ABSTRACT

Research on the emotional quality of the parent-adolescent relationship suggests that parental rejection is associated with internalizing problems including symptoms of anxiety and depression. Temperamental dimensions have also been found to be associated with anxious and depressive symptoms. In particular, high levels of negative affectivity, low levels of positive affectivity, and low levels of effortful control have been proposed as risk factors for symptoms of anxiety and depression.

Although aspects of the parental relationship and dimensions of temperament have frequently been studied as unique correlates of internalizing symptoms, few studies have examined the extent to which these factors interact in predicting symptoms of anxiety and depression. The current study sought to examine the extent to which interactive models of temperamental dimensions as well as models of temperamental dimensions and rejection, would predict symptoms of anxiety and depression. The sample investigated included adolescents from the local community between the ages of 11 and 15. The results supported interactive models of temperament in predicting anxious and depressive symptoms. Effortful control moderated the relationship between negative affectivity and symptoms of both anxiety and depression as well as the relationship between positive affectivity and depressive symptoms. In addition, the
interaction of effortful control and parental rejection was a statistically significant predictor of anxious symptoms but not depressive symptoms. Neither negative affectivity nor positive affectivity interacted with perceptions of parental rejection in predicting internalizing symptoms. Overall, the findings suggested that high levels of effortful control may buffer adolescents from experiencing internalizing symptoms.
Dedicated to Kimberly Hazen
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CHAPTER 1

INTRODUCTION

The emotional quality of the parent-adolescent relationship has been frequently studied as a correlate and predictor of adolescent adjustment. Adolescent’s perceptions of parental warmth and rejection are often associated with internalizing problems in adolescents, particularly depressive symptoms (Khaleque & Rohner, 2002). Although many authors have suggested that characteristics of the adolescent, such as temperamental and affective characteristics, may be important in understanding the impact of the parent-adolescent relationship (e.g. O’Conner, 2002; Chen, Rubin, & Li, 1995; Lengua, Wolchik, Sandler, & West, 2000), there has been a relative dearth of literature examining these relationships. The current study will examine the interaction between adolescent perceptions of parental rejection and temperamental/affective characteristics of the child in predicting internalizing problems.

This chapter will begin with a review of literature related to relationships between the emotional quality of the parent-adolescent relationship and adolescents’ symptoms of depression and anxiety. Then existing theory and research focusing on temperamental and affective dimensions will be discussed. Finally, interactive models of temperament and parenting variables will be considered and the current study’s hypotheses will be explicated.
The empirical literature supporting the relationship between depressed mood and the emotional quality of the parent-adolescent relationship has employed a variety of methodologies. Early studies often relied on correlating adult’s retrospective reports of the parental relationship with their current experiences of depression (e.g. Crook, Raskin, & Eliot, 1981; Perris, Arrindell, Perris, Eisemann, Van der Ende, & Von Knorring, 1986). Although there are number of limitations inherent in such an approach (Burbach & Borduin, 1986), additional studies have investigated concurrent and predictive relationships between adolescent perceptions of the parental relationship and adolescent depressed mood (e.g. Ge, Best, Conger, & Simons, 1996; Chen, Rubin, & Li, 1995).

The current review will focus on those studies that have examined adolescent perceptions of the emotional quality of the parent-adolescent relationship. Given that the current study will focus on parental rejection, studies related to this construct will be given particular emphasis.

Retrospective Reports of Rejection and Depressive Symptoms

Studies that have utilized adult’s retrospective reports of the parental relationship have often compared clinically depressed patients to non-depressed individuals or other clinically diagnosed patients. For example, Crook, Raskin, and Eliot (1981) compared the retrospective reports of parental rejection for clinically depressed and non-depressed adults. The results revealed that the clinically depressed group reported more parental rejection during childhood. Retrospective reports of parental warmth have also been compared for patients experiencing unipolar depression and bipolar disorder. Perris, Arrindell, Perris, Eisemann, Van der Ende, and Von Knorring (1986) found that adult
perceptions of experiences of parental warmth during childhood were significantly lower for those patients that were currently experiencing unipolar depression.

Studies such as the ones described above have often been criticized for relying on retrospective reports of parental rejection (Burbach & Borduin, 1986). One limitation of this approach is that adults who are currently depressed may be biased in their memories of experiences during childhood. Additionally, an association between adult depression and earlier experiences does not necessarily have implications for our understanding of adolescent depression. Although there are shortcomings to a reliance on retrospective reports, a longitudinal study conducted by Lefkowitz and Tesiny (1984) was supportive of perceptions of parental rejection as a predictor of adult depressive symptoms.

The use of adult reports of previous parental relationships has also shed some light on a possible pathway responsible for the intergenerational transmissions of depression. Whitbeck and colleagues (1992) examined the intergenerational transmission of depression from the perspective that parental behaviors may explain the continuity of depression across generations. The results of this cross-sectional study supported the author’s hypothesis. Specifically, the perception of parental rejection was associated with an increased risk for depressed affect during adulthood. Furthermore, depressed affect during adulthood was associated with an increased likelihood of the depressed individual engaging in rejecting parental behaviors. These results are particularly important in light of literature suggesting that maternal depression is a risk factor for clinically significant levels of depression in adolescence (Hammen & Brennan, 2003).
Concurrent Relations Between Rejection and Depressive Symptoms

Studies that have focused on concurrent relations between adolescent depressive symptoms and parental warmth and rejection have provided further evidence in support of the contention that the parent-adolescent relationship characterized by low warmth and high levels of rejection may contribute to an increased risk for adolescent depressive symptoms (e.g. Armistead, Forehand, Brody, & Manguen, 2002; Greenberger, Chen, Tally, & Dong, 2000). For instance, results of a recent study by Armistead et al. (2002) supported the author’s hypothesis that low levels of parental warmth and support would be associated with an increased likelihood of experiencing depressive symptoms.

Greenberger, Chen, Tally, & Dong (2000) examined the generalizability of the association between parental warmth and depressed mood in adolescents. The authors examined these constructs in a sample of Chinese adolescents and a sample of adolescents in the United States. Greenberger et al. found that adolescent perceptions of parental warmth were negatively correlated with depressive symptoms in both samples.

Using a cross-sectional design, Greenberger and Chen (1996) also investigated the relationship between perceived parent-adolescent relationships and depressive symptoms. The constructs of parental warmth and parent-adolescent conflict were examined in samples of early and late adolescents that included both European-Americans and Asian-Americans. Using measures of parental warmth and conflict developed by the authors, the quality of the parent-adolescent relationship was found to be more important in predicting depressed mood for early adolescents than for late adolescents. Specifically, early adolescents’ perceptions of parental warmth and conflict accounted for 44% to 51% of the variance in depressed mood for both European- and
Asian-American adolescents, respectively. However, the variance accounted for dropped to 10% when parental warmth and conflict were used to predict depressed mood in the sample of late-adolescents. These findings suggest that perceptions of parental warmth and conflict may be more important during the transitional period of early adolescence. Additional evidence also suggests that parental warmth may actually help to buffer early adolescents from the affects of negative life experiences (e.g. Ge, Lorenz, Conger, Elder, & Simons, 1994, Herman-Stahl, & Petersen, 1996).

**Longitudinal Studies of Rejection and Depressive Symptoms**

Ge et al. (1994) conducted a longitudinal investigation examining the relations between stressful life events, depressive symptoms, and the quality of the parent-child relationship. Parental warmth and support were assessed via behavioral observations of parent-adolescent interactions. Adolescents were assessed over the course of four years, beginning in seventh grade. There was a difference in the buffering effect of parental warmth for girls and boys. Girls with mothers that showed less warmth reported high levels of depressive symptoms when faced with stressful life changes. However, this same pattern was not seen for adolescent boys.

In addition to the Ge et al. study described above, other longitudinal studies have also provided the strongest evidence to date in support of the hypothesis that lack of parental warmth and the presence of parental rejection may best be viewed as risk factors for the development of adolescent depressive symptoms (e.g Ge, Best, Conger, & Simons, 1996).

Ge, Best, Conger, & Simons (1996) examined the predictive ability of the quality of the parent-adolescent relationship to explain the occurrence and co-occurrence of
depressive symptoms and conduct problems. Adolescents were assessed in the 7th, 8th, 9th, and 10th grades. Parental warmth and hostility were assessed through the use of behavioral observations. The degree of warmth and hostility in parental relationships in grades 7 through 9 was predictive of adjustment in grade 10. Adolescents whose parents displayed the least amount of warmth and the highest degree of hostility scored the highest on measures of both depressive symptoms and conduct problems. Conversely, adolescents whose parents displayed the highest level of warmth and the lowest level of hostility evidenced low levels of depressive symptoms and conduct problems. In addition, the occurrence of one type of problem, either high levels of depressive symptoms or high levels of conduct problems, was associated with intermediate amounts of parental warmth and hostility. Taken together, these results suggest that adolescent adjustment is jeopardized not only by a severe lack of warmth and high degrees of hostility, but also by even intermediate levels of warmth and hostility.

The results of longitudinal studies of younger children have been consistent with the findings concerning adolescents. Chen, Rubin, and Li (1995) assessed parental warmth and depressive symptoms at age 8 and age 10 in a sample of Chinese children. Perceived parental rejection at age 8 was predictive of depressive symptoms at age 10 as rated on the Children’s Depression Inventory (Kovacs, 1992). In addition, rejection by parents moderated the effect of academic difficulties on later depressive symptoms. However, when depressive symptoms and parental rejection were assessed at the same time point, rejection was not related to depressive symptoms. The authors suggest that other variables related to cognitive and affective processes may mediate the relationship between parental rejection and depressed mood.
One potential mediator of the relationship between parental warmth and adolescent depressed mood, self-worth, was examined by Garber, Robinson, and Valentiner (1997). Garber et al. report that adolescent reports of self-worth mediated the relationship between perceptions of maternal warmth and depressed mood.

