TOWARDS A SPECIFIC COGNITIVE VULNERABILITY MODEL OF DEPRESSION

Caroline B. Browne

A thesis submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Arts in the Department of Psychology (Clinical).

Chapel Hill
2009

Approved by:
Mitchell Prinstein, Ph.D.
Deborah Jones, Ph.D.
Andrea Hussong, Ph.D.
ABSTRACT

CAROLINE B. BROWNE: Towards a Specific Cognitive Vulnerability Model of Depression
(Under the direction of Mitchell Prinstein)

This study examined domain specific cognitive attributions and domain specific life events as predictors of depressive symptoms in a sample of 100 adolescents aged 13–14 years. Measures of depressive symptoms, depressogenic attributions, and life events were administered at an initial time point, and depressive symptoms were re-assessed 11 months later. Two expert coders sorted cognitive attributions and negative life events into specific domains ($\kappa = 1.0$). Results revealed mixed support for a domain specific vulnerability model. Dependent interpersonal stressors significantly predicted depressive symptoms in girls, but not in boys. Additionally, the interaction between achievement domain maladaptive cognitions and non-interpersonal stressors was significant for boys only. These results support the notion that a specific cognitive vulnerability may moderate the relationship between non-interpersonal life events and the development of depressive symptoms in boys. The hypothesized interaction between interpersonal domain negative attributions and dependent interpersonal stressors was not found for girls.
ACKNOWLEDGEMENTS

First and foremost, I would like to thank my advisor, Mitch Prinstein, for his endless support in the development of this thesis. He is a kind and patient teacher and for that I am very grateful. I am also tremendously grateful for the unfaltering support of my loving partner, Zac Adelman, throughout my graduate career and thesis process. Finally, I will always be grateful to my friends and family who helped me in many tangible and intangible ways throughout the process of developing this thesis.
# TABLE OF CONTENTS

LIST OF TABLES………………………………………………………………… vi

LIST OF FIGURES……………………………………………………………… vii

Chapter

I. INTRODUCTION………………………………………………………… 1

II. METHODS…………………………………………………………………… 8
    Participants…………………………………………………………………… 8
    Measures…………………………………………………………………… 9
    Data Analyses……………………………………………………………… 11

III. RESULTS…………………………………………………………………… 14
    Preliminary Analyses……………………………………………………… 14
    Gender Differences in Life Events and Attributional Style …………. 15
    Longitudinal Effects of Dependent Interpersonal Domain Stressors and Interpersonal Domain Cognitive Vulnerability on Depressive Symptoms…………………………………………………………… 16
    Longitudinal Effects of Independent Interpersonal Domain Stressors and Interpersonal Domain Cognitive Vulnerability on Depressive Symptoms…………………………………………………………… 17
    Longitudinal Effects of Non-Interpersonal Domain Stressors and Interpersonal Domain Cognitive Vulnerability on Depressive Symptoms…………………………………………………………… 18

IV. DISCUSSION……………………………………………………………… 20

REFERENCES…………………………………………………………………… 37
LIST OF TABLES

Tables

1. Means for Primary Variables at Time 1 and Time 2 ....................... 29

2. Bivariate Associations among Primary Variables......................... 30

3. Regression 1: Longitudinal Prediction of Depressive Symptoms by Gender, Dependent Interpersonal Stressors, and Interpersonally Oriented Cognitive Vulnerability .......................................................... 31

4. Regression 2: Longitudinal Prediction of Depressive Symptoms by Gender, Independent Interpersonal Stressors, and Interpersonally Oriented Cognitive Vulnerability .......................................................... 32

5. Regression 3: Longitudinal Prediction of Depressive Symptoms by Gender, Non-Interpersonal Stressors, and Achievement Oriented Cognitive Vulnerability .......................................................... 33
LIST OF FIGURES

Figures

1. Estimated marginal means of three domains of Life Events (i.e. stressors) by Gender ……………………………………………………………………………………………... 34

