relationships than girls (La Greca & Harrison, 2005). In terms of mania, differences have not been observed between adolescent boys and girls. Due to gender differences in peer relationships, however, mania may differentially affect girls' and boys' close relationship quality. Thus, gender was examined as a moderator in the current study.

## Chapter 2: Method

### *Participants*

Participants were 571 tenth through twelfth graders recruited from 2 local public high schools in Miami-Dade County. Participants were 57% female, and ranged in age from 15-20 years ( $M_{age} = 17$  years). Inclusion criteria included enrollment in a participating Miami-Dade public high school and written parental consent (if under 18 years of age). Ethnic composition of the sample was 66% Hispanic, 17% White non-Hispanic, 7% African-American and Caribbean American non-Hispanic, 4% Asian, and 6% mixed or other ethnicity.

### *Procedure*

First, approval was obtained from the University of Miami's Institutional Review Board (IRB) and the Miami-Dade Public School system. Informed consent forms, requesting active parental consent for adolescents' participation, as well as letters explaining the study were distributed to students by participating teachers. There was an option on the consent form for parents/guardians to refuse to grant permission for their child to participate in the research study. In addition, the consent form requested permission to contact parents/guardians with questions about their children after the school-based part of the study was completed. Approximately 1400 consent forms were distributed to students, and 55% were returned. Of these students, 640 (83%) were given permission to participate. Of the 640 students who were given permission to participate, 183 parents (29%) gave permission to be contacted themselves with questions about their children.



Data collection occurred at the beginning of the spring semester during two days at each participating school. On the scheduled data collection days, research staff administered questionnaires during every class period of each of the participating teachers. Students who did not have parental permission were either given another classroom assignment by their teacher or were given puzzles to complete by the research staff. Packets of questionnaires were distributed to each student who either had parental permission or was older than 18 and agreed to participate. Packets took approximately one hour to complete. Each packet contained an assent form in addition to the questionnaires. Students who were over 18 years old signed a separate consent form.

Of the 640 students with parental permission, 556 (87%) adolescents completed the questionnaires. The primary reason for non-participation was being absent from school on the day of testing. In addition, students who were older than 18 years and who did not return their parental consent forms were asked if they wished to participate. Forty four over 18-year-old students without parental consent chose to participate. Therefore, 600 students completed the questionnaires. Due to time constraints, however, 28 students did not complete the Hypomanic Personality Scale (HPS), which was the measure of risk for mania. Additionally, one student did not report his or her gender. These 29 students did not differ from the rest of the sample on any demographic variables. Therefore, analyses were conducted on the 571 adolescents who completed these items.

After all data collection at the schools was completed, research assistant interviewers contacted the 183 (29% of the sample) parents who had agreed to answer additional questions about their adolescents. Parents were contacted via email ( $n=33$ ) and telephone ( $n=150$ ) based on the preferred method of contact indicated on the

permission form. Parents either completed the interview at the time of the initial phone call or scheduled a phone interview for a later date based on their preference. Interviewers were given a phone script which briefly explained the study, and administered questionnaires verbally to parents over the phone. The interview took approximately 20 minutes for parents to complete. Although every effort was made to contact the parents who agreed to participate, only 50 parents completed the questionnaires. The primary reason for not completing the questionnaires was not answering the phone or not returning voice messages left by the interviewers. Additionally, a small percentage of parents (approximately 5%) were not fluent English speakers and were not able to complete the interview in English. Finally, some parents refused to complete the interview due to time constraints. Due to the small percentage of parents who completed questionnaires, parent-report was not used in the main study analyses.

Demographic information of adolescents whose parents participated ( $n = 50$ ), agreed to participate but subsequently refused ( $n = 133$ ), and did not agree to participate ( $n = 388$ ) were compared. The three groups did not differ by gender or ethnicity, but did differ by age. Specifically, adolescents whose parents did not agree to participate ( $M_{age} = 17.10$  years) were older than those whose parents did participate ( $M_{age} = 16.62$  years) and were also older than adolescents whose parents agreed to participate, but did not complete the questionnaires ( $M_{age} = 16.77$  years).

#### *Adolescent-Completed Measures*

*Demographics information.* An adolescent-report *Background Information Questionnaire* (see Appendix A) was used to assess age, grade, gender, and ethnicity.

Adolescents were asked to identify their ethnicity from the following categories:

White/Caucasian (not Hispanic), African American (not Hispanic), Caribbean-American, Hispanic or Latino, Asian, and mixed ethnicity/other.

*Risk for mania.* Risk for mania was used as a predictor variable in the analyses, and was assessed using the *Hypomanic Personality Scale* (HPS; Eckblad & Chapman, 1986; see Appendix B). The HPS contains 48 items, each rated as true or false (e.g., “I am frequently so “hyper” that my friends kiddingly ask me what drug I’m taking,” “When I feel an emotion, I usually feel it with extreme intensity”). Items endorsing risk for mania receive a score of 1, while those that do not receive a score of 0, with possible scores ranging from 0-48. The HPS demonstrated acceptable internal consistency (Cronbach’s  $\alpha = .69-.72$ ) and test-retest reliability ( $r = .54$ ; Klein, Lewinsohn & Seeley, 1996) in an adolescent sample. The HPS also demonstrated adequate internal consistency in the current sample ( $\alpha = .74$ ).

The HPS has been widely used with young adults (Eckblad & Chapman, 1986; Kwapil et al., 2000; Mayer & Maier, 2006; Petzel & Rado, 1990), and adolescents (Klein, et al., 1996). In these populations, the HPS has been found to accurately identify a substantial percentage of participants who have experienced past (hypo)mania<sup>1</sup>, and is also able to predict participants who will develop future episodes (hypo)mania. In a study of undergraduate students, 76% of high-scoring participants on the HPS were found to retrospectively report at least one lifetime episode of hypomania (Eckblad & Chapman, 1986). In a longitudinal study of these undergraduates, Kwapil and colleagues (2000) found that 25% of those who had scored at least one standard deviation above the

<sup>1</sup> The term (hypo)mania is commonly used in the bipolar disorder literature to refer to “mania or hypomania.”

mean on the HPS had a diagnosable bipolar disorder thirteen years later. In contrast, none of the average-scorers on the HPS were diagnosed with bipolar disorder (Kwapil et al., 2000).

The HPS contains items that ask about social situations (e.g., “I have often persuaded groups of friends to do something really adventurous or crazy”). In order to avoid overlap between mania, the predictor variable, and social dominance, a mediator variable, a new variable was created removing four items from the HPS that referred to social situations. Results did not change when these items were removed, and so the HPS scale with the social items removed was used as the predictor variable in the study analyses.

*Social functioning.* The measures described below were used as indicators of latent outcome variables and latent mediator variables in the original hypothesized model. The latent mediator variables include (1) social skills, and (2) social dominance, and the latent outcome variables include (3) close friendships, and (4) romantic relationships.

*1. Social skills.* Adolescents’ social skills were examined as a mediator of the relationship between mania and close relationships in the current study. The adolescent-report version of the *Social Skills Rating System* (SSRS; Gresham & Elliott, 1990; see Appendix C) was used to assess adolescents’ social skills. Two subscales of the SSRS adolescent-report questionnaire were used as separate indicators of social skills; cooperation (e.g., “I listen to adults when they are talking with me”) and empathy (e.g., “I say nice things to others when they have done something well”). These subscales were chosen because they were expected to be positively associated with adolescents’ peer

relationships. These two subscales contain ten items each, rated on a scale of 0 (never) to 2 (very often), yielding possible scores for each subscale of 0-20. Adequate internal consistency has been reported for the adolescent-rated SSRS ( $\alpha = .69-.77$ ; Gresham & Elliott, 1990), and was .72 for the cooperation subscale and .76 for the empathy subscale in the current study. Strong test-retest reliability has also been reported for the SSRS ( $r = .68$ ; Gresham & Elliott, 1990).

2. *Social dominance.* Social dominance was examined as a mediator of the relationship between symptoms of mania and difficulties in close relationships. The *Social Dominance Scale* (see Appendix D) is a self-report scale developed by Johnson and colleagues (in preparation) to measure participants' self-perceptions of their tendency to dominate social situations. An adolescent version of this scale was adapted for the current study. The scale is comprised of 16 items (e.g., "I've been insisting that my friends join me in the activities I want to do," "I've been striking up conversations with strangers"). Participants are asked to rate how often they have engaged in each behavior in the past two weeks on a scale of 1 (never) to 5 (always). Scores are obtained by adding the responses to each item, resulting in a possible range of scores from 16-80. Previous research has established acceptable internal consistency (Cronbach's  $\alpha = .81$ ), factor analytic support, and robust correlations with risk for hypomania among young adults in a multiethnic sample (Siegel, Johnson, et al., 2007). Internal consistency in the current study was also acceptable ( $\alpha = .79$ ).

In addition, the assertion subscale of the adolescent-rated *Social Skills Rating System* (SSRS; see above and Appendix C) was used as an indicator of social dominance. Assertion was used as a measure of social dominance rather than social skills because

many of the questions in this subscale are conceptually related to the social dominance construct, and they were highly correlated. The assertion subscale of the SSRS contains 10 items (e.g., “I am confident on dates”) with possible scores ranging from 0-20. Internal consistency for the assertion subscale of the SSRS was adequate in the current study ( $\alpha = .70$ ).

3. *Close friendships.* The quality of participants’ close friendships was used as an outcome variable in the current study. The *Background Information Questionnaire*, described above, also asked adolescents to report on the first name and last initial of each of their closest friends, as well as on the length of each friendship. The length of close friendships, in months, was averaged for each participant, and this variable was used as one indicator of close friendship functioning. The *Network of Relationships Inventory* (NRI-R; Furman & Buhrmester, 1985; see Appendix E) is a self-report measure that was used to assess two indicators of close friendships; positive qualities in a close friendship and negative qualities in a close friendship. A shortened version of the NRI-R, containing 13 items, was used in this study (Harrison & La Greca, 2005). Each item on the NRI-R is rated on a scale of 1 (little or none) to 5 (the most), asking adolescents to rate the degree that statements apply to their best friendships. These items comprise two composite scores, one assessing positive qualities in a best friendship (e.g., “How sure are you that this relationship will last no matter what?”) and the other assessing negative qualities in a best friendship (e.g., “How much do you and this person disagree and quarrel?”), which served as two indicators of close friendship functioning. Composite scores are calculated by averaging participants’ responses to each of the items, and possible scores for each composite range from 1-5. Both composite scores of the NRI-R

have an alpha  $> .90$  and a test-retest reliability of .66-.70 (Furman, 1996). The NRI-R has also demonstrated excellent reliability and validity in many multiethnic studies in Miami-Dade (e.g., La Greca & Harrison, 2005). In the current study both positive and negative qualities in a best friendship demonstrated adequate internal consistency ( $\alpha$ 's = .80 and .86 respectively).

*4. Romantic relationships.* Quality of romantic relationships was used as a second outcome variable in the current study. The shortened version of the *Network of Relationships Inventory* (NRI-R; see above and Appendix E) was used to assess two indicators of romantic relationships, if adolescents were currently in a romantic relationship; positive qualities in a romantic relationship (e.g., “How much does this person really care about you?”), and negative qualities in a romantic relationship (e.g., “How much do you and this person get annoyed with each other’s behavior?”). As with friendship qualities, internal consistency in each of these subscales was adequate ( $\alpha$ 's = .86 and .90). Adolescents who had more than one romantic partner were instructed to respond to the questions for their closest romantic relationship.

*Symptoms of ADHD.* Symptoms of ADHD were used as a control variable in the analyses, and were assessed using the *Conners-Wells’ Adolescent Self-Report Scale* (CASS; Conners, Wells, Parker, Sitarenios, Diamond, & Powell, 1997; see Appendix F). The CASS is a 64-item questionnaire rated on a scale of 0 (Not at all true) to 3 (Very much true), yielding possible scores of 0-192. The CASS is comprised of six subscales, and a DSM-IV-TR ADHD index. Only the ADHD index was used in this study, which is comprised of 17 items (e.g., “I am distracted when things are going on around me,” “I have trouble playing or doing leisure activities quietly”). Possible scores range from 0-

51. Coefficient alphas for the CASS on a sample of 12-17-year-old adolescents ranged from .83-.92. In the current study, internal consistency on the CASSS was also acceptable ( $\alpha = .87$ ). On a sample of adolescents with and without ADHD, this index significantly differentiated between ADHD and non-ADHD participants (Conners et al., 1997).

#### *Parent-Completed Measures*

Parent-reported measures were obtained in order to assess mania, ADHD, and social skills via multiple informants in the original proposed model. Due to the small percentage of adolescents whose parents completed the interviews (8.3%), the parent-rated variables were not used to evaluate the hypothesized model. Nevertheless, the following parent-report measures were used for secondary analyses in the current study.