**Additional Aspects of the Parent-Adolescent Relationship**

In addition to parent warmth and rejection, other aspects of the parent-adolescent relationship, such as parental intimacy and closeness, have been associated with depressed mood. The data indicate that adolescents who have a less intimate relationship with their parents are at a higher risk for experiencing depressed affect (Field, Lang, Yando, & Bendell, 1995). Comparisons of the importance of peer versus parental intimacy suggest that parental intimacy may be more important than peer intimacy in buffering children from depressive symptoms (Kandel & Davies, 1982; Petersen, Sarigiani, & Kennedy, 1991).

**Parental Rejection and Anxious Symptoms**

Evidence regarding the relationship between anxiety and parental warmth and rejection has not been as consistent as the evidence supporting the impact of parental warmth on depressive symptoms. While overprotection and parental control have been consistently implicated in contributing to the onset and maintenance of anxiety in children (see Rapee, 1997), only some studies have supported parental warmth and rejection as etiological or maintaining factors for anxiety. This relationship was not supported in a recent study by Muris (2002). Results indicated that adolescent perceptions of parental warmth were unrelated to adolescents’ self-reports of worry.
In contrast to the results of the study conducted by Muris (2002), Siqueland, Kendall, and Steinberg (1996) report results supporting the relationship between anxiety and parental acceptance. The samples used for this study consisted of children who had been diagnosed with overanxious disorder (OAD) or separation anxiety disorder (SAD) as well as a control sample of children who did not exhibit elevated levels of anxiety. Children with a diagnosable anxiety disorder reported lower levels of maternal acceptance than children in the control group. However, parents of children with anxiety disorders did not rate themselves lower on maternal acceptance than parents of children in the control group. It should be noted that children’s perceptions of parental acceptance in the anxiety-disordered group were supported by the ratings of independent observers.

One noteworthy difference between this study and the study conducted by Muris is that the sample used by Muris was a community sample and hence had not been referred for treatment of an anxiety disorder. However, a recent study found evidence that perceptions of parental warmth were negatively associated with adolescent reports of trait anxiety (Wolfradt, Hempel, & Miles, 2003).

Although the relation between rejection and anxiety is largely unstudied and results are inconsistent, the findings for depressive symptoms and warmth and rejection are much more robust (Khaleque & Rohner, 2002a). The presence of inconsistent findings in the anxiety literature suggests that there may be other factors that may be moderating the relationship between the parental relationship and symptoms of anxiety. In addition, the existence of child characteristics, such as temperament and affective characteristics, that may influence the impact of the parent-adolescent relationship on
depressive symptoms has been suggested by a number of researchers (e.g. Chen, Rubin, & Li, 1995; Lengua, Wolchik, Sandler, & West, 2000; O’Connor, 2002).

Temperament

Temperament has been defined as constitutionally based individual differences in both reactivity and self-regulation (Rothbart, 1989). According to Rothbart, the reactive dimension includes both arousability of affect and motor activity. Furthermore, two dimensions of emotionality labeled Surgency/Positive Emotionality and Negative Emotionality/Neuroticism have been explicated. The processes involved in self-regulation include shifting attention, inhibiting behavior, and self-soothing (Rothbart, Ahadi, & Hershey, 1994). These self-regulatory processes are believed to modulate reactivity.

Tripartite Model

Although models of temperament have often been proposed to explain development and adjustment for children and adolescents, there has also been an increased focus on the affective dimensions of personality that influence the development of psychopathology (e.g. Watson, 1988; Watson & Clark, 1992; Watson & Tellegen, 1985). The tripartite model was formulated to differentiate adult experiences of anxiety from experiences of depression (Clark & Watson, 1991). This model assumes that there are three factors that influence experiences of psychopathology. These factors are labeled Negative Affectivity (NA), Positive Affectivity (PA), and Physiological Hyperarousal (PH). NA is characterized by high levels of distress and a lack of pleasurable engagement with the environment. PA is associated with feelings of enthusiasm, alertness, and activity as well as a sense of pleasurable engagement with the
Finally, symptoms related to elevated PH include feelings of shortness of breath, dizziness, rapid heartbeat, and trembling.

NA is viewed as a general factor that is related to both anxiety and depression. However, PA is believed to be specific to depression and PH is thought to be specific to anxiety. Thus, according to the tripartite model, high levels of NA and high levels of PH characterize anxiety, whereas high levels of NA and low levels of PA characterize depression. Research on adults has supported these proposed relations (e.g. Watson, Clark, & Carey, 1988; Brown, Chorpita, & Barlow, 1998). For example, Brown, Chorpita, & Barlow found that a model representing NA, PA, and PH provided the most adequate fit to the data when trying to differentiate anxiety from depression. However, the evidence linking PH to an increased risk for anxiety is not as strong as the findings supporting NA and PA as risk factors. Specifically, PH is more strongly associated with panic disorder and post traumatic stress disorder than other anxiety disorders (Clark, Watson, & Mineka, 1994).

In accordance with the results from the adult literature, a number of studies have supported the ability of the tripartite model to distinguish between anxiety and depression in children and adolescents. This support has come from studies of clinical samples (e.g. Chorpita, Albano, & Barlow, 1998; Joiner, Catanzaro, & Laurent, 1996; Chorpita & Daleiden, 2002) as well as community samples (e.g. Phillips, Lonigan, Driscoll, & Hooe, 2002). Studies have examined not only concurrent relations between affective dimensions and psychopathology but also predictive relations between these dimensions and anxiety and depression.
Chorpita, Albano, and Barlow (1998) examined clinically anxious children and found that a model consistent with the tripartite model provided the best fit to the data. An investigation of concurrent relations also found the tripartite model to be predictive of diagnoses of depressive and anxiety disorders in a clinical sample of children (Chorpita & Daleiden, 2002). Studies of inpatient samples provide further support for the utility of the tripartite model in distinguishing anxiety and depression (Joiner, Catanzaro, & Laurent, 1996; Joiner & Lonigan, 2000). For example, Joiner and Lonigan (2000) found that while high NA was associated with depression and anxiety in an inpatient psychiatric sample, the combination of low PA and high NA was indicative of depression.

Additional support for the applicability of the tripartite model to children has come from studies that have examined the predictive validity of the model. In an examination of children and adolescents in grades 4-11 over a 7-month period, Lonigan, Phillips, and Hooe (in press) found that low PA was predictive of depressive symptoms, while high NA was predictive of anxiety. In Joiner and Lonigan’s (2000) investigation of an inpatient psychiatric sample, evidence also supported the predictive validity of the combination of PA and NA in predicting depression. The results discussed above are consistent with findings in the adult literature that support the predictive validity of the tripartite model (e.g. Clark, Watson, & Mineka, 1994; Krueger, Caspi, Moffitt, Silva, & McGee, 1996).

Continuity of Temperament and Affective Dimensions

Linking temperament and the tripartite model, recent work by Lonigan and colleagues (Anthony, Lonigan, Hooe, & Phillips, 2002; Lonigan, Dyer, & Phillips, 2000) has demonstrated overlap between NA and PA and dimensions of temperament. For
example, results of a factor analysis of the Emotionality, Activity, and Sociability Scales (EAS; Buss & Plomin, 1984) revealed the existence of two higher order factors representing Negative Temperament and Positive Temperament (Anthony et al., 2002). Negative Temperament or Negative Emotionality is characterized by individual differences is arousal related to fear and frustration, susceptibility to distress, and soothability (Rothbart, 1989). Alternatively, Positive Temperament or Positive Emotionality is associated with laughter, smiling, pleasure, and sensitivity to positive cues in the environment (Rothbart, 1989; Lengua & Long, 2002).

Correlations of these factors with NA and PA as measured by the PANAS, indicated significant relationships between Negative Temperament and NA (r = .62) as well as Positive Temperament and PA (r = .40). In addition, while Negative Temperament was significantly correlated with symptoms of anxiety and depression, Positive Temperament was only associated with depressive symptoms. It should be noted that PA and NA showed the expected relations with symptoms of depression and anxiety. Similar results for Positive Temperament and Negative Temperament were also reported by Rende (1993) in a longitudinal investigation of the ability of these constructs to predict internalizing problems. These relationships are quite consistent with those proposed by the tripartite model for NA and PA.

As Anthony et al. discuss, their results as well as those of Rende (1993) suggest that dimensions of affect and temperament are closely related and therefore may best be categorized as Negative Affectivity/Neuroticism (NA/N) and Positive Affectivity/Surgency (PA/S). The continuity of affective models and temperamental models in predicting internalizing problems also suggests that high NA/N may best be
viewed as a risk factor for the development of anxiety and depression. Similarly, low PA/S may represent a distinct risk factor for depression.

**Effortful Control**

Consistent with the definition of temperament as containing both reactive and self-regulatory components, a third factor proposed by Rothbart (1981), Effortful Control (EC), represents the self-regulatory aspect of temperament. Effortful control is defined as the ability to inhibit a prepotent response in order to perform a subdominant response (Rothbart, 1989). This ability is seen as a key factor in development because it increases the chances of successful socialization and appropriate emotional expression (Kochanska, Murray, & Harlan, 2000).

The conceptualization of NA/N and PA/S as reactive dimensions of temperament and EC as a self-regulatory dimension is consistent with other models of temperament that emphasize the role of both reactive and effortful processes (e.g. Derryberry & Reed, 1996; Derryberry & Rothbart, 1997; Rothbart, Posner, & Hershey, 1995; Rothbart, Posner, & Rosicky, 1994). The reactive processes are often described as motivational influences (Derryberry & Rothbart, 1997; Lonigan & Phillips, 2001). Both inhibition and approach processes are believed to be central to these motivational influences (Derryberry & Rothbart, 1997).

One heuristic model that distinguishes inhibitory processes from approach or activation processes is Gray’s model (e.g. Gray, 1982, 1987). According to this model, behavior is motivated by two neural systems, referred to as the Behavioral Inhibition System (BIS) and the Behavioral Activation System (BAS). The functions of the BAS are similar to those of PA/S in that the BAS is associated with sensitivity to signals of
reward and relief from punishment and hence the behavior is manifested as approach behavior (Derryberry & Rothbart, 1997, Ahadi, Rothbart, & Ye, 1993, Lonigan & Phillips, 2001). Alternatively, the behavioral effects of the BIS include increased attention and arousal as well as inhibition of ongoing behavior due to increased sensitivity to signals of punishment, nonreward, and novelty (Gray, 1988). The dimension of temperament most similar to the BIS is NA/N (Derryberry & Rothbart, 1997, Ahadi, Rothbart, & Ye, 1993, Lonigan & Phillips, 2001).