2. Estimated marginal means of two domains of Attributional Style by Gender …………………………………………………………………………………………………... 35

3. Interaction between non-interpersonal stressors and achievement domain cognitive style in predicting depressive symptoms among boys……………… 36
CHAPTER 1
INTRODUCTION

The transition to adolescence marks a time of sharply increased vulnerability to the development of depression. During this same period, an enduring gender difference in the prevalence of depression emerges (Nolen-Hoeksema, 1990), such that females are significantly more likely than males to develop both symptoms (Ge, Lorenz, Conger, Elder & Simons, 1994; Hankin, Mermelstein, & Roesch, 2007) and clinical levels of depression (Hankin & Abramson, 2001; Rudolph & Hammen, 1999; Rudolph, 2002). While the existence and developmental trajectory of this gender gap have been well established, many questions remain regarding the mechanisms by which females incur an increased vulnerability to depression (Hankin & Abramson, 2001). Cognitive and interpersonal models in particular have provided insight into the thought patterns and social processes underlying adolescent girls’ increased vulnerability to the development of depressive symptoms. The current study will focus on integrating and expanding models from these two complementary domains, in order to better account for the dramatic gender differences in the prevalence of depressive symptoms that emerge at the adolescent transition.

Existing cognitive attribution models and their value in explaining the mechanisms underlying depressive symptoms first will be addressed. A discussion of the limitations of traditional cognitive models will follow, with emphasis on the ways in which specifications of these models have better addressed gender differences in cognitive vulnerability to
depressive symptoms. More recent cognitive vulnerability-stress models that investigate vulnerability to domain-specific (e.g. interpersonal vs. non-interpersonal) stressors, will then be reviewed. Interpersonal models explaining girls’ increased reactivity and exposure to interpersonal stressors will be discussed as further evidence of the value of domain-specific cognitive models. Finally, the current study will integrate past cognitive and interpersonal research, by exploring several related hypotheses. Transactional models, which account for the ways in which individuals interact with their environment to produce given outcomes, also will be reflected in the current hypotheses (e.g. Rudolph & Hammen, 1999).

Cognitive models of depression suggest that an individual’s thought patterns play a key role in determining the meaning and consequences of that individual’s experiences in the world. In particular, the tendency to make certain types of attributions for negative life events or stressors is associated prospectively with an individual’s depressive symptoms, especially when combined with the actual experience of stress (e.g. Abramson, Seligman, and Teasdale, 1978; Abramson, Metalsky, & Alloy, 1989; Gladstone & Kaslow, 1995). Cognitive attribution models suggest that individuals who make internal, global and stable attributions for negative events are more vulnerable to developing depression (e.g. Abramson et al., 1989; Abela, 2001). This framework has proven fruitful in understanding cognitive risk factors for the development of depression among adolescents and adults. However, limitations of traditional cognitive models render them insufficient to fully explain adolescent females’ increased vulnerability to depression relative to males.

Critics of traditional cognitive models have highlighted several main limitations. A primary limitation is that the global conceptualization of cognitive vulnerability in these models is too broad in scope to address intra-individual differences in depressive cognitions
Traditional models that propose a global attributional style does not address differences in cognitive vulnerability to specific (e.g. interpersonal vs. achievement oriented) domains of life events. More recent literature has shown that domain-specific applications of cognitive models may be valuable in explaining the gender differences in vulnerability to depressive symptoms, especially given girls’ apparent increased vulnerability to events in the interpersonal domain (Hammen, 1992; Hankin et al., 2007; Rudolph & Hammen, 1999). Another related limitation of traditional cognitive models is that prior research often has examined stressful life events too broadly. For instance, prior studies may examine the effects of stressors from several different domains (e.g., academic, athletic, interpersonal) as though they were of equal consequence. This limitation has similarly restricted investigation of the intra-individual and inter-group (e.g. male versus female) differences proposed by domain-specific cognitive vulnerability-stress models.