The *Child Mania Rating Scale-Parent-Rated Version* (CMRS-P; Pavuluri, Henry, Denvineni, Carbray, & Birmaher, 2006; see Appendix G) was used to assess parent-rated symptoms of mania. The CMRS-P is a 21-item mania rating scale that was designed to be completed by parents of children and adolescents. Each item is answered on a scale of 0 (Never/Rare) to 3 (Very Often), and possible scores range from 0-63. The items on the CMRS-P assess DSM-IV-TR (APA, 2000) criteria for bipolar disorder, and also include child-specific bipolar disorder symptoms, such as rage attacks, intense prolonged temper tantrums, and rapid mood swings (e.g., Does your child... “Feel irritable, cranky, or mad for hours or days at a time?” “Have periods of feeling super happy for hours or days at a time, extremely wound up and excited, such as feeling ‘on top of the world?’”). The CMRS-P is the first parent-report measure that was specifically designed to assess bipolar disorder in children and adolescents, rather than adapting an existing measure of adult



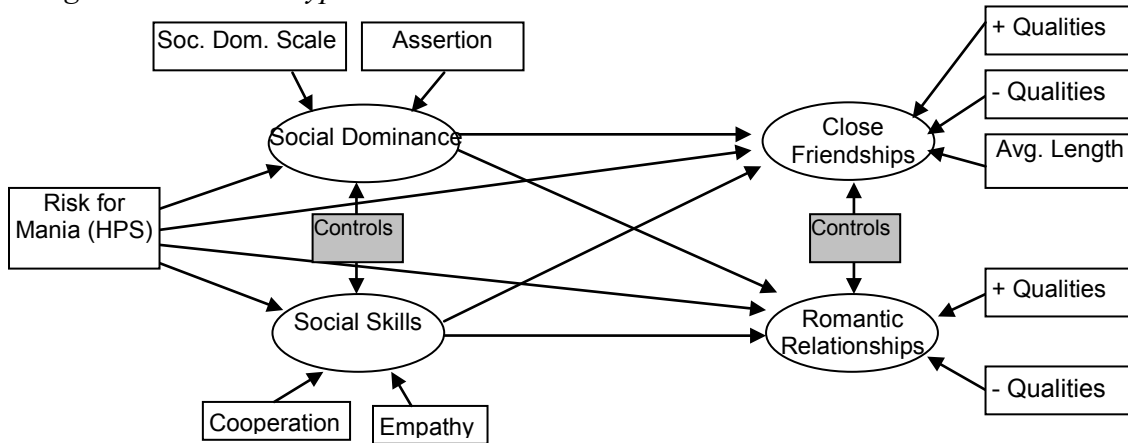
mania symptoms for use with youth. The CMRS-P has excellent internal consistency (Cronbach's  $\alpha = .96$ ) and one-week test-retest reliability (.96) (Pavuluri, et al., 2006). In the current study, the CMRS-P demonstrated acceptable internal consistency ( $\alpha = .70$ ). Additionally, the CMRS-P correlates highly with clinician-rated measures of mania in children and adolescents (Pavuluri et al., 2006).

The *Conners' Parent Rating Scale-Revised* (CPRS-R; Conners et al., 1998; see Appendix H) was used to measure parent-reported symptoms of ADHD. The CPRS-R is a 57-item questionnaire with items rated on a scale of 0 (Not true at all) to 3 (Very much true). Only the 18-item ADHD index was used for the current study (e.g., "Talks excessively," "Is always 'on the go' or acts as if driven by a motor"). Coefficient alpha for the ADHD index for parents of 13-17-year-old adolescents was .90-.92, and the 6-week test-retest correlation was .71 (Conners, Sitarenios, Parker, & Epstein, 1998). The CPRS-R demonstrated acceptable internal consistency in the current study ( $\alpha = .84$ ).

The parent-report version of the *Social Skills Rating System* (SSRS; Gresham & Elliott, 1990; see Appendix I) was used to assess adolescents' social skills. The cooperation (e.g., "Helps you with household tasks without being told"), responsibility (e.g., "Appropriately expresses feeling when wronged"), self-control (e.g., "Controls temper in conflict situations with you"), and assertion (e.g., "Is self-confident in social situations such as parties or group outings") subscales from the parent-report version of the SSRS were used in the current study. Each subscale of parent-rated SSRS is comprised of 10 items, rated on a scale of 0 (never) to 2 (very often). Strong internal consistency (Cronbach's  $\alpha$ ) has been reported for the parent-reported subscales (.74-.82), and test-retest reliability is also strong ( $r = .87$ ) (Gresham & Elliott, 1990). In the current

study, the responsibility, self-control, and assertion subscales demonstrated adequate internal consistency ( $\alpha$ 's all = .74). The internal consistency of the responsibility subscale was low ( $\alpha$  = .59).

Figure 2: Detailed Hypothesized Model



**Key:**

HPS = Hypomanic Personality Scale (adolescent-report)

Soc. Dom. Scale = Social Dominance Scale

Assertion = Adolescent-reported assertion

Avg. Length = Average length

+ Qualities = Positive qualities

- Qualities = Negative qualities

Controls = Age, Ethnicity, adolescent-reported ADHD symptoms

*Data Analytic Plan*

First, preliminary analyses were conducted to examine means and standard deviations of variables by gender and ethnicity. Second, correlations among study variables were conducted by gender. Third, the hypothesized model was evaluated using structural equation modeling with MPlus (Muthén & Muthén, 2008). The hypothesized model was evaluated in two steps: tests of the measurement model and tests of the structural model. Model fit was evaluated based on the chi-square goodness of fit index, CFI, RMSEA, and SRMR. Gender was also examined as a moderator of the hypothesized model. Fourth, the original hypothesized model was modified where indicated.

## Chapter 3: Results

### *Preliminary Analyses*

Data was examined for multivariate outliers, normality, and multicollinearity. No outliers were identified, and all variables were normally distributed (e.g., skewness < 3, kurtosis < 8). In addition, there was no evidence of multicollinearity in the data.

*Descriptive statistics.* Means and standard deviations of all study variables were computed by gender and can be found in Table 1. Scores on the Hypomanic Personality Scale (HPS) in the current study were slightly higher for girls and boys than reported in previous studies of adolescents in Germany (Krumm-Merabet & Meyer, 2005) and the United Kingdom (Cooke & Jones, 2009). Only 24 adolescents (4%) scored above the cutoff score (36 or higher) used in previous studies to indicate individuals at-risk for bipolar disorder (Kwapil, et al., 2000).

In terms of qualities of close friendships and romantic relationships, means are similar to those in previous community samples of adolescents (La Greca & Harrison, 2005). In terms of social skills and social dominance, means for cooperation, empathy and assertion are similar to the norms for adolescents reported for the SSRS (Gresham & Elliott, 1990). Means on the Social Dominance Scale in the current study were higher for girls and boys than reported in a previous study of undergraduate students (Siegel, Johnson, et al., 2007). The current study is the first to use the Social Dominance Scale with an adolescent sample. Finally, in terms of symptoms of ADHD, boys reported higher levels of ADHD than norms, but girls reported similar levels of ADHD to norms, as reported for the CASS (Conners, et al., 1997).

*Description of adolescents' close friendships.* All adolescents reported having a least one close friend. Most adolescents (97%) identified at least two close friends. Approximately half of adolescents (57%) identified at least 5 close friends, and 25% of adolescents identified at least 8 close friends. Adolescent-reported risk for mania was not associated with the number of close friends identified. Eighty three percent ( $n = 474$ ) of adolescents identified a same-sex friend as their closest friend. Of those who identified an opposite-sex closest friend, 57 (60%) were girls. Adolescents who reported an opposite-sex closest friend had more positive qualities in a romantic relationship than those with a same-sex closest friend. No other study variables differed between adolescents with a same-sex and opposite-sex closest friend. Planned analyses were conducted with and without adolescents who identified an opposite-sex closest friend. Results were unchanged for boys, and most results were unchanged for girls when these adolescents were eliminated.<sup>2</sup>

*Description of adolescents' romantic relationships.* Fifty-four percent ( $n = 307$ ) of adolescents reported having a romantic partner. Moreover, a greater percentage of girls (61%) than boys (44%) reported having a romantic partner, which is consistent with previous research (e.g., La Greca & Harrison, 2005). Of those adolescents who reported having a romantic partner, 273 (89%) reported having a romantic partner of the opposite sex, 14 (5%) reported a romantic partner of the same sex, and 20 (6%) did not report the gender of their romantic partner. Adolescents who reported having a romantic partner of the same sex reported significantly higher risk for mania than adolescents who reported having a romantic partner of the opposite sex. No other study variables differed between

<sup>2</sup> When the girls who reported an opposite-sex closest friend ( $n = 57$ ) were removed from the analyses, assertion was no longer a significant predictor of negative qualities in a close friendship. All other pathways in the model remained unchanged.

the groups. Study analyses were conducted with and without adolescents who reported a romantic partner of the same sex. Results for boys and girls were unchanged.

Due to the large percentage of adolescents who were not in a romantic relationship, differences between adolescents with and without a romantic partner were examined for all study variables. Table 2 presents study variables separately for adolescents who were and were not in a romantic relationship. Adolescents in a romantic relationship reported more positive qualities in their close friendships, and greater levels of risk for mania, social dominance, empathy, and assertion than adolescents who were not in a romantic relationship.

*Control variables.* Study variables were examined by gender, age, and ethnicity. Many of the study variables differed by gender. Specifically, girls reported higher levels of positive qualities in a close friendship, risk for mania, cooperation, and empathy, while boys reported higher levels of social dominance and negative qualities in a close friendship. Gender was examined as a moderator in the study analyses.

In terms of age, negative qualities in a best friendship, negative qualities in a romantic relationship, average length of friendships, and assertion were all positively correlated with age. Therefore, age was used as a control variable in the planned analyses.

Finally, in terms of ethnicity, Hispanic adolescents reported more positive qualities in their best friendships than non-Hispanic White adolescents. Due to the large percentage of Hispanic participants in the current study, a dichotomous variable was created to represent whether or not participants were of Hispanic ethnicity. This variable was used as a control in the study analyses.

### *Correlations*

Correlations among study variables by gender are presented in Table 3.

Regarding outcome variables, mania was only positively correlated with positive qualities in a close friendship for girls and boys. Regarding mediator variables, mania was positively correlated with social dominance, empathy, and assertion for both girls and boys. Regarding correlations between mediator variables and outcome variables, results differed between girls and boys. For girls, social dominance was significantly positively correlated with both positive and negative qualities in a close friendship.

Assertion was positively correlated with length of friendships, positive qualities in a close friendship and romantic relationship, and negatively correlated with negative qualities in a close friendship. Cooperation was negatively correlated with negative qualities in a close friendship and positively correlated with positive qualities in a romantic relationship. Empathy was positively correlated with positive qualities in a close friendship and negatively correlated with negative qualities in a close friendship and romantic relationship for girls.

For boys, social dominance was significantly positively correlated with positive friendship qualities. Assertion was also positively correlated with positive qualities in a close friendship. Cooperation was positively correlated with positive qualities in a close friendship. Empathy was positively correlated with positive qualities in a close friendship and positive qualities in a romantic relationship for boys.

### *Overview of Main Study Analyses*

The proposed model (Figure 2) was examined using Structural Equation Modeling (SEM) with Mplus version 5.1 (Muthén & Muthén, 2008). Full information

maximum likelihood (FIML) estimates were used to include participants who had missing data, assuming that this data was missing at random. Overall model fit was evaluated based on the chi-square goodness of fit index, CFI (values greater than .90 indicate adequate fit, values greater than .95 indicate very good fit), RMSEA (values between .06 and .08 indicate adequate fit, values below .06 indicate very good fit), and SRMR (values less than .10 indicate adequate fit).

The measurement model was first evaluated to determine whether observed variables were sufficient indicators of the latent variables (friendships, romantic relationships, social dominance, social skills). Fit indices for the measurement model indicated that this model did not fit the data. The indicator variable “average length” of close friendships did not have a sufficient loading onto the close friendship latent variable. When this variable was removed from the model, however, the measurement model still did not fit, despite significant factor loadings for all indicators on their respective latent variables. In addition, correlations among indicators were relatively low in some instances (e.g., positive and negative qualities of friendship,  $r = -.16$ ) or were highly correlated with indicators of more than one latent variable (e.g., assertion with social dominance scale,  $r = .34$ ; assertion with empathy,  $r = .52$ ). The measurement model was evaluated separately by gender, but model fit was also poor for both boys and girls. Therefore, the latent variables were not used, and instead each indicator was used as an observed variable.

### *Complete Model*

A revised version of the hypothesized model was tested using each indicator as an observed mediator or outcome variable (see Figure 3). Due to the relatively low

percentage of adolescents who were in a romantic relationship, two separate SEM models were evaluated to avoid the need to impute the romantic relationships variables for participants who were not in a romantic relationship. The first model used positive and negative qualities of a close friendship as the outcome variables and was conducted using the full sample of adolescents ( $n = 571$ ). The second model used positive and negative qualities of a romantic relationship as the outcome variables and was conducted on the subsample of adolescents who indicated that they were currently in a romantic relationship ( $n = 307$ ; 54%).

Gender was also examined as a moderator for each model. First, gender was used as a grouping variable and each parameter was constrained to be equal between genders. Next, each parameter was unconstrained individually and a chi-square difference test was conducted to evaluate whether freeing that particular parameter improved model fit. A significant improvement in model fit with any freed parameter indicates gender moderation. For both the close friendship and romantic relationship models, many parameters differed between boys and girls, indicating that gender is a moderator and, therefore, the models should be examined separately for boys and girls.

Next, the models were run separately by gender. The close friendship model was examined using the whole sample of girls ( $n = 329$ ) and the whole sample of boys ( $n = 242$ ). The romantic relationships model was examined using girls who were in a romantic relationship ( $n = 201$ ) and boys who were in a romantic relationship ( $n = 106$ ). Figures 4 and 5 present the results of the best-fitting models for each sample. In each model, all non-significant pathways were removed to improve model fit. Additionally, mediator variables were removed if there was no relationship between the mediator and



any other variables. The control variables (age, ethnicity, symptoms of ADHD) were also removed if there was no relationship between each of these variables and any mediator or outcome variables. All models demonstrated adequate model fit (see Table 4).

*Hypothesis 1.* Hypothesis 1 predicted that mania would be associated with fewer positive qualities and more negative qualities in close friendships and romantic relationships. Direct and indirect pathways between mania and qualities of close friendships and romantic relationships were tested in each of the models (see Figures 4 and 5). The only significant direct pathway was between mania and positive qualities in a close friendship for boys ( $\beta = .22, p < .01$ ). Mania also had a significant positive indirect relationship with positive qualities in a close friendship for boys ( $\beta = .10, p = .001$ ) and girls ( $\beta = .12, p < .001$ ) through empathy. In contrast to Hypothesis 1, these relationships were positive, indicating that higher levels of mania predict more positive qualities in close friendships. Mania did not have a significant effect on positive qualities in a romantic relationship for girls or boys.