Another theory of temperament that shows some overlap with Rothbart’s conceptualization of temperament is Kagan’s theory of behavioral inhibition (BI). According to Kagan, BI is a categorical concept that has genetic underpinnings (Kagan, 1994). Much of the research conducted by Kagan and his colleagues has focused on classifying children as behaviorally inhibited versus behaviorally uninhibited and establishing the stability and correlates of this classification over time. Behaviorally inhibited children have been found to exhibit uncertainty when exposed to novel people, situations, and objects (Kagan, 1994, 1997). The determination of behavioral inhibition is based on behavioral as well as physiological criteria (Kagan, Reznick, Snidman, Gibbons, & Johnson, 1988).

Although the categorical nature of BI is clearly distinct from dimensional theories of temperament, Lonigan and Phillips (2001) acknowledge the similarities between these concepts of temperament. As Lonigan and Phillips discuss, children classified as behaviorally inhibited have been found to show behaviors consistent with Rothbart’s three temperamental factors. Specifically, behaviorally inhibited behaviors maps well onto high NA, low EC, and sometimes low PA. These similarities support conclusions
made by Anthony, Lonigan, Hooe, & Phillips (2002) as well as Lonigan and Phillips (2001) that although EC has not always been explicitly acknowledged in theories of temperament, aspects of EC can be pinpointed within disparate conceptualizations of temperament.

Initial work on EC focused on young children, often pre-school age children (e.g. Kopp, 1982; Eisenberg, Fabes, Nyman, Bernzweig, & Pinulas, 1994). Many of these studies have indicated that the development of EC first appears by the end of the first year of life. After this important period of development, additional development of EC occurs during the second and third years (Gralinski & Kopp, 1993; Kaler & Kopp, 1990; Kopp, 1982, Vaughn, Kochanska, Murray, & Harlan, 2000). Additionally, research with preschool age children is supportive of EC as a dimension of temperament that is predictive of the development of successful socialization processes such as conscience development, empathy development, and the development of feelings of guilt (e.g. Kochanska, Murray, & Coy, 1997; Kochanska, Murray, Jacques, Koening, & Vandegeest, 1996; Kochanska, DeVet, Goldman, Murray, & Putnam, 1994). Longitudinal studies have also suggested that observations of temperament relevant behaviors during the preschool years are predictive of adjustment in later childhood. A 12-year longitudinal study indicated that pre-school behaviors related to low EC and high NA were capable of predicting anxiety later in childhood (Caspi, Henry, McGee, Moffitt, & Silva, 1995).

Studies of concurrent relations between temperament and anxiety have also revealed a relationship between NA/N and EC (e.g. Rothbart, Posner, & Rosicky, 1994). Using observational measures of childhood distress in response to disturbing stimuli,
Rothbart et al. (1994) found children’s experiences of negative affectivity to be related to levels of EC. The direction of the relationship suggested that higher levels of EC buffered experiences of distress and increased the likelihood that children would engage in self-soothing.

Interactive Nature of Temperament

The Rothbart et al. (1994) findings highlight a key component of Rothbart and colleagues’ conceptualization of EC. Instead of simply exerting their effects in a main effects fashion, the dimensions of PA, NA, and EC are believed to interact. Specifically, EC is believed to have the capacity to override reactive tendencies in pursuit of more long-term goals. According to Ahadi and Rothbart (1994), EC’s status as a superordinate factor allows it to moderate the impact of other temperamental factors such as negative emotionality. For example, EC is able to impact anxiety by allowing the child to reorient attention away from anxiety producing stimuli and by allowing generation of adaptive coping strategies. This view is consistent with an interactive model recently proposed by Lonigan and Phillips (2001).

Lonigan and Phillips (2001) posit that children with high levels of negative emotionality/negative affectivity may not experience the same level of anxiety if their levels of EC are high enough to allow attention to be shifted from threatening information. Thus, children with low levels of EC and high levels of NA should be the most vulnerable to internalizing problems. Either temperamentally low levels of EC or declines in EC due to environmental demands, or a combination of these variables may diminish a child’s ability to regulate attention and lead to an increased effect of the more reactive dimensions of temperament. Lonigan and Phillips also point out that children
who already possess high levels of NA have a greater need for sufficient levels of EC to counteract their natural tendency to react negatively to aversive stimuli as well as their bias to interpret neutral stimuli in a more negative way. Given that high NA is common to both anxiety and depression, EC should be particularly important in predicting whether NA will be predictive of internalizing problems.

Despite the fact that initial studies concerning EC relied on samples of preschool children, further work in this area has examined the relations between EC and emotional adjustment for older children. The results of studies conducted by Eisenberg et al. (2001) as well John, Caspi, Robins, Moffitt, & Stauthamer-Loeber (1994) indicated that internalizing problems were associated with lower levels of EC and elevated levels of NA/N. These findings are congruent with the correlates of internalizing problems suggested by the tripartite model as well as the role of EC proposed by Rothbart and colleagues.

While such studies have buttressed support for the three temperamental dimensions suggested by Rothbart and her colleagues, they have also highlighted the importance of considering the transactive nature of these temperamental factors. One study by Rothbart, Ahadi, and Hershey (1994) examined the role of temperamental factors in predicting children’s social behavior. NA/N was correlated with a tendency toward aggression, however EC was not predictive of aggressive tendencies. Rothbart and colleagues suggest that this lack of relationship may be due to the fact that EC is best viewed as a superordinate factor that moderates the relationship between NA/N and adjustment. This suggestion highlights the importance of considering interactive as well main effect models when attempting to predict adjustment.
Due to this growing recognition of the importance of considering interactions among temperamental dimensions, recent studies have explicitly tested more integrative models. Studies examining the ability of such models to predict coping as well as adjustment to stressors have supported their utility (e.g., Lengua & Long, 2002; Lengua, 2002; Fabes, Eisenberg, Jones, Guthrie, Poulin, Shephard & Freidmanm, 1999).

Fabes et al. (1999) investigated children’s response to a stressor, defined as high intensity peer interaction. The authors report that EC was predictive of affective responses to high intensity peer interactions. High levels of EC appeared to buffer children from negative emotional arousal when engaging in high intensity peer interactions. Furthermore, the experience of negative affect during these interactions was associated with less socially competent responses.

Lengua and Long’s (2002) findings from a study of 101 children between the ages of 8 and 12 are supportive of both reactive and self-regulatory dimensions of temperament as predictors of adjustment to negative life events. As expected, higher levels of EC were associated with the use of more problem solving, active coping strategies, and better adjustment. Negative emotionality was related to adjustment problems as well as avoidant coping and threat appraisals. There was some support for EC as a moderator between negative emotionality and active coping, although the authors point out that larger sample sizes are needed to replicate these findings. Although positive emotionality was associated with fewer adjustment problems, positive emotionality was not predictive of positive appraisals and active coping. As Lengua and Long discuss, these results suggest that negative emotionality and low levels of self-regulation may serve as risk factors for the development of adjustment problems in the face of stress.
Another study conducted by Lengua (2002) investigated the role of temperamental characteristics in predicting negative and positive adjustment to multiple risk. The impact of negative emotionality, positive emotionality, and self-regulation were examined as moderators of the relationship between multiple risk and adjustment. The sample included 101 children in the 3rd – 5th grade. Multiple risk factors included negative life events and well as socioeconomic disadvantage. Negative emotionality predicted variance in adjustment problems even after accounting for the effect of multiple risk factors. Alternatively, positive emotionality was predictive of positive adjustment above and beyond the effect of multiple risk. In addition, self-regulation moderated the effect of multiple risk, such that children high in self-regulation were less vulnerable to multiple risk. As Lengua discusses, these results suggest that temperamental variables may serve as risk factors or protective factors in explaining children’s adjustment to multiple risk. It should be noted that the interactive effects of negative emotionality and self-regulation as well as positive emotionality and self-regulation in predicting adjustment were not explored in this study.

**Interaction of Temperament and Rejection**

Lengua, Wolchik, Sandler, and West (2000) conducted the only study to date that has tested the interaction between parental rejection and specific dimensions of temperament in predicting adjustment. The temperamental dimensions of positive emotionality, negative emotionality, and impulsivity were expected to moderate the relationship between parental rejection and adjustment following parental divorce. Adjustment problems were operationalized as depressive symptoms and conduct problems, as rated by parents and children. A sample of 231 children between the ages of
9 and 12 provided data for these analyses. The results revealed that positive emotionality moderated the relationship between parental rejection and depressive symptoms. The same relation was found when conduct problems were used as the dependent variable. Children who experienced parental rejection and low levels of positive emotionality were more likely to exhibit higher levels of adjustment problems. As Lengua and colleagues discuss, these results suggest that positive emotionality may have served as a protective factor for these children. The authors also point out that replication of this effect is needed, as this was the first study to find such an interaction. Although the interaction of parenting variables and negative emotionality were tested, the interactions did not achieve statistical significance. Lengua et al. suggest that a more fine grained analysis of the specific component of NA may have allowed for a better test of this relationship. An additional possibility is that EC may interact with NA and parental variables in predicting child adjustment.

The significant interactions between temperamental dimensions and the quality of the parent-child relationship suggest that the interactive effects are a fruitful area to explore when attempting to understand those variables that may place children who experience a negative parental relationship at an increased risk for adjustment problems. Unfortunately, Lengua and colleagues (2000) did not investigate the self-regulatory dimension of effortful control. In addition, the generalizability of these interactive effects to children of non-divorced families is unclear. Lengua and colleagues recommend replication in normative samples.
Summary and Hypotheses

To summarize the literature that has been reviewed within this chapter, a substantial body of work implicates parental rejection as a risk factor for adolescent depressive symptoms and to a less extent, anxious symptoms (Rapee, 1997). Research has also supported temperamental dimensions such as NA, PA, and EC, as correlates of internalizing symptoms (e.g. Anthony, Lonigan, Hooe, & Phillips, 2002). Finally, the results of recent studies suggest that temperamental dimensions interact with each other and with parenting characteristics in predicting symptoms of depression and anxiety (Lengua, Wolchick, Sandler, & West, 2000).