Investigation of gender-specific differences in vulnerability to stressors and domain-specific models of depression vulnerability represent significant advances. Cognitive studies that have specifically investigated gender differences in depression have revealed that girls are more likely than boys to interpret events negatively (e.g. Hankin & Abramson, 2001; Hankin et al., 2007), and that girls are more likely than boys to experience particular types of negative events (Hankin et al., 2007; Shih, Eberhart, Hammen, & Brennan, 2006). While there is mixed evidence that girls experience more stressors generally, there is fairly consistent evidence that adolescent girls experience more stressors than their male peers in certain domains of life events (e.g. Rudolph & Hammen, 1999; Hankin et al., 2007). Given these findings, “specific vulnerability theories” have been formed, which suggest that girls may be especially vulnerable to experiencing domain specific stressors (Rudolph, 2002), and
also may be more susceptible to derive negative cognitions for these *domain specific* stressors (Hankin et al., 2007; Shih et al., 2006). Complementary past research has suggested that boys may be more vulnerable to the experience of non-interpersonal stressors than to interpersonal stressors, and that stressors in the achievement domain (i.e., academic stressors) may be particularly salient for understanding the development of depressive symptoms in adolescent boys (Sund, Larsson & Wichstram, 2003).

The interpersonal domain of life events is typically reported as a heightened area of vulnerability for adolescent girls. Several studies have demonstrated adolescent girls’ increased vulnerability to experiencing stressors in the interpersonal domain, both relative to their male peers and relative to pre-adolescent girls. Existing explanations for girls’ increased exposure to interpersonal stressors tend to focus on one of several themes. First, early adolescence is a time when girls begin to display increased gender-role adherence, in part related changes in pubertal status. Given that females report a stronger interpersonal orientation than males (e.g. Cyranowski, Frank, Young, & Shear, 2000) the emerging gender identity of adolescent girls may be associated with a greater emphasis on actively seeking out interpersonal experiences (i.e., new friends, romantic relationships, etc.), as well as more potential for negative experiences in the interpersonal domain. It has also been suggested that women may be at greater risk for a number of victimization experiences, including physical abuse and sexual trauma (e.g. Nolen-Hoeksema, 2002). Finally, there is evidence that adolescent females have relationships characterized by higher levels of self-disclosure and intimacy than those of their male counterparts, perhaps indicating that girls’ are exposed to more interpersonal experiences in general (i.e., greater exposure to both positive and negative experiences) (Rudolph, 2002; Hankin et al., 2007). Although frequently suggested, relatively
few studies have longitudinally investigated whether adolescent girls’ increased depression vulnerability is related to this increased vulnerability to the experience of interpersonal stressors. Those that have been conducted (e.g. Rudolph & Hammen, 1999; Rudolph, 2002; Hankin et al., 2007) have revealed several consistent findings. Results from these studies indicate that girls are more likely to experience interpersonal stressors than non-interpersonal stressors, and are more reactive to the experience of these stressors than are their male peers (e.g. Hankin et al., 2007). In addition, there is evidence that girls are more vulnerable to the experience of depressive symptoms in response to certain types of interpersonal stressors than in response to other types of stressors (e.g. Rudolph & Hammen, 1999; Rudolph, 2002; Rudolph et al., 2001).

In particular, girls appear to be most vulnerable to the development of depressive symptoms in response to interpersonal stressors to which they may have contributed (i.e., Dependent interpersonal stressors). These findings come from research based on interpersonal theories of depression, which suggest that interpersonal stressors may include events that individuals may have contributed to (i.e., dependent stressors) as well as events occurring outside of an individual’s control (i.e., independent stressors). Stress generation theories, which suggest that depression predicts the occurrence of dependent, but not independent interpersonal stressors, (e.g. Hammen, 1991) highlight the importance of considering transactional models in understanding the trajectory of depression.