With regard to negative qualities, mania did not have any significant effects on negative qualities of a close friendship or romantic relationship for boys. For girls, mania had a significant negative effect on negative qualities in a close friendship through assertion ( $\beta = -.06, p = .05$ ), indicating that mania predicts fewer negative qualities in a close friendship, contrary to Hypothesis 1. In agreement with Hypothesis 1, however, mania demonstrated a significant positive effect on negative qualities in a close friendship through social dominance ( $\beta = .13, p < .001$ ), indicating that mania predicts more negative qualities in a close friendship. Similarly, for girls, mania had a significant

negative effect on negative qualities in a romantic relationship through empathy ( $\beta = -.10, p < .01$ ) and a positive effect on negative qualities in a romantic relationship through social dominance ( $\beta = .12, p < .01$ ).

In sum, Hypothesis 1 was partially supported, as mania was associated with more negative qualities in a close friendship and romantic relationship for girls. Contrary to Hypothesis 1, however, mania was not associated with negative qualities in a close friendship or romantic relationship for boys. Also contrary to Hypothesis 1, mania was associated with more positive qualities in a close friendship in boys and girls and fewer negative qualities in a close friendship and romantic relationship in girls. These findings are opposite from the predicted direction of the association between mania and close relationship quality.

*Hypothesis 2.* Second, greater risk for mania was expected to be associated with poor social skills and high levels of social dominance in the current study. In general, looking at Figures 4 and 5, it can be seen that higher levels of mania were associated with better social skills and greater social dominance for both boys and girls. Specifically, for boys, empathy was significantly associated with mania, and this relationship was positive in both the close friendship ( $\beta = .37, p < .001$ ) and romantic relationship ( $\beta = .26, p < .05$ ) models. For girls, empathy was also significantly positively associated with mania in both the close friendship ( $\beta = .36, p < .001$ ) and romantic relationship ( $\beta = .41, p < .001$ ) models. Therefore, the association between empathy and mania was in the opposite direction than predicted. Also contrary to Hypothesis 2, cooperation was not significantly associated with mania in any of the models for boys or girls.

Mania significantly predicted social dominance in all models (see Figures 4 and 5). Additionally, assertion, which was originally predicted to be an indicator of the social dominance construct, was significantly associated with mania in the close friendship model for girls ( $\beta = .50, p < .001$ ) but not the romantic relationship model for girls, or in either of the boys' models.

In summary, mania was significantly associated with empathy in close friendships and romantic relationships for both boys and girls. This association was positive, in contrast with Hypothesis 2. Also contrary to predictions, cooperation was not associated with mania in any of the models tested. In addition, social dominance was positively associated with mania in all four of the models, as predicted. Contrary to hypothesis 2, however, assertion was only associated with mania in one of the four models.

*Hypothesis 3.* Third, social skills and social dominance were hypothesized to mediate the relationship between mania and difficulties with close peer relationships. In general, for boys, social skills (empathy) mediated the relationship between mania and more positive relationship qualities (close friends and romantic relationships) but not negative relationship qualities. For girls, social skills (empathy) mediated the relationship between mania and more positive qualities in a close friendship and between mania and fewer negative qualities in a close friend and romantic relationship. Social dominance also mediated the relationship between mania and more negative qualities in a close friendship and romantic relationship for girls. Finally, assertion mediated the relationship between mania and fewer negative qualities in a close friendship for girls.

Findings partially support Hypothesis 3, as social dominance mediated the relationship between mania and more negative qualities in both close friendships and

romantic relationships for girls. Social dominance did not mediate the association between mania and relationship quality for boys, however.

In terms of social skills, the relationships were in the opposite direction as predicted by Hypothesis 3. Specifically, mania predicted more positive qualities and fewer negative qualities in close relationships through social skills (empathy) in several of the models (see Figures 4 and 5). Also contrary to Hypothesis 3, cooperation did not mediate the association between mania and close relationship quality for boys or girls.

*Hypothesis 4.* Fourth, it was expected that the predicted associations between mania, social skills, social dominance, and close peer relationships would be specific to mania beyond its overlap with symptoms of ADHD. Paths between symptoms of ADHD and all mediator variables and outcome variables were examined. In general, although symptoms of ADHD were associated with many of the mediator and outcome variables, associations between mania, social skills, social dominance, and close relationship quality remained significant when symptoms of ADHD were used as a control variable.

Specifically, for boys, more symptoms of ADHD were significantly associated with less empathy ( $\beta = -.15, p < .05$ ) and more negative qualities ( $\beta = .24, p < .001$ ) in the close friendship model. In the romantic relationships model, more symptoms of ADHD were associated with more negative qualities ( $\beta = .24, p < .05$ ) for boys. For girls, more symptoms of ADHD were significantly associated with less empathy ( $\beta = -.20, p < .01$ ), lower assertion ( $\beta = -.20, p < .01$ ) and more negative qualities ( $\beta = .13, p < .05$ ) in the close friendship model and less empathy ( $\beta = -.25, p < .01$ ) and less cooperation ( $\beta = -.46, p < .001$ ) in the romantic relationships model. Despite these

significant associations, the relationships between mania, social skills, social dominance, and close relationships variables remained significant, thus supporting Hypothesis 4.

#### *Control Variables*

In addition to symptoms of ADHD, age and ethnicity were also used as control variables in the final models (see Figures 4 and 5). Only significant paths between age and ethnicity and study variables were included in the final model. Relatively few relationships with control variables were observed.

In terms of age, for boys, older adolescents reported more negative qualities in their close friendships. There were no associations between age and any study variables in the boys' romantic relationships model. For girls, there were no associations between age and any variables in the close friendships model, and older girls reported more positive qualities in a romantic relationship.

In terms of ethnicity, Hispanic adolescent boys reported more negative qualities in their close friends than White adolescent boys. There were no other significant associations between ethnicity and any of the other study variables.

#### *Exploratory Analyses*

Due to the unexpected positive association between mania and social skills (empathy), correlations between mania and items on the empathy subscale of the Social Skills Rating System (SSRS) were examined (see Table 5). Although most of the correlations were statistically significant due to the large sample size, some empathy items were more highly correlated with mania than others. In particular, it was noted that items that reflect empathic behavior (e.g., "I let friends know I like them by telling or showing them,"  $r = .17, p < .001$ ) were more highly correlated with mania than items that

describe feelings of empathy (e.g., I try to understand how my friends feel when they are angry, upset, or sad,”  $r = .06$ ). These findings will be discussed further in subsequent sections.

#### *Parent-Reported Variables*

The parent-reported variables (symptoms of mania, cooperation, responsibility, self-control, assertion, symptoms of ADHD) were obtained for 50 participants. Two of these participants did not complete the HPS and were excluded from further analyses. Means and standard deviations of the parent-rated variables for the remaining 48 participants can be found in Table 6.

In terms of parent-reported symptoms of mania, scores on the CMRS were substantially below the cutoff score of 20 that has been used to distinguish youth with bipolar disorder from healthy controls and youth with ADHD in previous studies, and no participants scored above this cutoff score (Pavuluri et al., 2006). In fact, the mean for the CMRS in the current study fell between that of the healthy control participants ( $M = 4.42$ ) and participants with ADHD ( $M = 9.94$ ) found by Pavuluri and colleagues (2006), indicating that, most likely, none of the 48 students with parental data experienced clinical levels of mania.

In terms of social skills, parent-reported cooperation, self-control, responsibility, and assertion in the current study were similar to norms reported for the SSRS (Gresham & Elliott, 1990). Parent-reported symptoms of ADHD were also similar to those reported for a community sample of adolescents using the CPRS-R (Conners et al., 1998).

A comparison of adolescent-reported study variables between those whose parents did and did not participate can be found in Table 7. Adolescents whose parents

did not participate reported more negative qualities in their romantic relationships than those with parental participation. No other study variables differed between those whose parents did and did not participate.

Correlations among parent-reported and adolescent-reported study variables for the 48 adolescents with parental participation can be found in Table 8. First, correlations between the variables that were measured with both parent- and adolescent-report were examined. With regard to mania, the correlation between parent- and adolescent-report was low ( $r = .07$ , n.s.). This is consistent with previous research, which has found that parent- and adolescent-reported symptoms of mania are not highly correlated, and that parent-reported symptoms of mania are more predictive of bipolar diagnosis than adolescent-reported symptoms of mania (Youngstrom, Findling, Calabrese, Gracious, et al., 2004; Youngstrom, et al., 2005). The current study, however, assessed adolescent-reported *risk* for mania using the HPS, rather than *symptoms* of mania, as assessed in previous studies (Youngstrom, Findling, Calabrese, Gracious, et al., 2004; Youngstrom, et al., 2005). As mentioned above, the HPS has been found to accurately identify young adults who have experienced past manic or hypomanic episodes (Eckblad & Chapman, 1986) and predict a large percentage of young adults who will develop bipolar disorder longitudinally (Kwapil et al., 2000). No known studies have compared the accuracy of the HPS to parent-reported symptoms of mania. Thus, despite the low correlation between parent- and adolescent-reported mania in the current study, the adolescent-reported “mania” variable used in the main study analyses may be an indication of adolescents who have experienced past or will experience future episodes of mania or hypomania.

In contrast to mania, the correlation between parent- and adolescent-reported symptoms of ADHD was highly significant ( $r = .42, p < .01$ ). Additionally, parent- and adolescent-reported cooperation and assertion had significant, positive correlations ( $r = .33, p < .05$ ;  $r = .35, p < .05$  respectively). Parent- and adolescent-reported symptoms of ADHD, cooperation, and assertion, were each measured using the parent- and adolescent-versions of the same scale (Conners scales for ADHD, SSRS for cooperation and assertion). Previous studies have also found strong correlations between parent- and adolescent-report on these scales (Conners et al., 1998; Gresham & Elliott, 1990).

Next, the association between parent-reported symptoms of mania and adolescents' close relationship quality was examined. In contrast to findings with adolescents (e.g., see Table 3, Figures 4 and 5) parent-reported symptoms of mania were negatively correlated with positive qualities in a close friendship ( $r = -.30, p < .05$ ), indicating that more symptoms of mania were associated with fewer positive qualities. Additionally, for the adolescents who were in a romantic relationship and whose parents participated ( $n = 28$ ), parent-reported symptoms of mania were negatively correlated with negative qualities in a romantic relationship ( $r = -.39, p < .05$ ), indicating that more symptoms of mania were associated with fewer negative qualities. This finding is similar to adolescent girls' reports of mania, but not boys. Parent-reported symptoms of mania were not significantly correlated with negative qualities in a close friendship or positive qualities in a romantic relationship. With regard to the association between parent-reported symptoms of mania and social skills and social dominance, there were no significant correlations between mania and any of these parent- or adolescent-reported mediator variables.



In terms of the association between parent-reported social skills and social dominance and close relationship quality, findings were mixed. Social skills (cooperation, responsibility, self-control) were not associated with any of the close relationship variables. Parent-reported assertion, which was hypothesized to be a measure of social dominance, was highly positively correlated with positive qualities in a romantic relationship ( $r = .45, p < .05$ ). Thus, higher levels of parent-reported assertion were associated with more positive qualities in a romantic relationship. This result is similar to correlations found with adolescent-reported assertion, but only for girls.

Finally, partial correlations among study variables were examined controlling for parent-reported symptoms of ADHD. With regard to the association between parent-reported mania and close relationship quality, none of the correlations remained significant after controlling for symptoms of ADHD. With regard to the association between parent-reported mania and social skills and social dominance, parent-reported mania was significantly correlated with parent-reported responsibility ( $r = .48, p < .05$ ), only after controlling for symptoms of ADHD. Parent-reported mania, however, was not correlated with any of the other parent- or adolescent-rated social skills variables or social dominance. In terms of the association between parent-reported social skills and close relationship qualities, the correlations remained non-significant when controlling for symptoms of ADHD. Finally, the correlation between parent-reported assertion and positive qualities in a romantic relationship was no longer significant after controlling for symptoms of ADHD.

These findings suggest that the significant associations between parent-reported mania and assertion and close relationship quality may be explained by the overlap with

symptoms of ADHD. The association between parent-reported mania and parent-reported responsibility, however, may be unique to symptoms of mania and not the overlap with ADHD. Due to the small sample size used in these analyses, however, results are exploratory and should be interpreted with caution.

## Chapter 4: Discussion

Bipolar disorder is a serious illness that often has its onset during adolescence (Lewinsohn et al., 2002). Many adolescents who suffer from bipolar disorder experience severe psychosocial impairment (e.g., Biederman, Mick, Faraone, & Wozniak, 2004; Brent, et al., 1988; Lewinsohn et al., 2002). One area of psychosocial functioning that has been understudied thus far is close relationship quality of youth with bipolar disorder. Thus, the purpose of the current study was to investigate the association between the quality of close peer relationships and risk for mania in adolescents, and to examine potential mediators of this relationship.

Results support some study hypotheses, while other hypotheses were not supported. As expected, mania was significantly associated with quality of close relationships for both boys and girls indirectly, through the mediator variables. However, these associations were more complex than anticipated, and varied by gender and type of relationships. Specifically, for boys, mania predicted more positive qualities of a friendship and romantic relationship, contrary to the hypotheses, which predicted that mania would be associated with less positive relationship qualities. In addition, empathy was the only variable that mediated this relationship (not cooperation and social dominance, as predicted). For girls' close friendships, mania also predicted more positive qualities through greater empathy, as well as fewer negative qualities through greater assertion. In addition, mania predicted more negative qualities in girls' close friendships through higher levels of social dominance. Similarly, mania predicted fewer negative qualities in girls' romantic relationships through more empathy, and also predicted more negative qualities in girls' romantic relationships through higher levels of

social dominance. The following sections examine each aspect of the model individually and explore the observed gender differences.