The current study attempted to extend the consideration of the interactive effects of temperamental dimensions and parental rejection by examining EC as well as NA and PA. In addition, in accordance with the interactive model proposed by Lonigan and Phillips, it was expected that EC will interact with NA and PA, as well as rejection in predicting internalizing problems.

One goal of the current study was to replicate the relationship between NA, PA, EC and internalizing problems that have been reported by other researchers (e.g. Joiner & Lonigan, 2000; Chorpita, Albano, & Barlow, 1998; Lonigan & Phillips, 2000). The first hypothesis summarizes these expected relationships:

Hypothesis 1: NA will be positively associated with symptoms of both anxiety and depression. PA will be differentially associated with depressive symptoms but not anxious symptoms. Lower levels of PA will be associated with more depressive symptoms. Symptoms of depression and anxiety will be negatively correlated with EC.
Hypothesis 2: In addition to main effects of NA, PA, and EC, it is also expected that both NA and PA will interact with EC in predicting symptoms of anxiety and depression. Hypothesis 2 specifies that PA will interact with EC in predicting depressive symptoms, while the interaction of NA and EC will be predictive of depression and anxiety symptoms. Specifically, it is predicted that low levels of PA will be more strongly associated with depressive symptoms at low versus high levels of EC. With regards to the NA x EC interaction, it is expected that high levels of NA will be more strongly associated with symptoms of both depression and anxiety at low versus high levels of EC.

Replication of the relationships between the emotional quality of the parent-adolescent relationship and depressive symptoms are also expected. In addition, EC, NA, and PA are expected to moderate this relationship. Hypotheses 3-6 explicate these predictions:

Hypothesis 3: Parental rejection will be positively correlated with symptoms of depression.

Hypothesis 4: EC will interact with parental rejection in predicting depressive symptoms. It is proposed that high levels of EC will protect children from symptoms of depression when experiencing high levels of parental rejection.

Hypothesis 5: Interactions between NA and rejection will predict symptoms of depression. The nature of the relationship between NA and rejection should differ based on the level of NA. For example, high levels of NA in combination with perceptions of high levels of parental rejection should be predictive of greater depressive symptoms.
Hypothesis 6: A two-way interactions of PA x rejection will predict symptoms of depression. It is expected that when low levels of PA are combined with high levels of rejection, depressive symptoms will be greater.

Hypotheses similar to hypotheses 3 - 6 are proposed for anxiety symptoms, with the exception that PA is not expected to interact with parental rejection in predicting anxiety. The following hypotheses are also proposed for anxiety:

Hypothesis 7: Adolescent reports of parental rejection will be positively correlated with symptoms of anxiety.

Hypothesis 8: A two-way interactions of NA x rejection will predict symptoms of anxiety. It is expected that high levels of NA in combination with perceptions of high levels of parental rejection will be associated with anxiety.

Hypothesis 9: A two-way interactions of EC x rejection will predict depressive symptoms. It is expected that high levels of EC combined with high levels of rejection will be associated with fewer symptoms of anxiety.

Finally, three-way interactions that include dimensions of temperament as well as adolescent perceptions of the emotional quality of the parent-adolescent relationship in predicting anxious and depressive symptoms are expected to provide the most adequate fit to the data. Hypotheses 10 and 11 summarize these predictions:

Hypothesis 10: A three way interactions of NA x EC x rejection will predict symptoms of anxiety. It is predicted that EC will moderate this relationships such that the adolescents with high levels of EC will be less likely to experience anxiety despite high levels of NA and perceptions of parental rejection.
Hypothesis 11: Interactions involving NA and PA will be predictive of symptoms of depression. Specifically, the interactions of NA x EC x rejection and PA x EC x rejection will be statistically significant predictors of depressive symptoms. For example, adolescents who report low levels of PA and high levels of rejection should endorse fewer symptoms of depression if they also exhibit high levels of EC.

The correlational nature of the current study will limit conclusions that can be made regarding the direction of the relationships that will be investigated. Nonetheless, an examination of the relations between temperamental/affective variables, adolescent perceptions of the parent-adolescent relationship, and internalizing problems will provide a substantial contribution to current understandings of factors that may modulate the impact of negative parent-adolescent relationships.
CHAPTER 2

METHOD

Participants

Participants between the ages of 11 and 15 were recruited from 6th – 8th grade classes in seven local middle and intermediate schools. The participants participated in a larger study conducted by Dr. Michael Vasey, of which the current study was a part. All participants received $40 for their participation in the study. Brief 5-minute announcements regarding the study were made during class periods. In addition, detailed letters describing the study and providing contact information were sent to all parents and guardians (see Appendix A). Letters were sent to 3,027 eligible families. A total of 224 families agreed to participate in the study. This represents a 7.4% response rate, however response rates varied depending on the particular school. Response rates for six of the seven schools ranged from 2.6% to 5.1%, however the response rate for the remaining school averaged 17.4% over a two year period. Although the overall response rate is low, as will be discussed in Chapter 4, the demographic characteristics appear to be representative of the population from which the sample was drawn.

It should be noted that data analyses were restricted to only those participants who reported on perceptions of relationships with their mothers, thus yielding a sample size of n = 194.
Approximately 59% of participants were male and 41% were female. The mean age of participants was 12.9 (SD = .92). Thirty-nine percent of participants were currently in 6th grade, 34% were in 7th grade, 25% were in 8th grade and 1% were in 9th grade. An overwhelming majority (89%) of participants identified themselves as Caucasian American. African Americans comprised 1.3% of the sample, 1.8% of the sample were Asian-American, .4% were Native American, 5.8% identified themselves as belonging to another ethnic group that was not listed as an option on the demographic questionnaire, and 1.6% did not identify an ethnic heritage (i.e. data was missing).

The average family socioeconomic status rating was 44.4 (SD = 12.1), which corresponds to the “medium business, minor professional, technical” category of the Hollinghead Four-Factor Index.

Procedures

Upon contacting the research lab to volunteer for the study, a two hour session was scheduled for the parent and child. Sessions were scheduled to occur either in the child’s house or in the Psychology Department at The Ohio State University. The location of the session was determined by the family. The session began with the experimenter reading aloud a study description (see Appendix B). Informed consent was obtained from parents, children assented, and the family was given a copy of the consent form for their records (see Appendix C).

Parents and children were taken to separate rooms after informed consent was obtained. Parents completed a set of questionnaires while the children completed a series of computer tasks that lasted approximately 45 minutes. After completing the computer tasks, children completed a packet of questionnaires.
Measures

*Hollingshead Four-Factor Index (Hollingshead, 1975).* Socioeconomic status was measured using the Hollingshead Index. An educational scale and occupational scale are computed and a combination of these factors was used to compute an overall estimate of socioeconomic status.

*Youth Self-Report (YSR; Achenbach, 1991b).* The Youth Self-Report contains 112 items that assess children’s self-reports of behavioral and emotional problems. Items are rated from (0) not true to (2) often true. Children are asked to report on their behaviors and feelings over the past 6 months. Two broad internalizing and externalizing factors are obtained as well as 8 more specific subscales. All subscales have been shown to have moderate to good internal consistency as well as high test-retest reliability (Achenbach, 1991b). The Cronbach’s alphas for the current sample are as follows: Withdrawn (.65), Somatic Complaints (.75), Anxious/Depressed (.84), Social Problems (.69), Thought Problems (.71), Attention Problems (.75), Delinquent Behavior (.66), and Aggressive Behavior (.82).

*Positive and Negative Affect Schedule – Trait Version (T-PANAS; Watson, Clark, & Tellegen, 1988; Lonigan, Hooe, David, & Kistner, 1999).* The trait version of the PANAS was administered to measure the constructs of positive affectivity (PA) and negative affectivity (NA). The T-PANAS contains 20 items that are rated on a 5 point scale. The response choices range from 1 (not at all) to 5 (extremely). Separate scores are computed for PA and NA. Clark and Watson (1991) report that the T-PANAS is able to discriminate between anxiety and depression. The T-PANAS also has shown high internal consistency with Alphas of .88 for PA and .87 for NA (Watson et al., 1988).
Watson et al. also reported that correlations between the PA and NA scores were quite low, suggesting that the scores represent unique constructs. Cronbach’s Alphas for the current study are .81 for NA and .77 for PA.

*Revised Children's Manifest Anxiety Scale – Enhanced Version (RCMAS-Enhanced; Lonigan, 1998; Reynolds & Richmond, 1978; Reynolds & Richmond, 1985).*

The RCMAS-Enhanced was used to measure adolescents’ self-reports of symptoms of anxiety. This scale taps anxiety symptoms related to physiological anxiety, worry/oversensitivity, and social concerns/concentration. A lie scale is also included to assess social desirability. The RCMAS-Enhanced total score and the lie scale were used for the current study. This enhanced version contains additional items tapping physiological arousal that were not originally included in the RCMAS designed by Reynolds and Richmond (1978) and also uses a 4-point Likert scale instead of the yes-no dichotomy of the RCMAS. The RCMAS has been shown to correlate well with other measures of anxiety (Reynolds & Richmond, 1978). Internal consistency estimates have also been reported to be high (Reynolds & Richmond, 1978). For the current study, Cronbach’s Alpha for the total score was .93.

*Children’s Depression Inventory (CDI; Kovacs, 1992).* The Children’s Depression Inventory is a 27 item scale that assesses self-reports of depressive symptoms. For each item, respondents are asked to choose which of three sentences best describe them over the past two weeks. The three choices correspond to a 3 point scale in which “0” represents the absence of a symptom, “1” represents a mild symptom and “2” represents a definite symptom. A total symptom score is computed. In addition, three factors have been identified by Lonigan, Carey, and Finch (1994) and are labeled
Dissatisfaction with Self, Depressed Affect, and Anhedonia. Internal consistency for the three subscales has been reported to be moderate to good (Lonigan, 1994). Kovacs (1992) also reports high internal consistency, with Alphas ranging from .71 to .88. Cronbach’s Alphas for the current sample were as follows: Dissatisfaction with Self (.75), Depressed Affect (.67), and Anhedonia (.66), and Total Score (.85).