The recent literature on girls’ interpersonal vulnerabilities has proven to be valuable in honing cognitive models to better explain the gender gap in depression. Indeed, new theory has emerged, combining cognitive vulnerability-stress models (Hankin & Abramson, 2001) and interpersonal vulnerability models to explain gender differences in depression.
Still, more longitudinal research is needed to support these theories. In addition, longitudinal investigation of domain-specific cognitive vulnerabilities is warranted. Past studies that have examined the interaction between specific cognitive vulnerabilities and stress have revealed that interpersonal life events may interact with a heightened interpersonal orientation (e.g., sociotropy) to predict depression (e.g., Hammen, 2006; Hammen, Marks, Mayol, & deMayo, 1985; Hammen & Goodman-Brown, 1990). While findings from these studies point to the value of exploring specific cognitive vulnerabilities, they did not specifically investigate the cognitive factor of attributional style. Given that investigation of domain-specific stressors has proven fruitful, and that a depressive attributional style may moderate the relationship between these stressors and the development of depressive symptoms, there is value in considering the role of domain specific negative cognitions (i.e., domain specific depressogenic attributions) as part of girls’ increased vulnerability to depression.

Consistent with past research, the current study is premised on the view that interpersonal stressors are more relevant for understanding the development of depressive symptoms (i.e., and triggering negative attributions) in girls, while non-interpersonal stressors may be more relevant for understanding the development of depressive symptoms in boys. This study will longitudinally investigate several complementary hypotheses. First, this study will seek to replicate recent findings that girls experience heightened rates of interpersonal stressors relative to boys, and that the experience of interpersonal stressors is longitudinally related to the development of depressive symptoms in girls, but not in boys. An additional hypothesis, which would offer evidence in support of the value of looking at domain specific cognitive vulnerability, is that adolescent girls who report more depressive
attributions in the interpersonal domain, as compared to depressive attributions in the non-interpersonal domain, are more vulnerable to the development of depressive symptoms.

Additional hypotheses, integrating cognitive and interpersonal theories with a transactional stress-generation model of depression development (Hammen, 1991), are proposed below. Given the relevance of interpersonal models in understanding the development of depressive symptoms in girls, as well as findings that depressed individuals generate more stress in their environments (Hammen, 1991), transactional models that consider the reciprocal effects of an individual on the environment present the most appropriate framework for assessing vulnerability to depression (Hammen, 1992). Cognitive, interpersonal, and transactional models are therefore integrated with the hypothesis that levels of dependent interpersonal stressors experienced will be most strongly associated with girls’ concurrent and longitudinal depressive symptoms when combined with a tendency for interpersonal domain negative attributions (i.e., there will be a three-way interaction between gender, domain specific cognitive vulnerability, and domain specific life events, such that girls who report a depressogenic attributional style in the interpersonal domain, and experience dependent interpersonal stressors will be at the greatest risk for the development of depressive symptoms). The inverse is predicted for boys, such that levels of non-interpersonal stressors experienced will be associated with boys’ concurrent and longitudinal depressive symptoms, particularly when combined with a tendency for achievement domain negative attributions.
CHAPTER 2

METHODS

Participants

Participants included 100 students (51% female) in grades 7 (49%) and 8 (51%), recruited from a suburban middle-class school. The sample was composed of 95% Caucasian, 1% Asian-American, 1% African-American, and 3% multi-ethnic students. This sample was randomly selected from a larger sample of 478 students (51% female), who were in grades 6 (33.3%), 7 (30.3%), and 8 (36.4%) one year prior to the current participants’ recruitment. All participants in the original sample (n=478) were between the ages of 11 and 14 years, M = 12.70, SD = 0.95. The original sample was composed of 87% Caucasian, 4% Asian-American, 2% African-American, 2% Latino-American, and 6% multi-ethnic students. According to school records, 11% of children in the study qualified for free or reduced-price lunch. At time 1 (T1) of the original study, all sixth to eighth grade students attending the middle school were given the opportunity to participate in the original study. Consent forms were returned by 92% (n = 784) of families, with 80% consenting to the child’s participation in the study (n = 627, 74% of total recruited population). At T1, a total of 44 students had missing or incomplete data, due to absenteeism (n = 10), incomplete responses (n = 30), and refusal to participate (n = 4). The T1 sample therefore included 580 participants. Of these, a total of 478 (83%) participants were available for testing 11 months later (i.e., Time 2). Study attrition across both time points was due to relocation (n = 36), incomplete data (n = 54),
absenteeism (n = 7), and refusal to continue with the study (n = 5). Attrition analyses revealed no significant differences on study variables between participants with and without available data at Time 2.