*Positive Association Between Mania and Close Relationships*

The current study found positive associations between mania and close relationship quality, suggesting that mania may be associated with positive (rather than negative) aspects of close friendships and romantic relationships in adolescent boys and girls. For boys, mania had a positive association with more positive qualities in romantic relationships and close friendships both directly (in close friendships) and indirectly (in close friendships and romantic relationships). For girls, mania had an indirect positive association with more positive qualities in close friendships and fewer negative qualities in close friendships and romantic relationships. These findings are contrary to study hypotheses and also are different from findings in previous research on bipolar youth.

Geller and colleagues (2000) found that youth with bipolar disorder reported having few or no friends more frequently than comparison samples, and Siegel and colleagues (in preparation) found that mania in a psychiatric outpatient setting predicted more negative qualities in a close friendship. These studies differ from the current study, however, in the samples used. Geller and colleagues (2000) studied only youth diagnosed with bipolar disorder, and Siegel and colleagues (in preparation) examined youth in treatment for psychiatric disorders. The current study, on the other hand, used a community sample of adolescents. Thus, it is possible that symptoms of mania might be beneficial to adolescents who are relatively high functioning, or when they are at moderate levels that are not indicative of diagnosable mania.

Research using the Hypomanic Personality Scale (HPS) with community samples of adolescents and young adults may help to explain the association between mania and close relationships found in the current study. The HPS has been used to study individuals who display subthreshold symptoms of mania, and identify individuals who are at-risk for future (hypo)mania (Eckblad & Chapman, 1986). Studies have shown that adolescents with high scores on the HPS are at increased risk for developing bipolar disorder two years later (Blechert & Meyer, 2005). Only 4% of the sample in the current study scored above the cutoff score that indicates risk for bipolar disorder, however, suggesting that most high-scorers in the current study exhibit only moderate levels of mania. Thus, perhaps moderate levels of mania are associated with positive qualities in adolescents' close peer relationships, while levels indicative of clinical risk may be associated with fewer positive qualities, as predicted.

Two known studies have examined psychosocial functioning in community samples of adolescents using the HPS. In a study of high school and vocational school students in Germany, Krumm-Merabet and Meyer (2005) examined the non-school activities of high- and low-scorers on the HPS. Adolescents who scored high on the HPS (defined as the upper decile, or scores > 30) were found to spend more time with friends outside of school than other adolescents. In another community sample of adolescents, Cook and Jones (2009) examined the association between HPS scores and various mood and behavior difficulties, including difficulties with peers. Peer relationships were evaluated using the "peer problems" subscale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, Meltzer, & Bailey, 1998), which is comprised of questions assessing several domains of peer functioning including having a close friend,

experiencing peer victimization, and being accepted by other adolescents. While adolescents' HPS scores were significantly associated with more conduct and attention difficulties, peer problems were not significantly associated with scores on the HPS. These two studies did not assess the quality of close peer relationships in adolescents. They do, however, indicate that moderate levels of mania might not have a negative effect, and might even have a positive effect, on peer relationships in community samples of adolescents. Thus, perhaps there is a curvilinear association between mania and positive aspects of close peer relationships in adolescents.

Although mania was associated with positive aspects of close relationships for both boys and girls, the only direct relationship was with positive qualities of boys' friendships. This may be due to the differences in the nature of boys' and girls' close friendships. Throughout development, boys typically establish intimacy through shared activities, such as participating in organized sports or competitive activities (Rose & Rudolph, 2006). In contrast, girls establish intimacy through discussion and self-disclosure (McNelles & Connolly, 1999; Rose & Rudolph, 2006). It is possible that the activities that boys share with their friends are more conducive to the types of behaviors that accompany risk for mania, such as excessive talking, increased energy, and elevated mood. In contrast, these behaviors might not be beneficial to the quiet dyadic activities and conversations that characterize girls' friendships.

Mania had a direct relationship with close friendships for boys, but an indirect association with positive aspects of both romantic relationships and close friendships for girls and boys. The primary mediator of these relationships found in the current study was empathy. The following section examines the role of empathy in the association

between mania and positive aspects of close relationships in adolescents, and also examines other potential mediators of this relationship.

### *The Role of Empathy*

Results of the current study indicate that empathy is strongly related to both mania and relationship quality in both boys and girls. In fact, empathy emerged as the only mediator of the association between mania and relationship quality in boys. As expected, greater empathy was associated with more positive qualities and fewer negative qualities in close relationships in both boys and girls. Contrary to study hypotheses, however, higher risk for mania was associated with greater empathy.

It is not surprising that empathy was associated with positive qualities of close friendships and romantic relationships. Research confirms the importance of empathy in close relationships in adolescents and young adults. For example, Wied and colleagues (2007) found that empathy was associated with positive conflict resolution skills within same-sex friendships for adolescents in the Netherlands (Wied, Branje, & Meeus, 2007). In college students' romantic relationships, Davis and Oathout (1987) found that empathy in one partner was significantly associated with satisfaction in the other partner. Cramer (2003) found a similar association between empathy and relationship satisfaction in undergraduate students' romantic relationships. Findings of the current study are consistent with previous studies linking empathy to positive qualities in adolescents' close friendships and romantic relationships.

The positive relationship between mania and empathy is less clear, however, and no known research has examined this association. The specific items on the empathy subscale of the Social Skills Rating System that were correlated with mania might help to

explain this association (see Table 5). Items describing empathic *behavior* were significantly correlated with mania (e.g., “I smile, wave, or nod at others,” “I stand up for my friends when they have been unfairly criticized”) while items describing *feelings* of empathy were not correlated with mania (e.g., “I try to understand how my friends feel when they are angry, upset, or sad,” “I feel sorry for others when bad things happen to them”). Adolescents with higher levels of mania may feel comparable amounts of empathy to others, but perhaps they are more outgoing and sociable, thus providing more opportunity to behave in ways that convey these feelings to their peers. In fact, research has found an association between extraversion and bipolar disorder (e.g., Bagby, et al., 1997) and risk for mania (Meyer, 2002) in adults, providing some evidence for increased sociability associated with mania. Therefore, perhaps the increase in empathic behavior associated with mania serves as one mediator of the association between mania and positive close relationship quality in adolescence.

Other mechanisms may also contribute to the relationship between mania and positive aspects of close relationships in adolescents. Due to extraversion or increased sociability, adolescents at-risk for mania might be more likely to act prosocially towards their friends, just as they may be more likely to act on empathic feelings. Increased energy and activity might result in more social support for friends, particularly in situations that might benefit from spontaneity or an elevated mood such as helping a friend change a flat tire or cheering someone up when he or she is upset. Adolescent romantic relationships might also benefit from such actions, such as more romantic gestures or other acts of social support.



Notably, cooperation was not significantly associated with mania in any of the models. Cooperation was not associated with close friendship quality for boys or girls, and was only associated with positive romantic relationship quality for girls. Although cooperation is a commonly assessed social skill, the type of cooperative skills measured by the SSRS might not be particularly important for close friendships and romantic relationships. For example, some of the questions ask about cooperation with adults (e.g., “I follow the teacher’s directions,” “I listen to adults when they are talking with me”). Perhaps assessing cooperation as it relates specifically to close peer relationships might yield different results.

It is also possible that other types of social skills may be more related to mania and close relationship quality in adolescence. For example, listening skills might be important in order to establish intimacy in both close friendships and romantic relationships. Listening skills may be difficult for adolescents at-risk for mania, who might have a tendency to be overly talkative and dominant in their social interactions. The ability to initiate social interactions may also be an important social skill, as it would help adolescents begin to form connections which might lead to close friendships and romantic relationships. This social skill may be positively associated with mania, as increased sociability may accompany symptoms of mania. Future research might examine other social skills in adolescents, which may be positively or negatively associated with mania, that are significant in establishing and maintaining close friendships and romantic relationships.

Future research might also divide social skills into action-oriented versus more passive skills, as empathy was re-conceptualized for the exploratory analyses in the

current study. Perhaps characterizing social skills in this manner would elucidate the types of behaviors that are more strongly associated with mania, and also determine specific strengths and weaknesses that adolescents at-risk for mania might bring to their peer relationships. It would also be important for future studies to obtain information on adolescents' social skills from multiple informants, such as parents, teachers, and peers. Although adolescents' reports of cooperation in the current study were highly correlated with parent-reported cooperation, no other social skills were assessed via parent- and adolescent-report, and parent data was only available for 48 adolescents. It is likely that outside observers would provide a different perspective on adolescents' social skills, which might further elucidate the association between mania, social skills, and close relationship quality in adolescents.

*Negative Association between Mania and Close Relationship Quality through Social Dominance*

As predicted, mania was strongly associated with social dominance in both boys and girls. The relationship was upheld even when the items on the HPS that referred to social situations were eliminated, indicating that item overlap does not explain the association. This finding is consistent with the social rank theory (e.g., Gardner, 1982; Gilbert, 2005) which hypothesizes that dominant and submissive behavior, although typically evolutionarily adaptive, is dysregulated in individuals who experience mania and depression. The current study is one of the first to operationalize this theory as it relates to dominance and mania. The relationship between mania and social dominance in the current study is also consistent with preliminary research with undergraduate students which also found strong correlations between risk for mania and social

dominance (Siegel, Johnson, et al., 2007). The current study extends previous findings to adolescents.

Also consistent with hypotheses, social dominance mediated the association between mania and difficulties with close peer relationships. This association was only true for girls, however. Specifically, mania predicted more negative qualities in a close friendship and romantic relationship through higher levels of social dominance. Thus, it appears that, while mania predicts more social dominance in both boys and girls, social dominance is negatively associated only with girls' close friendships and romantic relationships. Previous research on social dominance in adolescents has not found gender differences in the effect of dominance on close peer relationships, however. For example, in a study of early adolescents, Hawley, Little, and Card (2007) assessed the friendship quality of individuals high on social dominance, and found that socially dominant boys and girls experienced both more negative and more positive qualities in their best friendships than other adolescents. In a study of early adult (ages 20-21) romantic relationships, Ostrov and Collins (2007) observed the association between social dominance and relationship quality. The study found that social dominance was associated with negative qualities of the romantic relationship. In both of these studies, gender was examined as a potential moderator and no differences were found between males and females.

The current study, contrary to findings from Hawley and colleagues (2007) and Ostrov and Collins (2007), found that only girls' relationships were negatively associated with social dominance. Differences may be explained by the definition of social dominance. While both terms were derived from evolutionary theory on hierarchy in

animal species, previous studies have referred to social dominance as relating to resource control either prosocially, aggressively, or both (Hawley et al., 2007). This view of social dominance is still somewhat adaptive, as dominant individuals enjoy more privileges and are admired more by peers, though it can be damaging to close relationships (Hawley et al., 2007). In contrast, the social rank theory of depression views dominance and submission in relation to mood disorders as being dysregulated and no longer adaptive (Gilbert, 2005). Items from the social dominance scale used in the current study refer to excessive sociability resulting in difficulties with relationships (e.g., “My boyfriend/girlfriend and/or friends have seemed embarrassed by my easy ability to relate to others”), and intrusive, pushy behavior (e.g., “I’ve been giving people advice, even when they don’t ask for it”). Thus, social dominance as it relates to mania may be qualitatively different from social dominance in previous research.

The question still remains, however, why the type of social dominance evaluated in the current study would be associated with only girls’ close relationships. Perhaps the nature of girls’ relationships can shed light on this question. As mentioned above, girls typically participate in quiet dyadic activities with friends characterized by discussion and self-disclosure, while boys’ friendships are characterized by sharing activities (McNelles & Connolly, 1999; Rose & Rudolph, 2006). Thus, excessive sociability or intrusiveness in social situations might be more harmful to girls’ close friendships because it might be more disruptive during these types of interactions. In contrast, boys typically participate in organized sports or other competitive activities, which are hierarchical in nature (Rose & Rudolph, 2006), possibly rendering social dominance less disruptive and problematic. Similarly, when asked about social goals, girls generally

report connection-oriented goals directed towards relationships while boys typically report status-oriented goals including dominance in a social group (Rose & Rudolph, 2006). It appears, therefore, that the behavior associated with social dominance might be more normative for boys than girls, another reason that it might be more damaging to girls' close friendships.

In romantic relationships, similar processes might underlie the association between girls' social dominance and negative qualities of romantic relationships. The differences between boys' and girls' behavior and goals in friendship situations might transfer to interactions with romantic partners (Maccoby, 1990). It may be expected that girls behave in a more connection-oriented manner in a romantic relationship, while it is more normative for boys to interact in a more intrusive way towards romantic partners. In fact, aspects of adolescent romantic relationships, such as relationship quality, have been found to parallel those of adolescents' close friendships (Collins, 2003; Connolly et al., 2000). Perhaps, therefore, the tendency for adolescent boys to act in a more dominant manner than girls in their close friendships transfers to their actions with romantic partners. When an adolescent girl behaves in a more dominant manner, this may be considered non-normative and cause difficulties in a romantic relationship.

It would be of interest for future research to study these associations in adolescents diagnosed with bipolar disorder. Clinical levels of mania may be associated with even higher levels of social dominance, which might be associated with more negative qualities in both boys' and girls' close friendships and romantic relationships. Future studies should also further explore gender differences in the association between social dominance and negative qualities in close friendships and romantic relationships.

Peer-report might shed light on the specific difficulties that arise in the close friendships and romantic relationships of adolescents, particularly girls, who are highly socially dominant. Perhaps obtaining the perspective of adolescents' close friends and romantic partners would elucidate the specific difficulties that characterize the relationships of socially dominant girls.

The current study is the first known study to examine the association between mania, social dominance, social skills, and close peer relationship quality in adolescence. Findings indicate that mania may be associated with more positive qualities in close friendships for both girls and boys, and more positive qualities in romantic relationships for boys, and that this association is mediated by empathy. Additionally, findings suggest that higher levels of mania are associated with more negative qualities in a close friendship and romantic relationship for girls, and that this association is mediated by higher levels of social dominance.