The CDI has also been found to be sensitive to change in depressive symptoms, correlates strongly with other measures of depression, and is able to discriminate between children with and without a diagnosis of depression (Kovacs, 1992).

Effortful Control Scale- Child Version (EC-C; Lonigan, 1998; Lonigan, Phillips, and Hooe, in press). Effortful control was assessed using the EC-C developed by Lonigan and colleagues. This scale consists of 46 items that are rated on a five-point scale. Response choices range from “not at all like me” to “very much like me.” Factor analyses have revealed two factors, labeled Persistence/Distractibility (e.g. “I have difficulty completing assignments on time”) and Impulsivity (e.g. “I can easily stop an activity when told to do so”). Each factor contains 12 items. The subscale that was used in the current study was the Persistence/Distractibility scale.

The Persistence/Distractibility factor has been found to be negatively correlated with measures of anxiety, such as the RCMAS ($r = -.44$) and positively correlated with measures of depressive symptoms, such as the CDI ($r = .39$) (Lonigan, 1998). The Persistence/Distractibility factor score has also been found to be distinct from reactive dimensions of temperament such as NA/N and PA/S (Lonigan, 1998).

The EC factor of Persistence/Distractibility has shown high internal consistency ($\alpha = .84$) (Lonigan, 1998). In addition, Cronbach’s alpha for the current study was .85.
Child Parental Acceptance-Rejection Questionnaire (C-PARQ; Rohner, 1991; Khaleque & Rohner, 2002a; Khaleque & Rohner, 2002b). The C-PARQ is a 60-item self-report scale that assesses children’s perceptions of parental acceptance and rejection. Children are asked to rate the extent to which they agree with sentences such as “My mother does not really love me” (undifferentiated rejection) by using a 4 point Likert scale with “1” representing “almost never true” and “4” representing almost always true”. The C-PARQ has been used extensively and is available in a variety of different languages (Khaleque & Rohner, 2002a).

There are four subscales that are derived and they include parental warmth/affection, hostility/aggression, indifference/neglect, and undifferentiated rejection. The undifferentiated rejection subscale taps children’s perceptions of their parent’s feelings of love, appreciation, and caring for them. However, behavioral experiences of lack of affection, neglect, or aggressiveness are not necessary (Khaleque & Rohner, 2002b). An abbreviated version of the Child PARQ was used in the second wave of data collection for the current study due to time constraints and high item overlap. The two subscales that was considered for the purposes of the current study is the undifferentiated rejection scale.

The C-PARQ shows moderate to good test/retest reliability for time spans ranging from 3 weeks to 10 years. The mean test/retest reliability is .62 (Khaleque & Rohner, 2002b). A recent meta-analysis of the C-PARQ revealed good internal consistency with mean weighted alpha coefficient of .78 for the undifferentiated rejection subscale (Khaleque & Rohner, 2002a). Cronbach’s alpha for the current study was .75 for the undifferentiated rejection subscale.
CHAPTER 3

RESULTS

Preliminary Analyses

Hypothesis 1 states that EC will be negatively correlated with symptoms of anxiety and depression, NA will be positively associated with symptoms of anxiety and depression, and PA will be negatively correlated with depressive symptoms but unrelated to anxiety symptoms. Zero-order correlations were computed to test these predictions (see Table 1). The zero-order correlations between EC and anxious and depressive symptoms were consistent with predictions proposed in Hypothesis 1. Specifically, the correlation between EC and the RCMAS total score was $r = -.52$ ($p < .01$) and the correlation between EC and the Anxious/Depressed scale was $r = -.48$ ($p < .01$). In addition, the correlation between EC and the CDI total score was $r = -.48$ ($p < .01$). As is shown in Table 1, NA was significantly correlated with the RCMAS total score ($r = .63$, $p < .01$), the Anxious/Depressed scale of the YSR ($r = .58$, $p < .01$), and the CDI total score ($r = .49$, $p < .01$). A different pattern was found when correlations between PA and anxious and depressive symptoms were examined. As predicted, the correlation between PA and the CDI total score was negative and statistically significant ($r = -.16$, $p < .05$), while the correlations between PA and the RCMAS total score ($r = -.13$, $p = .09$), as well as PA and the Anxious/Depressed scale ($r = -.05$, $p = .53$) did not achieve statistical significance.
The finding that the CDI total score was significantly correlated with NA and PA, while the RCMAS total score and Anxious/Depressed scale were only significantly correlated with NA, suggests that the RCMAS total score and the Anxious/Depressed scale largely tap symptoms of anxiety, while the CDI total score appears to tap depressive symptoms. This was further supported when intercorrelations among the measures of anxious and depressive symptoms were examined.

**Composite Scores**

In an effort to create separate composite scores of anxious and depressive symptoms, those measures whose intercorrelations met or exceeded $r = .70$ were identified. Composite scores offer a number of advantages. For example, composite scores increase validity and maximize the number of error degrees of freedom that are available, thus increasing power (Rushton, Brainard, & Pressley, 1983; Cook & Campbell, 1979).

Intercorrelations indicated that the Anxious/Depressed subscale of the YSR and the RCMAS total score were highly correlated ($r = .70$). Therefore, a composite measure of anxiety symptoms was created by combining the YSR Anxious/Depressed subscale and the RCMAS Total score. This composite score will subsequently be referred to as ANX. In support of Hypothesis 1, the correlations between this composite score and NA ($r = .68, p < .01$) and EC ($r = -.54, p < .01$) were statistically significant, while the correlation with PA was not statistically significant ($r = -.11, p = .16$).

The only other intercorrelations that met the criteria of $r = .70$ were those among the subscales comprising the CDI. Thus it was not possible to create a composite score
tapping depressive symptoms that contained different measures. Therefore, the decision was made to use the CDI total score as a measure of depressive symptoms (DEP).

**Testing Interactions**

The guidelines suggested by Aiken and West (1991) for testing interactions within hierarchical regression models, were adhered to in all regression analyses. In accordance with these guidelines, standardized variables representing the main effects relevant to the particular analysis were computed and entered into the model before interaction terms were entered. Interaction terms represented the products of the standardized variables comprising the interaction terms and were entered in the last step of the regression models (Aiken & West, 1991).

**Regression Diagnostics**

Multicollinearity diagnostics were also examined for all regression analyses. Tolerance estimates greater than 1 and VIF statistics greater than 10 were considered to be problematic (Fox, 1991). Based on these criteria, multicollinearity was not determined to be a problem for any of the regression analyses that were performed.

Although there were no a priori concerns regarding outliers and influential data points, the presence of potential outliers and influential data points were examined using regression diagnostics. Studentized residuals were used to determine the existence of potential outliers (Fox, 1991). Although some Studentized residuals were larger than +/- 3, no justification (i.e. coding error, miscalculation) could be made for excluding those data points. The presence of influential data points was determined using Cook’s distance. None of the data points appeared to be acting as influential data points.
Sample Characteristics

The relationships between demographic characteristics and ANX and DEP were examined with zero-order correlations and t-tests as appropriate. Demographic characteristics examined with zero-order correlations included family socioeconomic status (family SES) and adolescent’s age. Differences in self-reports of ANX and DEP for boys and girls were examined using independent samples t-tests.

The only demographic variable that was significantly correlated with DEP was family SES ($r = -.17, p < .05$). None of the correlations among the demographic variables and ANX were statistically significant, however family SES was controlled for in all subsequent analyses in which ANX and DEP were used as outcome variables. The correlation between ANX and family SES was $r = -.10 (p = .17)$.

Gender differences were not found for ANX or DEP. Table 2 displays the means for the variables representing ANX and DEP. As can be seen in Table 2, the differences between males and females were minimal. Therefore there do appear to be meaningful differences in self-reports of ANX and DEP for boys and girls.

Figure 1 displays the distribution of REJ for the sample. The possible range for this subscale is 10-40. As is shown in Figure 1, the scores ranged from 10 to 36, suggesting that an adequate range of ratings of REJ were represented in this sample.

Due to concerns that social desirability may be related to self-reports of EC as well as internalizing symptoms, zero-order correlations between these variables and the lie scale of the RCMAS (LIE) were computed. The correlations between LIE and ANX ($r = -.34, p < .01$) and LIE and DEP ($r = -.31, p < .01$) were statistically significant. In addition, EC and LIE were also significantly correlated ($r = .40, p < .01$). These
correlations suggested the possibility that adolescents who score high on social
desirability may be disguising their emotional distress. For this reason, LIE was entered
into the first step of all subsequent hierarchical regression analyses.

**Affective/Temperamental Interactions Predicting Internalizing Symptoms**

Hierarchical regression analyses were performed to test the interactions of NA x EC and PA x EC in predicting DEP (Hypothesis 2). In this hierarchical regression and in all subsequent regression analyses, family SES and LIE were entered into the first step of the model. NA, PA, and EC were entered into the second step and the interaction terms representing NA x EC and PA x EC were entered in the last step. As predicted, the addition of the interactions into the model resulted in a statistically significant increase in the amount of variance accounted for ($R^2 \Delta = .10, p < .01$; see Table 3).

Figure 2 displays the interaction of NA and EC in predicting DEP. Figure 2 represents DEP for levels of NA and EC that are one standard deviation above and one standard deviation below their means. All other variables in the model were held constant at their means. The procedure described above was used to plot all subsequent interactions. In addition, it should also be noted that all outcome variables and main effect variables have been standardized, thus simplifying the interpretation of all graphs. As shown in Figure 2, the relationship between NA and DEP was stronger at low versus high levels of EC. This interaction is consistent with the prediction explicated in Hypothesis 2.

The interaction of PA x EC (see Figure 3) was also congruent with the prediction specified in Hypothesis 2. As Figure 3 shows, in comparison to high levels of EC, lower levels of EC were associated with a stronger relationship between PA and DEP.
The interaction of NA and EC in predicting ANX was tested with a hierarchical regression. Like the previous model, family SES and LIE were entered in the first step. Step 2 included NA and EC and the interaction of NA x EC was entered into the last step. As shown in Table 4, the addition of the interaction was statistically significant ($R^2\Delta = .02$, $p < .05$) and is depicted in Figure 4. This figure indicates that the relationship between NA and ANX was stronger for those adolescents who reported low versus high levels of EC. This relationship is supportive of Hypothesis 2.