At one year post-study, a random sub-sample of the original 478 participants was contacted and invited to participate in an additional phase of the study. Invitations to participate in this additional phase were issued to 147 participants. Of these, 115 agreed to participate in this additional phase of the project and complete data were collected successfully from 100 of these participants (eight could not be contacted at the time of the study, and seven did not provide complete data on all study measures). Results revealed no differences between those who agreed or declined to participate in this supplemental data collection on any study variables. Hypotheses were examined for participants with complete data for all study variables (n = 100) in the current investigation.

Measures

Depressive symptoms - The Children’s Depression Inventory (CDI; Kovacs, 1981; Kovacs, 1985) is a 27-item measure designed to assess depressive affect and symptoms. For each item, the participant is provided with three alternative statements and instructed to select the one that best describes their symptoms over the past 2 weeks (e.g., “I am sad once in a while,” “I am sad many times,” and “I am sad all the time”). Responses are coded on a scale of 0–2, with higher scores indicating heightened depressive symptoms. The CDI is well-established as a reliable and valid assessment of depressive symptoms in children between the ages of 7 and 18 years (Smucker, Craighead, Craighead, & Green, 1986).
Attributional Style - The 24-item version of the children’s attributional style questionnaire (CASQ) was administered as a measure of depressogenic attributional style at each time point. The CASQ lists 12 positive (e.g., athletic success, praise) and 12 negative (e.g., academic failure, interpersonal rejection) hypothetical events and instructs participants to select the most likely of two possible causes for each event. Answers for each item correspond to one of three attributional dimensions associated with cognitive theories of depression: internal vs. external, stable vs. unstable, and global vs. specific (Abramson et al., 1989). For both positive and negative events, a score of 1 was coded for each internal, stable, or global attribution, and a score of 0 was coded for each external, unstable, or specific attribution. Consistent with prior research (Panak & Garber, 1992), a sum of attributions for negative events was subtracted from a sum of attributions for positive events to derive a composite score, with lower total CASQ scores indicating higher levels of depressogenic global attributional style. Two expert coders sorted items into interpersonal and non-interpersonal events ($\kappa = 1.0$) to enable analysis of a domain-specific cognitive vulnerability model. Thus, two separate measures were created in order to determine attributional style for interpersonal domain events and attributional style for non-interpersonal events, respectively. It should be noted that measurement of the internal consistency revealed relatively poor internal consistency (i.e., low alpha) among items in each domain.

Life events - A modified Life Events Checklist (LE-C) was administered to assess for the occurrence of a variety of interpersonal and non-interpersonal, as well as dependent and independent stressors. The LE-C is a 30-item checklist that asks respondents to indicate whether each listed life event has occurred in the past 12 months and to rate the impact of each event that has occurred. In order to provide points of reference for the given time
interval, adolescents were reminded of salient time markers, such as birthdays and school holidays. This measure is tailored to adolescent populations, with items derived from a variety of commonly used life events inventories (see Coddington, 1971; Compas, Davis, Forsythe, & Wagner, 1987; Johnson & McCutcheon, 1980; Masten, Garmezy, Tellegen, Pellegrini, & Larkin, 1988). Due to the previously discussed relevance of interpersonally-themed stressors among adolescent girls, two expert coders sorted negative life events into interpersonal and non-interpersonal events ($\kappa = 1.0$). In order to account for the role of transactional processes in predicting depressive symptoms, expert coders further sorted each of these categories into dependent and independent events ($\kappa = 1.0$). Measurement of the internal consistency of the LE-C is not warranted because items listed in the checklist are considered to be orthogonal.