The study provides a first step towards understanding the association between mania and close friendship and romantic relationship quality, and how social dominance and social skills might mediate this association. Future research might extend findings of the current study by examining these associations over time to determine directionality. It is possible that mania influences positive and negative qualities of close friendships and romantic relationships in adolescents. It is also possible, however, that friendship and romantic relationship quality affects adolescents' symptoms of mania, or that there is a bi-directional relationship in which mania influences relationship quality, which in turn affects adolescents' symptoms of mania. In fact, research has found that difficulties with close relationships in adolescents can lead to less improvement in bipolar symptoms over

time (Kim et al., 2007), indicating that peer relationship quality might influence mania. Thus, it is important for future studies to examine these associations longitudinally.

The current study also used all adolescent self-report, as parent data was only available for 48 adolescents. Although it is common in research on adolescent peer relationships to use self-report measures, research on mania in adolescence typically uses parent- in addition to adolescent-report. In addition, since one of the symptoms of mania is inflated self-esteem or grandiosity, it might be expected that adolescents experiencing higher levels of mania would have a less accurate perception of their close relationship qualities, social skills abilities, and social dominance. This was likely not a major issue in the current study, as very few adolescents exceeded the clinical cutoff indicating risk for bipolar disorder. Nevertheless, multiple perspectives on all of these variables would be informative. Thus, future research might extend findings from the current study by utilizing multiple informants, such as parents, peers, and teachers, to assess all of the variables examined in the current study.

#### *Symptoms of ADHD*

Analyses in the current study included symptoms of ADHD to control for the overlap between mania and ADHD. As predicted, many relationships between mania, close relationship quality, and social dominance and social skills remained even after controlling for symptoms of ADHD. Nevertheless, symptoms of ADHD were significantly associated with many of the mediator and outcome variables (see Figures 4 and 5) and, therefore, are important to examine. Specifically, symptoms of ADHD were negatively associated with empathy for boys' and girls' close friendships and girls'

romantic relationships. Symptoms of ADHD were also positively associated with negative qualities in boys' and girls' close friendships and boys' romantic relationships.

Many studies have examined the association between ADHD and peer relationship difficulties in children (e.g., Blachman & Hinshaw, 2002; Hodgens, Cole & Boldizar, 2000). Fewer studies, however, have examined peer relationships in adolescents with ADHD and no known studies have examined ADHD and romantic relationships in adolescents. Studies that have focused on adolescents have consistently found impairments in social skills and peer relationships. For example, Bagwell and colleagues (2001) studied adolescents with no history of ADHD, those with a history of ADHD in childhood, and those with current ADHD. The study found that adolescents with current ADHD had fewer friends and felt less competent in their friendships than the two comparison groups (Bagwell, et al., 2001). Additionally, in a study of adolescent girls, Hinshaw and colleagues (2006) found that girls with ADHD reported poorer social skills, fewer friends, and more peer conflict than girls without ADHD.

Findings from the current study extended previous research by examining the association between symptoms of ADHD and the quality of adolescents' close friendships. Findings indicate that symptoms of ADHD are associated with more negative qualities in both boys' and girls' friendships, but are not associated with positive qualities in boys' or girls' friendships. Additionally, the current study is one of the first to examine the association between symptoms of ADHD and romantic relationships in adolescents. Findings revealed a positive association between symptoms of ADHD and negative qualities in boys' romantic relationships, but no association between symptoms of ADHD and girls' romantic relationship quality.



Although not the focus of the current study, it is apparent that symptoms of ADHD are associated with adolescent peer relationships, and that these associations indicate poorer functioning. Future research might examine potential mechanisms behind these associations. For example, as symptoms of ADHD were negatively associated with empathy in the current study, less empathy might mediate the association between symptoms of ADHD and more negative qualities in close friendships for boys and girls. Empathy was not associated with symptoms of ADHD in the boys' romantic relationships model. Therefore, perhaps another mechanism, such as distractibility, might underlie the association between symptoms of ADHD and negative qualities in a romantic relationship for boys. Studies focusing on ADHD and close friendship and romantic relationship quality in adolescents would be an important area of future research.

#### *Clinical Implications*

Findings from the current study have implications for the assessment and understanding of mania in adolescents. The association between social dominance and mania emerged as one of the most pervasive findings in the current study. While social dominance was strongly associated with mania, it was not associated with symptoms of ADHD. This is significant from a diagnostic perspective, as differentiating symptoms of mania from symptoms of ADHD is often challenging in children and adolescents (Strober, et al., 2006). Social dominance, as defined in the current study, might be used as one indication that an adolescent may be at-risk for mania. This might be particularly helpful for adolescent girls, as social dominance was also associated with negative qualities in close friendships and romantic relationships. Thus, difficulties with close

peer relationships may help identify adolescent girls who are generally at-risk, and then social dominance can be used as a more specific indication of mania.

The current study also provides some insight into the specific social characteristics that might be associated with mania in adolescents. For adolescent girls, mania may be associated with increased negative qualities in both close friendships and romantic relationships. This information can be useful to parents, teachers, and other professionals working with adolescent girls at-risk for developing mania, as difficulty with close peer relationships might accompany these symptoms. An awareness of these difficulties might foster a greater understanding of the pervasive impairment accompanying symptoms of mania in adolescent girls.

In addition to the negative associations between mania and close peer relationship quality for girls, positive associations were found between relationship quality and mania for both boys and girls. Mania was associated with more positive qualities in a close friendship for both girls and boys, more positive qualities in a romantic relationship for boys, and fewer negative qualities in a romantic relationship for girls. These findings indicate that, perhaps, at moderate levels, mania may be associated with improved peer relationship quality. In addition, empathy emerged as the primary mediator between mania and positive qualities in close friendships and romantic relationships. This information is also important knowledge for individuals working with adolescents at-risk for mania, as increased empathy and better peer relationships are significant strengths. These strengths may be used to help adolescents cope with other psychosocial impairment that might accompany risk for mania. For example, perhaps interventions

with at-risk youth could help them channel their mania symptoms in positive ways, such as showing empathy and support, which might in turn benefit their close relationships.

Finally, although the current study did not examine adolescents diagnosed with bipolar disorder, findings may have very tentative implications for treatment of adolescents with or at-risk for bipolar disorder. Mania was only associated with negative qualities in close friendships for girls, indicating that perhaps treatment for girls at-risk for bipolar disorder should focus on relationships with close friends and romantic relationships. In particular, reducing social dominance behavior in girls at-risk for bipolar disorder might help with their close peer relationships. In addition, the strengths that may be associated with mania, more positive qualities in close relationships and empathy, might be utilized in treatment in order to facilitate positive peer relationships. Improved peer relationships in adolescents at-risk for bipolar disorder can provide additional social support to cope with other difficulties accompanying such symptoms, and also help adolescents develop skills that they will need for close relationships in adulthood.

Current treatments for pediatric bipolar disorder often include social skills components as part of treatment. For example, Fristad (2006) targets social skills, including verbal and non-verbal communication, in her treatment protocol for pediatric bipolar disorder. Such social skills are extremely important for all youth to possess and practice, and research has found social skills impairments in children and adolescents with bipolar disorder (Geller et al., 2000; Goldstein et al., 2006). Findings from the current study, however, imply that perhaps there are some elements of peer relationships and social skills that are not impaired in youth with moderate levels of mania. It would

be important to examine empathy and close friendship and romantic relationship quality, which were all positively associated with mania in the current study, in adolescents diagnosed with bipolar disorder. Replications of findings from the current study with this population might suggest areas of improvement for existing treatment protocols.

#### *Limitations and Future Directions*

Although findings from the current study have important implications, several limitations must be considered. First, the proposed study focused on a community sample rather than studying adolescents diagnosed with bipolar disorder. As outlined above, many individuals with bipolar disorder are not diagnosed until many years after their first experiences of mania and depression. Therefore, a community sample may capture individuals who are at-risk for developing bipolar disorder but have not yet received a formal diagnosis. In addition, a clinical sample of adolescents may represent the most severe cases of bipolar disorder. These youth may not have the same amount of exposure to peers as other adolescents depending on their level of impairment, which might confound findings. Nevertheless, only 4% of the current sample scored in the at-risk range for mania on the Hypomanic Personality Scale. Thus, it is important to note that results of the current study do not necessarily apply to adolescents diagnosed with bipolar disorder.

A second limitation of the current study is the measurement of mania on a dimensional scale. The rationale for this approach was due, in part, to the controversy in the field surrounding the appropriate symptoms to include in the diagnosis of pediatric bipolar disorder (Nottelmann et al., 2001) and in part because of the substantial evidence that youth with even mild symptoms of mania are significantly impaired (Carlson &

Kashani, 1988; Klein et al., 1996; Lewinsohn et al., 2002). Using a continuous measure of mania also avoided the need for formal psychiatric diagnosis and avoided the use of arbitrary cut-off scores on rating scales. As mentioned above, adolescents in the current study did not receive a diagnosis of bipolar disorder and, therefore, results cannot be extended to adolescents with bipolar disorder.

Third, the current study used only self-report measures for the variables used in the main study analyses, thus subjecting analyses to shared method variance. The use of self-report measures for close friendship and romantic relationship variables was done by design, as adolescents do not uniformly share details of their close peer relationships with their parents (Solomon, Warin, Lewis & Langford, 2002). Adolescent-reported social functioning may not be accurate, however, particularly for those who experience higher levels of mania symptoms. With regard to symptoms of mania, social dominance, and social skills, parent report was not available due to the low degree of parental participation. Thus, it was not possible to analyze the parent data in more than a very exploratory manner. It was observed, however, that there were some discrepancies between parent and adolescent reports, particularly with regard to mania. Thus, future studies should use parent-report in addition to adolescent-report to assess mania, symptoms of ADHD, and social skills.

Fourth, the sample for the current study was drawn from an ethnically diverse, urban population. The ethnic diversity, particularly the large percentage of Hispanic adolescents, is a strength of the current study. In addition, results in the current study did not differ by ethnicity, and Hispanic and non-Hispanic adolescents had similar means on most variables. Nevertheless, findings do not necessarily generalize to other ethnicities

or to non-urban settings. Future studies might replicate findings of the current study in different settings, examining potential differences between adolescents of different ethnicities.

Fifth, the current study did not control for the gender of adolescents' close friendships and romantic relationships. Findings did not differ significantly when adolescents who identified an opposite-sex close friend were excluded from the close friendship analyses or when adolescents who identified a same-sex romantic partner were excluded from the romantic relationship analyses. This might be due to the small percentages of these adolescents in the sample, however. Thus, future studies might examine potential differences between adolescents with a same- and opposite-sex close friend, and between adolescents with a same- and opposite-sex romantic partner in the association between mania, social skills, social dominance, and close relationship quality.

The current study provides a first step towards understanding the association between mania and close peer relationship functioning in adolescence. Findings indicate that mania may have both positive and negative associations with close friendship and romantic relationship quality in adolescence. Social dominance and social skills may be important mediators of these associations. Findings of the current study have important clinical implications for assessment of mania in adolescents, in addition to improving our knowledge of the potential implications that risk for mania may have on adolescent peer relationships. Future research can extend these findings by studying the close friendships and romantic relationships in a clinical sample of adolescents diagnosed with bipolar disorder. Additionally, future studies should study these constructs longitudinally to

determine whether symptoms of mania predict peer relationships over time, and whether peer relationship difficulties also impact adolescents' risk for mania.

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## Tables

Table 1: Means and Standard Deviations of Study Variables by Gender

Measure	Boys ( <i>n</i> =242)	Girls ( <i>n</i> =329)	Total ( <i>n</i> =571)	F value
Hypomanic Personality Scale (HPS)	24.98 (6.19)	26.26 (6.36)	25.73 (6.31)	5.71*
HPS Without Social Items	21.71 (5.67)	22.89 (5.81)	22.39 (5.77)	5.86*
<b>Social Dominance</b>				
Social Dominance Scale	37.48 (9.33)	35.03 (7.97)	36.05 (8.64)	11.11**
Assertion	13.01 (3.48)	12.43 (3.34)	12.67 (3.41)	3.87*
<b>Social Skills</b>				
Empathy	15.34 (3.15)	16.92 (2.55)	16.25 (2.93)	41.61***
Cooperation	13.45 (3.38)	14.59 (2.81)	14.11 (3.11)	18.44***
<b>Close Friendships</b>				
Positive Qualities	3.85 (.72)	4.29 (.69)	4.10 (.74)	54.90***
Negative Qualities	1.85 (.79)	1.59 (.70)	1.70 (.75)	16.56***
Average Length (months)	53.87 (28.88)	52.57 (28.74)	53.13 (28.75)	.28
<b>Romantic Relationships<sup>1</sup></b>				
Positive Qualities	4.10 (.78)	4.16 (.80)	4.14 (.79)	.38
Negative Qualities	2.04 (.92)	1.92 (.82)	1.96 (.85)	1.39
Symptoms of ADHD	17.84 (8.88)	16.36 (9.21)	16.99 (9.08)	3.71

\**p*<.05, \*\**p*<.01, \*\*\**p*<.001

<sup>1</sup> Includes only adolescents who were in a romantic relationship:  
Boys *n* = 106, Girls *n* = 201, Total *n* = 307

Table 2: *Study Variables by Romantic Relationship Status*

Measure	In a Romantic Relationship ( <i>n</i> =307)	Not In a Romantic Relationship ( <i>n</i> =264)	F value
Hypomanic Personality Scale (HPS)	26.49 (6.25)	24.82 (6.28)	10.12**
HPS Without Social Items	23.14 (5.82)	21.56 (5.63)	10.86**
Social Dominance			
Social Dominance Scale	37.07 (9.03)	34.90 (8.01)	8.91**
Assertion	13.45 (3.17)	11.74 (3.46)	36.39***
Social Skills			
Empathy	16.66 (2.79)	15.75 (3.07)	13.36***
Cooperation	14.31 (3.18)	13.84 (3.10)	2.97
Close Friendships			
Positive Qualities	4.20 (.74)	3.99 (.72)	11.77**
Negative Qualities	1.65 (.76)	1.76 (.73)	3.04
Average Length (months)	52.20 (27.83)	54.32 (29.82)	.77
Symptoms of ADHD	17.36 (9.59)	16.51 (8.46)	1.26