**Depressive Symptoms and Parental Rejection**

A zero-order correlation was computed to test the relationship between adolescent perceptions of parental rejection (REJ) and DEP (Hypothesis 3). Consistent with Hypothesis 3, the correlation was positive and statistically significant ($r = .24$, $p < .01$). The interactions of temperamental characteristics and REJ that were proposed in Hypotheses 4–6 were tested with a hierarchical regression analysis. In this analysis, Family SES and LIE were entered in the first step, NA, PA, EC, and REJ were entered in the second step, and the interaction terms of NA x REJ, EC x REJ, and PA x REJ were entered into the final step of the model. None of the interactions achieved statistical significance, thus failing to support Hypotheses 4–6.

In addition to the two-way interactions described above, three way interactions of NA x EC x REJ and PA x EC x REJ were also tested with a hierarchical regression analysis. Like the previous models, family SES and LIE were entered in the first step. The second step contained standardized variables corresponding to each variable comprising the three-way interactions (i.e. NA, PA, EC, and REJ). As suggested by Aiken and West (1991), two-way interactions corresponding to combinations of the
variables contained within the three-way interactions were included in the third step. The two-way interactions included NA x EC, NA x REJ, EC x REJ, PA x EC, and PA x REJ. Finally, the last step contained the product terms representing the three-way interactions proposed in Hypothesis 11 (NA x EC x REJ, PA x EC, REJ). The addition of the three-way interactions into the regression model did not result in a statistically significant increase in the amount of variance accounted for (\(R^2\) \(\Delta = .002, p > .05\)).

**Anxious Symptoms and Parental Rejection**

The zero-order correlation between ANX and REJ was statistically significant (\(r = .27, p < .01\)), thus supporting Hypothesis 7. Hypotheses 8 and 9 posit that REJ will interact with EC and NA in predicting ANX. These hypotheses were tested with a hierarchical regression. Family SES and LIE were entered in Step 1 and EC, REJ, and NA were entered in Step 2. The addition of the interaction terms representing EC x REJ and NA x REJ into the last step lead to a statistically significant change in the amount of variance accounted for (\(R^2\) \(\Delta = .02, p < .05\)). However, an examination of the Beta weights revealed that the interaction of EC x REJ was marginally significant (\(p = .07\)), while the interaction of NA x REJ was nonsignificant (\(p = .33\)). Due to the fact that the inclusion of the non-significant interaction term of NA x REJ decreased degrees of freedom and likely decreased power to find other effects, a separate regression analysis was performed for the interaction of EC x REJ. This hierarchical regression did not contain the non-significant interaction term of NA x REJ. In this model, the pattern of the relationship for the EC x REJ interaction remained the same the interaction became statistically significant (\(R^2\) \(\Delta = .02, p < .05\); see Table 5). Figure 5 depicts the interaction of EC and REJ in predicting ANX. As predicted, EC moderated the relationship.
between rejection and symptoms of anxiety. Specifically, low versus high levels of EC were associated with a stronger relationship between REJ and ANX.

A hierarchical regression analysis was performed to test the ability of the three-way interaction of NA x EC x REJ to predict ANX (Hypothesis 10). The same procedure that was used to test the three-way interaction predicting DEP was also used to test this three-way interaction. The interaction of NA, EC, and REJ did not account for a statistically significant proportion of the variance ($R^2 \Delta = .001, p > .05$) in ANX, thus failing to support Hypothesis 10.
CHAPTER 4

DISCUSSION

There were three broad goals of this study. The first goal was to examine relationships between internalizing problems and affective/temperamental dimensions. The second aim was to establish relationships between parental rejection and internalizing problems. The final goal was to examine the extent to which interactions of temperamental dimensions and adolescent perceptions of parental rejection are able to explain variance in anxious and depressive symptoms.

Affective/Temperamental Predictors of Internalizing Symptoms

With regard to the first goal of the study, consistent with relations proposed by the tripartite model (Watson & Clark, 1992), NA was positively correlated with anxious and depressive symptoms, while PA was negatively correlated with depressive symptoms (Hypothesis 1). In addition, in keeping with the role of EC proposed by Rothbart (1989) and Lonigan and Phillips (2001), EC was negatively correlated with both anxious and depressive symptoms.

The finding that NA was associated with anxious and depressive symptoms, while PA was specifically associated with depressive symptoms, is consistent with past tests of the tripartite model (Watson & Clark, 1992). This model posits that high levels of NA are associated with symptoms of anxiety and depression and that low levels of PA
differentiate depression from anxiety. The results of a recent study conducted by Lonigan, Phillips, and Hooe (in press) also supported the application of the tripartite model to children from a community sample. Additional support for this model has come from studies of clinically anxious and depressed children and adolescents (Chorpita, Albano, & Barlow, 1998; Joiner & Lonigan, 2000, Chorpita & Daleiden, 2002).

The fact that EC was negatively correlated with anxious and depressive symptoms is supportive of the Rothbart’s conceptualization of EC (Rothbart, 1989). According to Rothbart (1989), EC aids in the modulation of emotion and allows for appropriate emotional expression. The results of the current study are also in keeping with the results of a longitudinal study conducted by Caspi and colleagues (1995). The results indicated that low levels of EC earlier in childhood were associated with higher levels of anxiety in later childhood (Caspi et al., 1995). The convergence of the results of the current study with those of Caspi and colleagues, implicate low EC as a risk factor for anxious and depressive symptoms.

As predicted by the interactive model of Lonigan and Phillips (2001), results of the present study revealed that the interaction of NA and EC was a statistically significant predictor of symptoms of both anxiety and depression. Specifically, EC moderated the relationship between NA and both anxious and depressive symptoms, such that NA was more strongly associated with internalizing symptoms at low versus high levels of EC.

According to Lonigan and Phillips (2001), high levels of EC buffer the impact of high levels of NA and lead to less anxiety than low levels of EC in combination
with high levels of NA. Although the current study examined concurrent relations between NA, EC, and symptoms of anxiety and depression, the findings are supportive of this model. In addition, the finding that the interaction of NA and EC also predicted depressive symptoms, allows for the model of anxiety explicated by Lonigan and Phillips to be extended to symptoms of depression. The extension of this model to depressive symptoms has also been proposed by Lonigan, Vasey, Phillips, and Hazen (2003).

Although the model proposed by Lonigan and Phillips (2001) does not make predictions about PA and EC, the results of the current study suggested that PA may interact with EC in a similar fashion when predicting depressive symptoms. Specifically, PA was more strongly associated with depressive symptoms at low versus high levels of EC. Thus the results of the current study support the extension of Lonigan and Phillip’s model to depressive symptoms such that EC is proposed as buffer of the relationships between NA and depressive symptoms as well as PA and depressive symptoms.

Although conclusions regarding causality need to be tempered by the fact that the current study examined data collected at one point in time, the findings suggest that EC may moderate the relationship between NA and the development of internalizing symptoms. Adolescents who report high levels of NA may be at a greater risk for experiencing anxious and depressive symptoms if they also experience low levels of EC. Hence, high levels of EC may be protective for adolescents, while low levels of EC may confer additional risk for adolescents who are also prone to elevated levels of NA. With respect to PA, the results suggest that
high levels of EC may diminish the impact of low PA on depressive symptoms. Further research is needed to examine the interactive effects with a prospective design, however the current study suggests that a model such as the one proposed by Lonigan and Phillips (2001) may assist in the identification of those adolescents who are at an increased risk for the development of internalizing problems.

**Parental Rejection and Internalizing Symptoms**

The second goal of the current study was to replicate the relationship between parental rejection and depressive symptoms that has frequently been reported (e.g. Greenberger & Chen, 1996; Chen, Rubin, & Li, 1995; Ge, Best, Conger, & Simons, 1996). Consistent with existing literature, parental rejection and symptoms of depression were positively correlated, although the magnitude of the association was moderate ($r = .24$). In addition, after controlling for the relationship between family SES and depressive symptoms, perceptions of parental rejection continued to be a statistically significant predictor of depressive symptoms. This finding is supportive of the perspective that a negative parent-adolescent relationship is a risk factor for depressive symptoms.

The relationship between parental rejection and depressive symptoms is consistent with findings from retrospective studies of adults (e.g. Crook, Raskin, & Eliot, 1981; Perris et al., 1986), studies of concurrent relationships (e.g. Armistead, Forehand, Brody, & Manguen, 2002; Greenberger, Chen, Tally, & Dong, 2000), as well as prospective studies (e.g. Chen, Rubin, & Li, 1995). Although the current study cannot determine the direction of the relationship between adolescent perceptions of parental rejection and adolescent depressive symptoms, results across
studies using a variety of different methodologies suggest that experiences of parental rejection may place adolescents at an increased risk for the development of depressive symptoms.

It was also expected that parental rejection would be positively correlated with symptoms of anxiety. The evidence supported this relationship. Furthermore, the magnitude of this relationship ($r = .27$) was similar to that of parental rejection and depressive symptoms. Similar results have been reported by Siquelsand, Kendall, and Steinberg (1996) as well as Wolfradt, Hempel, and Miles (2003). However, other researchers have failed to find a relationship between parental rejection and symptoms of anxiety in adolescents (e.g. Muris, 2002).

The discrepancy between the results of the current study and those of Muris (2002) may reflect differences in sample characteristics. For example, the sample for the Muris study came from the Netherlands. In addition, the age range for the Muris study was age 13 - 16, while the age range for the current study ranged from age 11 – 15, with more than half (56%) of participants below the age of 13. It should also be noted that Muris and colleagues (2000) found that parental rejection was related to self-reports of worry for children ages 9 – 13. Furthermore, the results of an investigation of parental rejection and depressed mood conducted by Greenberger and Chen (1996) suggested that parental rejection may be related to depressive symptoms in early but not late adolescents. Thus, there may be differences in the effects of rejection during different periods of adolescence.

Finally, the existence of discrepant results across studies also suggests the possibility of a moderator. Although the specific variable that may account for these
results is unknown, the possibility that an untested moderator may explain the different pattern of results cannot be ruled out.

Depressive Symptoms and Interactive Effects of Temperament and Parental Rejection

In addition to examining unique contributions of temperamental characteristics and perceptions of parental rejection in explaining internalizing symptoms, as suggested by researchers in this area (e.g. Lengua, Wolchik, Sandler, & West, 2000; O’Conner, 2002), the current study sought to investigate the interactive effects of affective/temperamental factors and perceptions of parental rejection in predicting anxious and depressive symptomatology. With regard to depressive symptoms, it was expected that depressive symptoms would be predicted by the two-way interactions of NA and Rejection, PA and Rejection, and EC and Rejection. In addition, it was further predicted that the three-way interactions of NA x EC x Rejection as well as PA x EC x Rejection would predict depressive symptoms. However, the results of hierarchical regression analyses did not support these hypotheses.

Despite the possibility that the lack of statistically significant results may reflect a true lack of relationship between these variables, there are other explanations for the lack of support for these relationships. As Garber and Strassberg (1991) discuss, one possible explanation for null results is that problems in the design of the study or analysis of the data may have resulted in the failure to find an effect. With regard to the current study, the reliance on data collected concurrently may have weakened the ability to find evidence for the specified interactions. For example, it may be that NA and Rejection interact and result in greater depressive symptoms but
that changes in the levels of these variables occur after they have impacted depressive symptoms. Thus the impact of the interaction of NA and Rejection could become masked when measured at a single point in time.

It should be acknowledged that the current study only included one measure of depressive symptoms. Inclusion of measures designed to tap other aspects of depression may have revealed different results. The addition of such measures may also have allowed for the computation of a composite score representing depressive symptoms. Such a composite measure would potentially increase the degree of power available to find interactive affects (Rushton, Brainard, & Pressley, 1983; Cook & Campbell, 1979).

Another possibility worthy of consideration is that adolescents who were experiencing elevated levels of depressive symptoms may have been biased in their perceptions of parental attitudes and behaviors. From this perspective, experiencing depressive symptoms may have caused adolescents to perceive more parental rejection. Although not explicitly tested, the interactive models tested assume that temperamental characteristics and perceptions of parental rejection interact and result in varying levels of depressive symptoms. However, if depressive symptoms precede and influence perceptions of parental rejection, concurrent evaluations of interactions between parental rejection and temperamental characteristics may become moot when attempting to statistically predict variance in depressive symptoms.

One potential remedy for the bias inherent in asking adolescents to report on parental rejection is to include observational measures of parent-adolescent interactions. Observational measures of interactions between parent and adolescents
have been used successfully in previous studies (e.g. Ge, Lorenz, Conger, Elder, & Simons, 1994; Asarnow, Tompson, Woo, & Cantwell, 2001). The inclusion of observational data may have reduced bias and allowed for an examination of the concordance between these measures and self report measures. One criticism of the literature investigating the relation between parental rejection and depression has been that researchers have used a wide variety of measures of parental rejection, thus not allowing for adequate comparisons across studies (Burbach & Borduin, 1986; Rapee, 1997). The inclusion of multiple measures of parental rejection in future studies may assist in the evaluation of these disparate measures.

**Anxious Symptoms and Interactive Effects of Temperament and Parental Rejection**

NA and EC were expected to independently interact with parental rejection in predicting symptoms of anxiety. The results of hierarchical regression analyses revealed that the interaction of EC x Rejection accounted for a statistically significant portion of the variance in symptoms of anxiety while the interaction of NA x Rejection did not, even after partialing out the effect of social desirability. A graphical depiction of the EC x Rejection interaction (see Figure 5) showed that perceptions of parental rejection were more strongly related to symptoms of anxiety for adolescents who reported low levels of EC.

This interaction suggests that high levels of EC may be critical for adolescents who are experiencing parental rejection. Specifically, it suggests that adolescents at an increased risk for anxious symptoms due to high levels of perceived rejection may be able to decrease their risk if they possess high levels of EC. However, it should be noted that prospective studies are needed before such a conclusion can be made.
One question that remains is whether high levels of EC may buffer adolescents from experiencing clinically significant levels of anxiety. Future research that examines this interactive model for both adolescents who develop clinical levels of anxiety and adolescents who not display such anxiety, may be helpful in answering this question. The importance of EC would be further strengthened if EC were found to protect adolescents from experiencing clinical levels of anxiety.

If further prospective research supports high levels of EC as a protective factor for children experiencing parental rejection, there are a variety of implications for prevention and intervention. For instance, a prevention program for anxiety might target those adolescents who possess multiple risk factors such as high NA, negative parent-adolescent relationships, and low levels of EC. The results of the current study suggest that it may be beneficial to increase EC for adolescents low in EC. The ability to change EC is supported by research conducted by Papageorgiou and Wells (1998; 2000). For example, Papageorgiou and Wells have reported evidence supporting the efficacy of training programs designed to increase EC for adult patients with hypochondriasis (Wells Papageorgiou & 1998) and internalizing problems (Papageorgiou & Wells, 1998; Papageorgiou & Wells, 2000).

In addition to the two-way interaction described above, it was also expected that a three-way interaction of NA x EC x Rejection would account for a statistically significant portion of the variance in symptoms of anxiety. Unfortunately this model was not supported by the current data. It should also be noted that a two-way interaction of NA x Rejection was not statistically significant. As discussed earlier,
this current study’s reliance on concurrent data may have limited the ability to find interactive effects.

Limitations

Some of the limitations of this study focus on aspects of the sample. The low response rate (7.4%) is potentially problematic due to concerns about the representativeness of the sample. One potential problem is that reliance on volunteers for a study conducted in the “Psychology” department may have lead to a higher response rate among those parents who had concerns about the psychological well being of their adolescents. Hence the sample may not adequately represent the “typical” adolescent attending the schools from which the sample was derived from.

Despite the above concerns about representativeness, it should be noted that the correlations among NA, PA, symptoms of anxiety, and symptoms of depression are similar to those reported by other researchers employing community samples (e.g. Phillips, Lonigan, Driscoll, & Hooe, 2002; Anthony, Lonigan, Hooe, & Phillips, 2002). In addition, means for the CDI and YSR Anxious/Depressed scale are similar to published means for these measures (Kovacs, 1992; Achenbach, 1991, respectively). Although these similarities suggest that the relationships between the variables of interest are comparable to those found in other studies, replication is needed to sufficiently evaluate the degree to which this sample adequately represents adolescents from the community.

The demographic representativeness of the sample is also worthy of consideration. However, in comparison to recent census data (United States Census Bureau, n.d.), the demographic characteristics of the sample (e.g. ethnicity) are
similar to the demographic characteristics of the population from which the sample was drawn.

Another aspect of representativeness concerns the extent to which the characteristics of the sample reflect the broader population. For example, although attempts were made to sample from ethnically diverse school districts, the sample was predominantly Caucasian, thus limiting generalizations that can be made to other ethnic groups. In addition, the average SES rating for this sample indicated that on average, family SES corresponded to the middle-range of the Hollingshead four-factor index (1975). Although SES was statistically controlled for in regression analyses, it is possible that a different pattern and/or magnitude of relations may have been found with samples representing lower SES levels. Additionally, given that low SES has been identified as a risk factor for depression (Cicchetti & Toth, 1998), future research is needed to evaluate the role of the interactive models examined in the current study for low SES groups. Finally, the current study focused exclusively on children’s perceptions of maternal rejection. Thus replication is needed before the results can be generalized to perceptions of paternal rejection.

It should also be acknowledged that the sample for the current study only included adolescents between the ages of 11 and 15, with 85% of participants under the age of 14. Hence the results of the current study may not generalize to other age groups. In particular, as discussed earlier, the relationship between parental rejection and internalizing problems may become weaker as adolescents become older (Greenberger & Chen, 1996).
Another limitation of the current study is the failure to account for or assess parental psychopathology, particularly parental depression. This is especially important in light of research that suggests that maternal depression is related to negative parenting attitudes and behavior. For example, maternal depression has been associated with more negative and critical communication toward children, less affection, and less involvement (Hammen & Rudolph, 1996).

The use of concurrent data in the investigation of the temperamental characteristics and perceptions of parental rejection also poses a number of problems related to interpretation of results. One important limitation of such a method relates to the fact that all relationships are correlational in nature and thus causality cannot be determined. Although perceptions of parental rejection may cause adolescents to experience elevated levels of anxious and depressive symptoms, there are other viable alternatives. For example, it may be that adolescents who report high levels of internalizing symptoms are more likely to perceive parental rejection due to their negative bias in interpreting information in their world. However, to the extent that future findings support the convergence of adolescent and parent perceptions of the relationship, this explanation becomes less viable.

The third variable problem inherent in correlational research also needs to be acknowledged. It is possible that a variable not considered in this study may be affecting both temperamental characteristics and internalizing symptoms. For example, Hammen and Rudolph (1996) suggest that a common genetic vulnerability may cause both parenting deficiencies related to parental psychopathology as well as adolescent depression. At the very least, the inclusion of measures of family history
of psychopathology may have allowed the current study to account for a larger portion of the variance in depressive symptoms.

The bidirectionality of parent-adolescent relationships should also be noted. For instance, adolescents experiencing elevated levels of depressive symptoms may engage in behaviors that lead parents to respond negatively to them (Hammen & Rudolph, 1996). Furthermore, the resulting negative parental attitudes and behaviors may exacerbate adolescent depressive symptoms (Hammen & Rudolph, 1996). In addition, adolescent’s temperamental characteristics such as high NA may also evoke negative parental responses. Unfortunately the correlational nature of the current study does not allow for evaluation of these effects.

Finally, although the following limitations have been discussed throughout this chapter, it should also be acknowledged that the current investigation focused solely on adolescent’s self-reports of temperamental characteristics, parental rejection, and internalizing symptoms. Problems with such an approach include the potential role of bias on the part of adolescents, and the potential impact of high levels of NA and/or internalizing symptoms on interpretation of the parental relationship. Due to these concerns, it would be advisable for future studies to use prospective designs and to include behavioral observations of parent-adolescent interactions as well as measures of adolescent perceptions of the parent-adolescent relationship.