\**p*<.05, \*\**p*<.01, \*\*\**p*<.001

Table 3: Correlations Among Study Variables (girls above diagonal, boys below)

	1	2	3	4	5	6	7	8	9	10	11	12
1. HPS		.99***	.40***	.45***	-.09	.18**	.22***	.12*	.08	-.03	.13	-.00
2. HPS (no social)	.98***		.39***	.44***	-.07	.19**	.23***	.12*	.06	-.04	.13	-.03
3. Corners	.22***	.26***		.29***	-.38***	-.02	.05	-.03	.19***	.02	-.04	.13*
4. Social Dominance	.39***	.39***	.29***		-.03	.23***	.30***	.16**	.17**	.02	.12	.13
5. Cooperation	-.03	-.02	-.38***	-.01		.32***	.27***	.00	-.20***	.02	.18*	-.10
6. Empathy	.24***	.24***	-.02	.23***	.46***		.56***	.33***	-.16**	.10	.14	-.21**
7. Assertion	.21**	.22**	-.09	.38***	.35***	.46***		.25***	-.15**	.11*	.18*	-.06
8. Positive Friendship	.20**	.19**	-.05	.19**	.14*	.35***	.28***		-.18**	.13*	.16*	.02
9. Negative Friendship	.01	.03	.22**	.03	-.13	-.08	-.05	-.04		.03	-.10	.24**
10. Avg. Length	-.10	-.12	.08	.09	-.07	-.08	-.07	.11	-.03		.00	.06
11. Positive Romantic Relationship	.03	.04	-.09	-.11	.10	.24*	.11	.17	-.06	-.11		-.15**
12. Negative Romantic Relationship	.11	.13	.20*	.15	-.13	-.04	-.02	.05	.14	.17	-.29**	

\*p&lt;.05, \*\*p&lt;.01, \*\*\*p&lt;.001

Table 4: *Fit Indices for Best-Fitting Models*

Model	Fit indices	
<b>Boys Close Friendship</b>	Chi-square	35.53 (p > .05)
	CFI	.99
	RMSEA	.02
	SRMR	.03
<b>Boys Romantic Relationship</b>	Chi-square	38.43 (p > .05)
	CFI	.93
	RMSEA	.06
	SRMR	.07
<b>Girls Close Friendship</b>	Chi-square	67.68 (p < .05)
	CFI	.95
	RMSEA	.06
	SRMR	.04
<b>Girls Romantic Relationship</b>	Chi-square	45.75 (p > .05)
	CFI	.98
	RMSEA	.04
	SRMR	.05

Criteria for Fit Indices:

Non-significant chi-square

CFI > .90 (adequate), > .95 (very good)

RMSEA < .08 (adequate), < .06 (very good)

SRMR < .10

Table 5: *Correlations Between Risk for Mania and Empathy Items on the Social Skills Rating System (SSRS)*

Empathy Item	Correlation with Mania (HPS Without Social Items)
I say nice things to others when they have done something well.	.07
I try to understand how my friends feel when they are angry, upset, or sad.	.06
I ask friends for help with my problems.	.17***
I feel sorry for others when bad things happen to them.	.08*
I listen to my friends when they talk about problems they are having.	.09*
I tell other people when they have done something well.	.11*
I smile, wave, or nod at others.	.15**
I stand up for my friends when they have been unfairly criticized.	.14**
I talk things over with classmates when there is a problem or an argument.	.21***
I let friends know I like them by telling or showing them.	.17***

\*p<.05, \*\*p<.01, \*\*\*p<.001

Table 6: *Means and Standard Deviations of Parent-Rated Variables*

Measure	Mean	Standard Deviation
Child Mania Rating Scale	7.78	5.56
Conners Parent Rating Scale	7.23	6.56
Cooperation	13.19	4.07
Responsibility	18.14	1.85
Self-Control	15.83	3.23
Assertion	15.12	3.22

Table 7: *Adolescent-Reported Study Variables of Adolescents With and Without Parental Participation*

Measure	Parental Participation ( <i>n</i> =48)	No Parental Participation ( <i>n</i> =523)	F value
Hypomanic Personality Scale (HPS)	25.58 (6.52)	25.84 (6.29)	1.78
HPS Without Social Items	21.25 (6.00)	22.52 (5.76)	2.14
Social Dominance			
Social Dominance Scale	35.88 (8.44)	36.10 (8.66)	.03
Assertion	12.62 (2.89)	12.65 (3.46)	.01
Social Skills			
Empathy	16.38 (2.61)	16.21 (3.00)	.14
Cooperation	14.23 (2.74)	14.07 (3.19)	.11
Close Friendships			
Positive Qualities	4.12 (.74)	4.10 (.74)	.05
Negative Qualities	1.70 (.71)	1.70 (.75)	.00
Average Length (months)	57.47 (25.95)	52.88 (28.97)	1.10
Romantic Relationships <sup>1</sup>			
Positive Qualities	4.28 (.71)	4.13 (.80)	.98
Negative Qualities	1.57 (.72)	2.00 (.86)	6.59*
Symptoms of ADHD	15.49 (8.36)	17.11 (9.15)	1.42

†*p*<.10, \**p*<.05, \*\**p*<.01, \*\*\**p*<.001

<sup>1</sup> Includes only adolescents who were in a romantic relationship:  
Parental Participation *n* = 28, No Parental Participation *n* = 279, Total *n* = 307

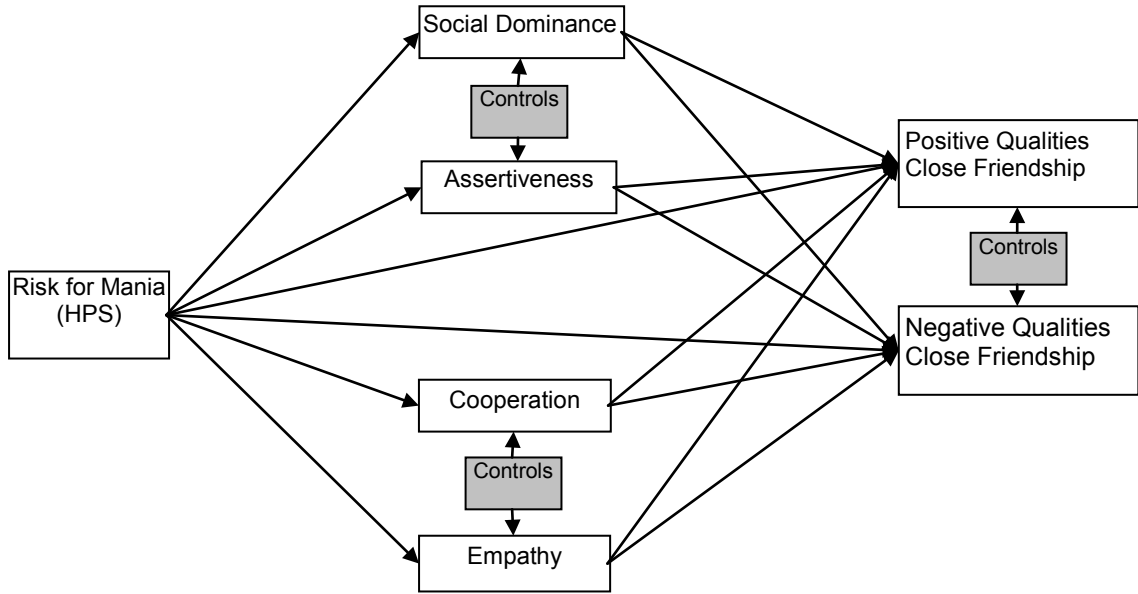
Table 8: *Correlations Among Parent- and Adolescent-Reported Variables (n=48)*

	Parent-Report Symptoms of Mania (CMRS)	Adolescent-Report Symptoms of Mania (CMRS)	Assertion	Cooperation	Responsibility	Self-Control	Symptoms of ADHD
HPS (no social items)	.07	.20	-.18	-.16	-.18	.08	
Social Dominance	.10	.34*	-.06	-.08	-.12	.15	
Assertion	-.05	.35*	-.02	-.09	-.06	.14	
Cooperation	.01	.19	.33*	.27	-.01	-.25	
Empathy	-.14	.33*	-.03	.18	-.02	-.19	
Positive Friendship	-.30*	.06	-.04	.11	.09	-.22	
Negative Friendship	.13	.07	.16	-.03	.06	.06	
Average Length of Friendships	-.10	.15	.17	.25	.26	-.03	
Positive Romantic Relationship	-.01	.45*	.10	.24	.20	-.41*	
Negative Romantic Relationship	-.39*	.19	-.31	-.10	-.01	-.11	
Symptoms of ADHD	.24 <sup>†</sup>	-.08	-.28*	-.39**	-.23	.42**	