Conclusions

The statistically significant relationship between perceptions of parental rejection and depressive symptoms was convergent with the results of previous
studies (e.g. Greenberger & Chen, 1996; Chen, Rubin, & Lee, 1995) and further strengthens the view of parental rejection as a risk factor for depressive symptom.

The relationship found between perceptions of parental rejection and symptoms of anxiety extends on previous work (e.g. Siqueland, Kendall, & Steinberg, 1996; Wolfradt, Hempel, and Miles, 2003). However, the results of the current study also highlight the importance of considering moderators of such relationships. The interaction of EC and Rejection was a statistically significant predictor of anxious symptoms, suggesting that a sole reliance on main effect models may be inadequate when attempting to predict symptoms of anxiety.

The results of the current study emphasize the key role of EC in explaining variability in symptoms of anxiety and depression. EC was found to moderate the relationship between temperamental/affective characteristics and both anxious and depressive symptoms, thus supporting interactive models such as the one proposed by Lonigan and Phillips (2001). In addition, EC moderated the relationship between adolescent perceptions of parental rejection and symptoms of anxiety. Although other temperamental dimensions have previously been tested as moderators of the relationship between internalizing symptoms (e.g. Lengua, Wolchik, Sandler, & West, 2000) and the quality of the parent-adolescent relationship, this was the first study to test EC as a moderator. Overall, the results of the current study suggest that high levels of EC may be protective for adolescents experiencing high NA, high rejection, and low PA. Although prospective studies are needed to adequately evaluate the role of high EC as protective factor, the results of current study provide an important foundation for future research. Despite the need for prospective
research, the results of the current study suggest that intervention and prevention programs designed to increase EC may prove fruitful in decreasing risk for internalizing symptoms.
LIST OF REFERENCES


APPENDIX A

Letter to Parents
Dear Parent:

I am writing in hopes that you will consider allowing your 6th, 7th, or 8th grade son or daughter to participate in a research study that is being conducted through the Department of Psychology at the Ohio State University. Participants in the study will receive $40 for their time and we will also donate $25 to support your child’s school. The study is focused on two topics. First, it is meant to help us understand some of the reasons why young people often react so differently from one another to the same situations. We're trying to understand some of the reasons for those differences – for example, why some young people usually tend to focus on the negative while others focus on the positive. Second, we are trying to understand how parents perceive and interpret information about their children. Some psychologists have argued that parents are commonly the last to notice changes in their child whereas other people have argued that parents are especially likely to notice changes in their child. Surprisingly, nobody has ever studied this question and we are hoping that we can help settle the question through this study.

I hope you will encourage your son or daughter to participate. By doing so, you and your child will help us learn a great deal about how parents view their children, how children perceive the world and how that affects their reactions to things that happen to them. Ultimately, we hope that understanding differences in how typical children like yours perceive and react to their experiences will allow us to design better ways of helping young people who have adjustment difficulties. With regard to parents’ perceptions of their children, by studying typical parents, we hope to better understand how it is that some parents seemingly fail to notice when their child begins to develop a problem while other parents notice very quickly. By participating, you and your son or daughter will also get an opportunity to see how some types of psychological research are conducted.

Here is what will happen if you and your child participate. We will arrange a time at your convenience for your child and one parent to complete the study. **To make this as easy as possible, we will be happy to come to your home to do this.** However, if you prefer, you can come to our laboratory in the Psychology Department at The Ohio State University. During this session, your child will complete a series of questionnaires about his or her behavior, emotional experiences, and personality. He
or she will also complete a computer activity in which he or she will see pairs of words on the computer screen and be asked to press a button every time he or she sees a small dot appear. Finally, your child will complete a brief (5-minute) speech about her/himself, which will be videotaped. Also during this session, the participating parent will complete a variety of questionnaires about the child and attitudes about being a parent. The participating parent will also complete a brief computer activity in which she/he will be asked to respond to words that may or may not describe the participating child. All together, these things will take about 2-hours. To help compensate you and your child for the time the study takes, we will pay you $40. Of course, if you come to campus, we will also pay for your parking.

Finally, we will send several questionnaires to one of your child's teachers. We'll get your child’s input regarding which of his or her teachers is the best choice. The questionnaires the teacher will complete ask for his or her point of view on your child’s behavior in school and with other children. To compensate the teacher for her/his time, we will donate $25.00 to help your child’s teacher support her/his classroom.

Unavoidably, some of the questions in a study of children's personalities are somewhat personal in nature (e.g., “Do you worry a lot?”; “Do you have a hot temper?”; “How often are you unhappy, sad, or depressed?”). However, rest assured that all the information we gather in the study will be kept strictly confidential. Participant's names will not be placed on any of the study materials. Instead, each participant will be given a code number. Thus, you can be confident that nobody other than authorized study personnel will have access to any information that can be linked to your child. All study results will be reported only in terms of group averages. The brief video we make of your child will be kept in a secure location and will be erased when the study is completed. Because teachers will need to know whom the questionnaire is about, your child's name will be attached to those questionnaires. However, we will ask teachers to remove participants' names from the questionnaires before sending them back to us.

If you would like your child to participate or you would like more information about the study, please call the Childhood Cognition and Emotion Laboratory at 247-6332 at your earliest convenience (or if you prefer, you can send an e-mail message to vasey.1@osu.edu).

Thanks very much for taking the time to consider this invitation.

Sincerely,

Michael W. Vasey, Ph.D.
Associate Professor of Psychology
APPENDIX B

Study Description
TO BE READ WHILE PARENT(S) AND CHILD ARE PRESENT

This study is being conducted by Dr. Michael Vasey and his students in the Department of Psychology at The Ohio State University. In it we are looking at two things. First, we are studying how young people’s personalities are related to the manner in which they perceive the world around them. Second, we are looking at how parents make sense of or process information about their children. We are very grateful to you for taking the time to consider helping us by participating in the study.

Here is what will happen during the session. (Child’s Name), you will complete a series of questionnaires along with an activity on a computer. All together, these things will take about 2 hours. The questionnaires ask about various aspects of your personality and behavior. In the computer task, you’ll see pairs of words on the screen and be asked to push a button every time you see a small dot appear. (Parent’s Name), you will also complete a series of questionnaires. The first simply asks for some general information about your family and the remaining questionnaires ask you about the behavior of (Child’s Name) and about your attitudes about parenting. These questionnaires will take about 45 minutes to complete. You will also complete a computer activity in which you will be shown words and asked whether or not they describe your child. To compensate you for your time, we will pay you $40.00.

We will also leave two questionnaires with you that we would like (Child’s Name) to complete in 2 weeks and then return to us in a stamped, pre-addressed envelope that we will provide. We will send you a reminder shortly before 2 weeks have passed to let you know that it is time to complete the questionnaires. Please note that you are under no obligation to complete these additional questionnaires and you will not be penalized if you choose not to do so. However, if you do return them you will receive an additional $5. Thus, instead of receiving $40, you will receive $45.

Finally, we will send some questionnaires to one of (Child’s Name)’s teachers. We’ll get your input about who is the appropriate teacher to whom to send them. The questionnaires your teacher gets ask for his or her point of view on the same aspects of your behavior and personality covered by the questionnaires you’ll be filling out. To compensate your teacher for his or her time, we will provide $25 that he or she can use to support the classroom.
It is important for you to understand that all participants have the right to withdraw from the study at any point without penalty. Also, if there are any questions that you’d rather not answer, you don’t have to answer them. Let us know if anything makes you uncomfortable and we will try to make it better. However, we do ask that participants be serious in their commitment to complete today’s session. All information gathered in this study will be kept strictly confidential. That means that we don’t plan to discuss your answers with anyone else, not even your parents or your teachers. The only time we would ever do so is in a case where we have reason to believe that you are seriously at risk for harm. Then it would be our duty to make sure you are protected. To keep your answers confidential, your name won’t be placed on any of the study materials. Instead you will be given a code number. Because your teacher will need to know who you are to answer the questionnaires about you, your name will be attached to those questionnaires. However, we will ask your teacher to remove your name from them before sending them back to us.

Do you have any questions at this time? Any questions that come up later should be directed to Dr. Vasey at 292-2951.
APPENDIX C

Consent Form
CONSENT FOR PARTICIPATION IN
SOCIAL AND BEHAVIORAL RESEARCH

I consent to my child’s and my own participation in research entitled “
Dimensions of Personality and Children’s Information Processing

Dr. Micahel Vasey _______________ or his authorized representative has
(Principal Investigator)

explained the purpose of the study, the procedures to be followed, and the expected
duration of my participation. Possible benefits of the study have been described as have
alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information
regarding the study and that any questions I have raised have been answered to
my full satisfaction. Further, I understand that I am free to withdraw consent at any
time and to discontinue participation in the study without prejudice to me.

Finally, I acknowledge that I have read and fully understand the consent form.
I sign it freely and voluntarily. A copy has been given to me.

Date: _______________      Signed: ______________________________
(Participant)

Signed: _____________________      Signed: ______________________________
(Principal Investigator or his Authorized Representative)  (Parent or Guardian)
APPENDIX D

Tables
Table 1: Correlations for self-reports of internalizing symptoms, temperament, and demographic variables

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<th>CDI – depressed affect</th>
<th>CDI – low interest</th>
<th>CDI total score (DEP)</th>
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Table 2: Mean for demographic, symptom, and temperament variables
Table 3: Interactions of negative and positive affect with effortful control, predicting depressive symptoms

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

Table 4: Interaction of negative affect and effortful control predicting anxious symptoms
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Table 5: Interaction of parental rejection and effortful control predicting anxious symptoms
APPENDIX E

Figures
Figure 1: Distribution of rejection ratings
Figure 2: Interaction of negative affectivity and effortful control predicting depressive symptom
Figure 3: Interaction of positive affectivity and effortful control predicting depressive symptoms
Figure 4: Interaction of negative affectivity and effortful control predicting anxious symptoms
Figure 5: Interaction of effortful control and rejection predicting anxious symptoms