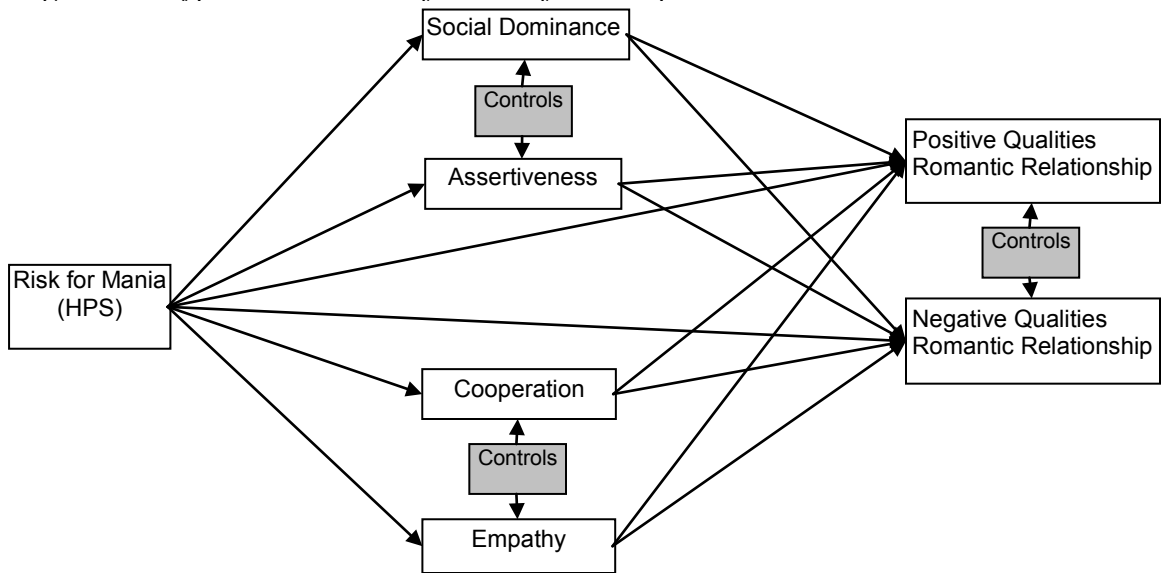
Figures

Figure 3: *Hypothesized Models with Latent Variables Removed*



Controls = Age, Ethnicity, Symptoms of ADHD

Figure 3a: *Hypothesized model for close friendships*



Controls = Age, Ethnicity, Symptoms of ADHD

Figure 3b: *Hypothesized model for romantic relationships*

Figure 4: Best-Fitting Models for Boys

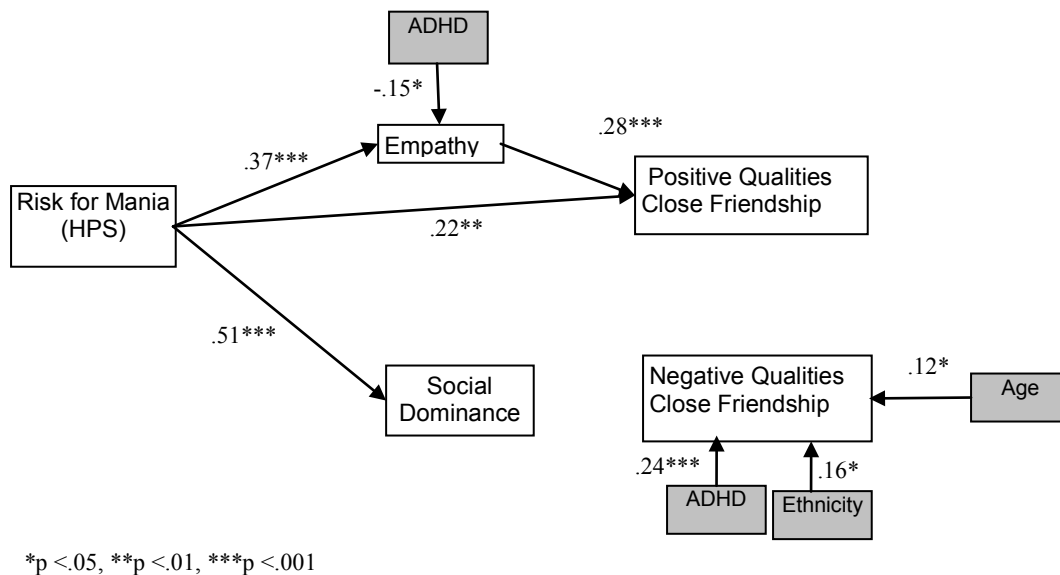


Figure 4a: Best-fitting model for close friendships

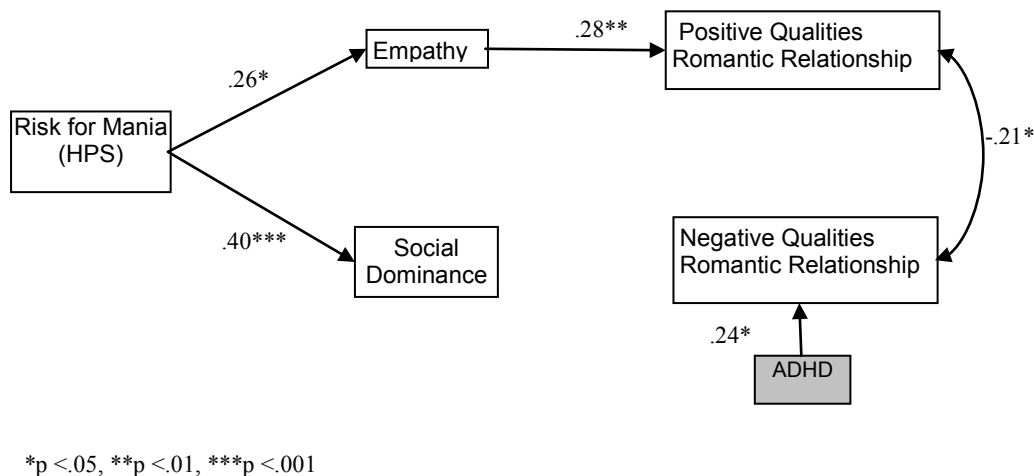
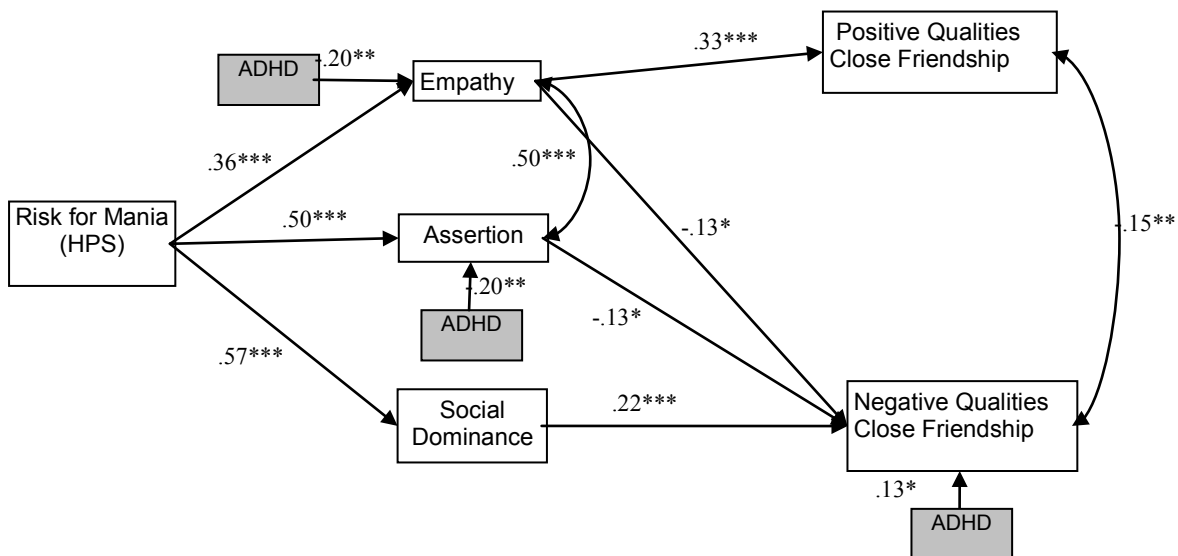


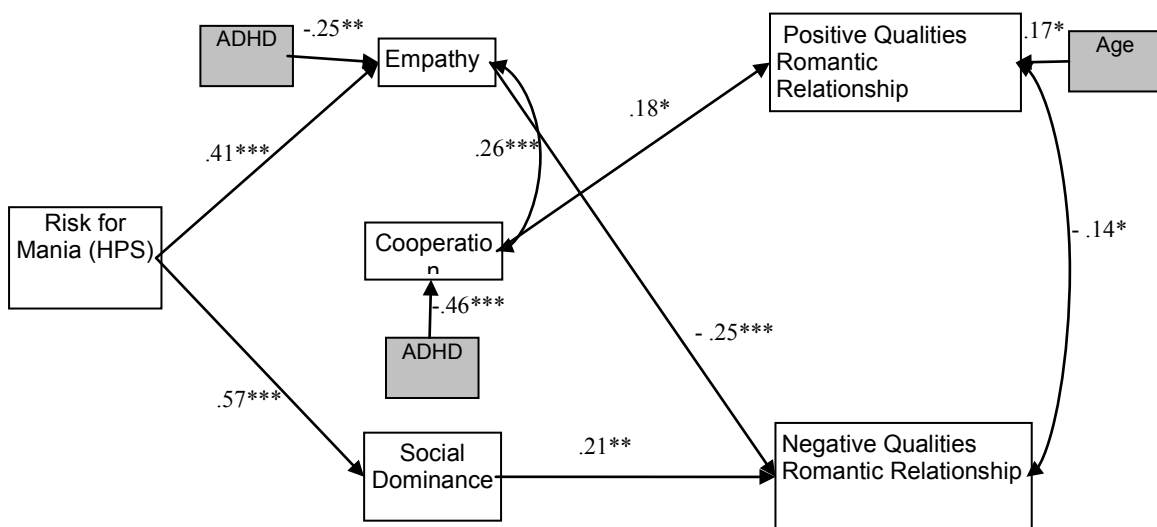
Figure 4b: Best-fitting model for romantic relationships

Figure 5: Best-Fitting Models for Girls



\*p<.05, \*\*p<.001, \*\*\*p<.001

Figure 5a: Best-fitting model for close friendships



\*p<.05, \*\*p<.001, \*\*\*p<.001

Figure 5b: Best-fitting model for romantic relationships

Appendix A

Background Information Questionnaire

1. Gender                    \_\_\_ Male                    \_\_\_ Female
2. Grade                    \_\_\_ 9                    \_\_\_ 10                    \_\_\_ 11                    \_\_\_ 12
3. Date of Birth (Month/Day/Year)                    \_\_\_/\_\_\_/\_\_\_
4. What is your ethnic background? Check the one that BEST fits your background  
  
    \_\_\_ White/Caucasian (not Hispanic)  
    \_\_\_ African American (not Hispanic)  
    \_\_\_ Caribbean-American (e.g., Haitian, Jamaican)  
    \_\_\_ Hispanic or Latino (e.g., Cuban, Columbian, Puerto Rican, Mexican) *circle all that apply*  
    \_\_\_ Asian  
    \_\_\_ Mixed Ethnicity/Other (please list) \_\_\_\_\_
5. From the above list, which ethnicity do you identify with the most?  
    \_\_\_\_\_
6. What language did you FIRST speak as a child? (circle)    English            Spanish            Other  
(explain)
7. Who do you currently live with?  
    \_\_\_ Biological (birth) mom only  
    \_\_\_ Biological (birth) dad only  
    \_\_\_ Both biological parents  
    \_\_\_ Biological mom and her significant other (e.g. step-parent)  
    \_\_\_ Biological dad and his significant other (e.g. step-parent)  
    \_\_\_ Adoptive parents  
    \_\_\_ Other relatives  
    \_\_\_ Other (explain) \_\_\_\_\_
8. How many brothers and sisters do you live with at home?    \_\_\_\_\_
9. How many of them are older than you?    \_\_\_\_\_
10. PARENTS' OCCUPATION (answer the questions about the parent(s), you live with).  
  
    What is your mother's (or step-mother's) occupation? \_\_\_\_\_  
    What is her job title? \_\_\_\_\_  
    What is your father's (or step-father's) occupation? \_\_\_\_\_  
    What is his job title? \_\_\_\_\_

**I.** Starting with your *closest friend*, please complete the information below, about each of your close friends. Start with your very best friend, then your next best friend, and so on. You do not have to list 8 people; just your *closest* friends.

For **ethnicity**, you can use these letters: **W** = White (not Hispanic), **AA** = African-American (not Hispanic), **CA** = Caribbean-American, **H** = Hispanic/Latino, **A** = Asian, **M** = Mixed Ethnicity or other

Friend's first name and last initial	Sex (M or F)	Age	Ethnicity	How Long Have You Been Friends?	Does this person go to the same school as you? (Yes/No)
<i>Example</i> Allison B.	F	17	H	__ 2 __ years, __ 3 __ months	Yes
1.				_____ years, _____ months	
2.				_____ years, _____ months	
3.				_____ years, _____ months	
4.				_____ years, _____ months	
5.				_____ years, _____ months	
6.				_____ years, _____ months	
7.				_____ years, _____ months	
8.				_____ years, _____ months	

**II.** Starting with your *closest relative*, please complete the information below, about each of your family members that you have a *close relationship* with. Start with your very closest relative, then your next closest relative, and so on. You do not have to list 5 people; just your relatives you feel *closest* to.

For **ethnicity**, you can use these letters: **W** = White (not Hispanic), **AA** = African-American (not Hispanic),

**CA** = Caribbean-American, **H** = Hispanic/Latino, **A** = Asian, **M** = Mixed Ethnicity or other

Relative's initials	Sex (M or F)	Age	Ethnicity	How is this person related to you? (Mother, Father, Brother, Sister, etc.)
<i>Example</i> B.C.	F	17	H	Sister
1.				
2.				
3.				
4.				
5.				

**III.** The following questions are about romantic partners, boyfriends or girlfriends, or dating partners.

Please answer questions **1 and 2** *even if you do not* have a boyfriend or girlfriend right now.

1. Do you have a romantic partner, boyfriend/girlfriend, or dating partner right now (circle one)?  
*YES*                      *NO (skip to #2)*

<b>Romantic partner's first name and last initial</b>	<i>Sex</i> ( <i>M or F</i> )	<i>Age</i>	<i>Ethnicity</i>	<b>How Long Have You Been Dating?</b>	<b>Does this person go to the same school as you?</b> (Yes/No)
				____ <i>years</i> ____ <i>months</i>	

2. *Everyone Answer This Question:* How many romantic partners, boyfriends/girlfriends, or dating partners have you ever had (including your romantic partner right now, if you have one)?

\_\_\_\_\_

Appendix B  
Hypomanic Personality Scale (HPS)

Read each statement and decide whether it is true or false for you. Then, circle **T for true and F for false**. Answer according to the way you **usually** act, not the way you might act under the influence of prescription or non-prescription drugs. Please do not disclose any names on this form.

1. I consider myself to be pretty much an average kind of person.	T F
2. It would make me nervous to play the clown in front of other people.	T F
3. I am frequently so “hyper” that my friends kiddingly ask me what drug I’m taking.	T F
4. I think I would make a good nightclub comedian.	T F
5. Sometimes ideas and insights come to me so fast that I cannot express them all.	T F
6. When with groups of people, I usually prefer to let someone else be the center of attention.	T F
7. In unfamiliar surroundings, I am often so assertive and sociable that I surprise myself.	T F
8. There are often times when I am so restless that it is impossible for me to sit still.	T F
9. Many people consider me to be amusing but kind of eccentric.	T F
10. When I feel an emotion, I usually feel it with extreme intensity.	T F
11. I am frequently in such high spirits that I can’t concentrate on any one thing for too long.	T F
12. I sometimes have felt that nothing can happen to me until I do what I am meant to do in life.	T F
13. People often come to me when they need a clever idea.	T F
14. I am no more self-aware than the majority of people.	T F
15. I often feel excited and happy for no apparent reason.	T F
16. I can’t imagine that anyone would ever write a book about my life.	T F
17. I am usually in an average sort of mood, not too high and not too low.	T F
18. I often have moods where I feel so energetic and optimistic that I feel I could outperform almost anyone at anything.	T F

19. I have such a wide range of interests that I often don't know what to do next.	T	F
20. There have often been times when I had such an excess of energy that I felt little need to sleep at night.	T	F
21. My moods do not seem to fluctuate any more than most people's do.	T	F
22. I very frequently get into moods where I wish I could be everywhere and do everything at once.	T	F
23. I expect that someday I will succeed in several different professions.	T	F
24. When I feel very excited and happy, I almost always know the reason why.	T	F
25. When I go to a gathering where I don't know anyone, it usually takes me a while to feel comfortable.	T	F
26. I think I would make a good actor, because I can play many roles convincingly.	T	F
27. I like to have others think of me as a normal kind of person.	T	F
28. I frequently write down the thoughts and insights that come to me when I am thinking especially creatively.	T	F
29. I have often persuaded groups of friends to do something really adventurous or crazy.	T	F
30. I would really enjoy being a politician and hitting the campaign trail.	T	F
31. I can usually slow myself down when I want to.	T	F
32. I am considered to be kind of a "hyper" person.	T	F
33. I often get so happy and energetic that I am almost giddy.	T	F
34. There are so many fields I could succeed in that it seems a shame to have to pick one.	T	F
35. I often get into moods where I feel like many of the rules of life don't apply to me.	T	F
36. I find it easy to get others to become sexually interested in me.	T	F
37. I seem to be a person whose mood goes up and down easily.	T	F
38. I frequently find that my thoughts are racing.	T	F



39. I am so good at controlling others that it sometimes scares me.	T	F
40. At social gatherings, I am usually the “life of the party”.	T	F
41. I do most of my best work during brief periods of intense inspiration.	T	F
42. I seem to have an uncommon ability to persuade and inspire others.	T	F
43. I have often been so excited about an involving project that I didn’t care about eating or sleeping.	T	F
44. I frequently get into moods where I feel very speeded-up and irritable.	T	F
45. I have often felt happy and irritable at the same time.	T	F
46. I often get into excited moods where it’s almost impossible for me to stop talking.	T	F
47. I would rather be an ordinary success in life than a spectacular failure.	T	F
48. A hundred years after I’m dead, my achievements will probably have been forgotten.	T	F

Appendix C  
Social Skills Rating System (SSRS), Adolescent-Report Version

This questionnaire lists a lot of things that students your age do. Please read each sentence and think about yourself. Decide **how often** you do the behavior described. If you **never** do this behavior, circle the **0**. If you **sometimes** do this behavior, circle the **1**. If you **very often** do this behavior, circle the **2**.

Please do not disclose any names on this form.

**0 = Never**

**1 = Sometimes**

**2 = Very Often**

1. I make friends easily.	0	1	2
2. I say nice things to others when they have done something well.	0	1	2
3. I ask adults for help when other children try to hit me or push me around.	0	1	2
4. I am confident on dates.	0	1	2
5. I try to understand how my friends feel when they are angry, upset, or sad.	0	1	2
6. I listen to adults when they are talking with me.	0	1	2
7. I ask friends for help with my problems.	0	1	2
8. I ask before using other people's things.	0	1	2
9. I avoid doing things with others that may get me in trouble with adults.	0	1	2
10. I feel sorry for others when bad things happen to them.	0	1	2
11. I do my homework on time.	0	1	2
12. I keep my desk clean and neat.	0	1	2
13. I am active in school activities such as sports or clubs.	0	1	2
14. I finish classroom work on time.	0	1	2
15. I ask someone I like for a date.	0	1	2
16. I listen to my friends when they talk about problems they are having.	0	1	2
17. I give compliments to members of the opposite sex.	0	1	2

**0 = Never****1 = Sometimes****2 = Very Often**

18. I tell other people when they have done something well.	0	1	2
19. I smile, wave, or nod at others.	0	1	2
20. I start conversations with opposite-sex friends without feeling uneasy or nervous.	0	1	2
21. I let friends know I like them by telling or showing them.	0	1	2
22. I stand up for my friends when they have been unfairly criticized.	0	1	2
23. I invite others to join me in social activities.	0	1	2
24. I use my free time in a good way.	0	1	2
25. I get the attention of members of the opposite sex without feeling embarrassed.	0	1	2
26. I follow the teacher's directions	0	1	2
27. I use a nice tone of voice in classroom discussions.	0	1	2
28. I ask friends to do favors for me.	0	1	2
29. I start talks with classroom members.	0	1	2
30. I talk things over with classmates when there is a problem or an argument.	0	1	2

Appendix D  
Social Dominance Scale – Adolescent Version

Please answer the following questions regarding your **during the past two weeks**.  
Please do not disclose any names on this form.  
Circle your answers to each question according to the following scale:

*Never*                      *Sometimes*                      *Often*                      *Nearly Always*                      *Always*  
1                                      2                                      3                                      4                                      5

1.	I've been maintaining close relationships with my best friends.	1	2	3	4	5
2.	I've been insisting that my friends join me in the activities I want to do.	1	2	3	4	5
3.	I've been striking up conversations with strangers.	1	2	3	4	5
4.	I've been asking people I have just met to join me in a social activity.	1	2	3	4	5
5.	My boyfriend/girlfriend or best friend and I have been arguing over my social activities.	1	2	3	4	5
6.	My boyfriend/girlfriend and/or friends have seemed embarrassed by my easy ability to relate to others.	1	2	3	4	5
7.	When I've had a problem, I prefer to go straight to the person in charge.	1	2	3	4	5
8.	I've cheated on my boyfriend/girlfriend.	1	2	3	4	5
9.	I've stood up for other people that I think have been treated poorly in public places like stores and restaurants.	1	2	3	4	5
10.	I've been giving people advice, even when they don't ask for it.	1	2	3	4	5
11.	I have told off people who have too many items in the "express lane" at the store.	1	2	3	4	5
12.	I have told off healthy-looking people who park in spaces reserved for the disabled.	1	2	3	4	5
13.	I've been giving advice to strangers.	1	2	3	4	5
14.	When others have not shared my opinion, I've tried to change their minds.	1	2	3	4	5
15.	Sometimes I've just had to "set people straight."	1	2	3	4	5
16.	I have shown up early or late for an appointment, and expected to be seen promptly.	1	2	3	4	5

Appendix E  
Network of Relationships Inventory-Revised (NRI-R), Shortened Version

The questions below ask about your relationships with **two people**

The first is your ***best friend***

The second is your ***current romantic partner, boyfriend/girlfriend, or dating partner***, if you are now dating or in a romantic relationship. If you are dating more than one person, please answer the questions for the person you like best or feel closest to.

Please do not disclose any names on this form.

First think about your “best friend” and circle the number that describes your relationship the best. Then do the same for the person you are dating.

Initials of your best friend \_\_\_\_\_ Initials of the Person you are dating \_\_\_\_\_

**Use this scale:**

**1 = Little or none 2 = Somewhat 3 = Very Much 4 = Extremely Much 5= The Most**

	<i>Best Friend</i>	Person You are <i>Dating</i>
1. How much do you and this person get upset with or mad at each other?	1 2 3 4 5	1 2 3 4 5
2. How much do you and this person get on each other's nerves?	1 2 3 4 5	1 2 3 4 5
3. How much does this person treat you like you're admired and respected?	1 2 3 4 5	1 2 3 4 5
4. How sure are you that this relationship will last no matter what?	1 2 3 4 5	1 2 3 4 5
5. How much do you play around and have fun with this person?	1 2 3 4 5	1 2 3 4 5
6. How much do you and this person disagree and quarrel?	1 2 3 4 5	1 2 3 4 5
7. How much does this person help you figure out or fix things?	1 2 3 4 5	1 2 3 4 5
8. How much do you and this person get annoyed with each other's behavior?	1 2 3 4 5	1 2 3 4 5
9. How much do you share your secrets and private feelings with this person?	1 2 3 4 5	1 2 3 4 5
10. How much does this person really care about you?	1 2 3 4 5	1 2 3 4 5

<b>11.</b> How much do you and this person argue with each other?	<b>1 2 3 4 5</b>	<b>1 2 3 4 5</b>
<b>12.</b> How much do you and this person hassle or nag one another?	<b>1 2 3 4 5</b>	<b>1 2 3 4 5</b>
<b>13.</b> How much do you take care of this person?	<b>1 2 3 4 5</b>	<b>1 2 3 4 5</b>



Appendix G  
Child Mania Rating Scale – Parent-Rated Version (CMRS-P)

The first set of questions concern your child’s mood and behavior over the PAST MONTH. Answer each item according to the following scale: 0 = Never; 1 = Sometimes; 2 = Often; 3 = Very Often. Please consider a behavior a problem if it is causing trouble and is beyond what is normal for your child's age. For example, check 'rare or never' if the behavior is not causing trouble.

*0 = Never*  
*1 = Sometimes*  
*2 = Often*  
*3 = Very Often*

*“Does your child...*

- |  |   |   |   |   |
|--|---|---|---|---|
| 1. Have periods of feeling super happy for hours or days at a time, extremely wound up and excited, such as feeling "on top of the world"                                  | 0 | 1 | 2 | 3 |
| 2. Feel irritable, cranky, or mad for hours or days at a time  | 0 | 1 | 2 | 3 |
| 3. Think that he or she can be anything or do anything (for example: leader, best basket ball player, rap singer, millionaire, princess) beyond what is usual for that age | 0 | 1 | 2 | 3 |
| 4. Believe that he or she has unrealistic abilities or powers that are unusual, and may try to act upon them, which causes trouble   | 0 | 1 | 2 | 3 |
| 5. Need less sleep than usual; yet does not feel tired the next day  | 0 | 1 | 2 | 3 |
| 6. Have periods of too much energy   | 0 | 1 | 2 | 3 |
| 7. Have periods when she or he talks too much or too loud or talks a mile-a-minute   | 0 | 1 | 2 | 3 |
| 8. Have periods of racing thoughts that his or her mind cannot slow down , and it seems that your child’s mouth cannot keep up with his or her mind                        | 0 | 1 | 2 | 3 |
| 9. Talk so fast that he or she jumps from topic to topic   | 0 | 1 | 2 | 3 |



10. Rush around doing things nonstop	0	1	2	3
11. Have trouble staying on track and is easily drawn to what is happening around him or her	0	1	2	3
12. Do many more things than usual, or is unusually productive or highly creative	0	1	2	3
13. Behave in a sexually inappropriate way (e.g., talks dirty, exposing, playing with private parts, masturbating, making sex phone calls, humping on dogs, playing sex games, touches others sexually)	0	1	2	3
14. Go and talk to strangers inappropriately, is more socially outgoing than usual	0	1	2	3
15. Do things that are unusual for him or her that are foolish or risky (e.g., jumping off heights, ordering CDs with your credit cards, giving things away)	0	1	2	3
16. Have rage attacks, intense and prolonged temper Tantrums	0	1	2	3
17. Crack jokes or pun more than usual, laugh loud, or act silly in a way that is out of the ordinary	0	1	2	3
18. Experience rapid mood swings				
19. Have any suspicious or strange thoughts	0	1	2	3
20. Hear voices that nobody else can hear	0	1	2	3
21. See things that nobody else can see.	0	1	2	3

Appendix H  
Conners' Parent Rating Scale-Revised (CPRS-R)

“This next set of questions will be asking you about a number of common problems that children have. Please rate each item according to your child’s behavior in the LAST MONTH. For each item, ask yourself, “How much of a problem has this been in the last month?”, and give the best answer for each one. If none, not at all, seldom, or very infrequently, you would answer 0. If very much true, or it occurs very often or frequently, you would answer 3. You would answer 1 or 2 for ratings in between. Please respond to all items.”

- 0 - NOT TRUE AT ALL (Never, Seldom)
- 1 - JUST A LITTLE TRUE (Occasionally)
- 2 - PRETTY MUCH TRUE (Often, Quite a bit)
- 3 - VERY MUCH TRUE (Very Often, Very Frequent)

- |   |   |   |   |   |
|---|---|---|---|---|
| 1. Talks excessively.....   | 0 | 1 | 2 | 3 |
| 2. Fails to give close attention to details or makes careless mistakes in in schoolwork, work, or other activities.....                                 | 0 | 1 | 2 | 3 |
| 3. Has difficulty waiting in lines or awaiting turn in games or group situations.....   | 0 | 1 | 2 | 3 |
| 4. Is always “on the go” or acts as if driven by a motor.....   | 0 | 1 | 2 | 3 |
| 5. Interrupts or intrudes on others (e.g., butts into others’ conversations or games).....  | 0 | 1 | 2 | 3 |
| 6. Forgetful in daily activities.....   | 0 | 1 | 2 | 3 |
| 7. Avoids, expresses reluctance about, or has difficulties engaging in tasks that require sustained mental effort (such as schoolwork or homework)..... | 0 | 1 | 2 | 3 |
| 8. Has difficulty sustaining attention in tasks or play activities...   | 0 | 1 | 2 | 3 |
| 9. Fidgets with hands or feet or squirms in seat.....   | 0 | 1 | 2 | 3 |
| 10. Has difficulty playing or engaging in leisure activities quietly...   | 0 | 1 | 2 | 3 |
| 11. Does not seem to listen to what is being said to him/her.....   | 0 | 1 | 2 | 3 |
| 12. Runs about or climbs excessively in situations where it is inappropriate.....   | 0 | 1 | 2 | 3 |
| 13. Loses things necessary for tasks or activities (e.g., school assignments  |   |   |   |   |

- pencils, books, tools, or toys).....0 1 2 3
14. Does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace (not due to oppositional behavior or failure to understand instructions).....0 1 2 3
15. Has difficulty organizing tasks and activities.....0 1 2 3
16. Leaves seat in classroom or in other situations in which remaining in seat is expected.....0 1 2 3
17. Easily frustrated in efforts.....0 1 2 3
18. Easily distracted by extraneous stimuli.....0 1 2 3

Appendix I  
Social Skills Rating System (SSRS), Parent-Report Version

“These next set of questions are designed to measure how often your child exhibits certain social skills. Please listen to each item and think about your child’s present behavior. Decide how often your child does the behavior described.

If your child never does the behavior, answer 0  
If your child sometimes does this behavior, answer 1  
If your child very often does the behavior, answer 2

	Never	Sometimes	Very Often
1. Starts conversations rather than waiting for others to talk first.	0	1	2
2. Helps you with household tasks without being told.	0	1	2
3. Attempts household tasks before asking for your help.	0	1	2
4. Participates in organized activities such as sports or clubs.	0	1	2
5. Politely refuses unreasonable requests from others.	0	1	2
6. Introduces himself or herself to new people without being told.	0	1	2
7. Uses free time at home in an acceptable way.	0	1	2
8. Says nice things about himself or herself when appropriate.	0	1	2
9. Responds appropriately to teasing from friends or relatives of his or her own age.	0	1	2
10. Responds appropriately when hit or pushed by other children.	0	1	2
11. Volunteers to help family members with tasks.	0	1	2
12. Invites others to your home.	0	1	2
13. Avoids situations that are likely to result in trouble.	0	1	2
14. Makes friends easily.	0	1	2

15. Keeps room clean and neat without being reminded.	0	1	2
16. Completes household tasks within a reasonable time.	0	1	2
17. Shows concern for friends and relatives of his or her own age.	0	1	2
18. Controls temper in conflict situations with you.	0	1	2
19. Ends disagreements with you calmly.	0	1	2
20. Speaks in an appropriate tone of voice at home.	0	1	2
21. Acknowledges compliments or praise from friends.	0	1	2
22. Controls temper when arguing with other children.	0	1	2
23. Appropriately expresses feelings when wronged.	0	1	2
24. Follows rules when playing games with others.	0	1	2
25. Attends to your instructions.	0	1	2
26. Joins group activities without being told to.	0	1	2
27. Compromises in conflict situations by changing own ideas to reach agreement.	0	1	2
28. Puts away belongings or other household property.	0	1	2
29. Waits turn in games or other activities.	0	1	2
30. Uses time appropriately while waiting for your help with homework or some other task.	0	1	2
31. Receives criticism well.	0	1	2
32. Informs you before going out with friends.	0	1	2
33. Follows household rules.	0	1	2
34. Is self-confident in social situations such as parties or group outings.	0	1	2
35. Shows interest in a variety of things.	0	1	2

36. Reports accidents to appropriate persons.	0	1	2
37. Is liked by others.	0	1	2
38. Answers the phone appropriately.	0	1	2
39. Asks sales clerks for information or assistance.	0	1	2
40. Appears self-confident in social interactions with opposite-sex friends.	0	1	2