Data Analyses

Seven hypotheses proposed in the current study were that (1) girls would experience higher rates of interpersonal stressors than boys (2) the experience of dependent interpersonal stressors would be longitudinally associated with the development of depression in girls more strongly than in boys (3) adolescent girls would report more depressogenic attributions in relation to interpersonal domain events than to achievement domain events (4) adolescent girls’ interpersonal-domain maladaptive attributions would be longitudinally associated with increased levels of depressive symptoms (5) levels of dependent interpersonal stressors experienced would be most strongly associated longitudinally with girls’ depressive symptoms when combined with a tendency for interpersonal domain
negative attributions (i.e., a three-way interaction between gender, domain specific cognitive vulnerability, and domain specific life events, such that girls who report a depressogenic attributional style in the interpersonal domain, and experience dependent interpersonal stressors are at the greatest risk for the development of depressive symptoms) (7) Further highlighting the relationship between gender and domain specific vulnerabilities, the experience of non-interpersonal stressors would be associated longitudinally with boy’s depressive symptoms, particularly when combined with a tendency for achievement domain depressogenic attributions.

Three hierarchical multiple regressions assessing domain-specific cognitive vulnerability models were conducted. Each regression longitudinally examined the effects of gender, domain specific life events, and matching domain specific depressogenic cognitions on the development of depressive symptoms (e.g. examination of the role of dependent interpersonal stressors and interpersonally oriented cognitive vulnerability in predicting depressive symptoms). This model allowed for investigation of the main effects of gender, domain specific depressogenic cognitions, and domain specific life events as competing predictors of depressive symptoms. This model also allowed for the examination of gender and domain specific depressogenic cognitions as moderators. All predictors used to compute product terms in interactions were centered before computing the regression equations. Using Time 2 CDI outcomes as criterion measures, corresponding Time 1 measures were entered in the initial step for each regression. Main effects of domain specific life events, domain specific depressogenic cognitions, and adolescents’ gender were entered in the second step of each regression. All possible two-way interactions were entered on a third step, and the hypothesized three-way interactions (e.g. gender x dependent interpersonal LE
x CASQ interpersonal) were entered on a final step. Trimmed models that included only covariates and significant predictors were then run, and Holmbeck’s (2002) most recent guidelines for post hoc probing were used to probe any significant interactions. This process included (a) computation of new product terms at each levels of the moderator variable (i.e., High vs. Low) (b) computation of simple slope estimates, and (c) examining the statistical significance of these simple slopes at each level of the moderator variable.
CHAPTER 3

RESULTS

Preliminary Analyses

Means and standard deviations for depressive symptoms, depressogenic cognitions, and negative life events (LE) were calculated for Times 1 and 2 (see Table 1). Gender differences were examined across all variables. T-tests examining gender differences revealed no gender differences in the levels of any variable at either T1 or T2.

Pearson correlations were conducted to examine bivariate associations among all study variables at T1 and T2 (see Table 2). At T1, results revealed significant correlations between achievement related depressogenic cognitions and independent interpersonal stressors for males. Associations between achievement related depressogenic cognitions and depressive symptoms at each time point were significant for both males and females. Dependent interpersonal stressors at T1 were significantly correlated with achievement related depressogenic cognitions for females only. Dependent interpersonal stressors at T1 were correlated with T1 depressive symptoms for males only. Independent interpersonal stressors were significantly associated with non-interpersonal stressors at time 1. Depressive symptoms at T1 and T2 were significantly correlated for both males and females. For females, all three levels of stressors (i.e., dependent interpersonal, independent interpersonal, and non-interpersonal) at T1 were significantly associated with T2 depressive symptoms.
Non-interpersonal stressors and independent interpersonal life events were associated at T1 for both males and females.

Gender Differences in Life Events and Attributional Style

Analyses of adolescents’ depressive symptoms over time included those participants who had available data for all primary study variables at T1 and for depressive symptoms at T2 (n = 100). Two underlying hypothesis about girls’ increased interpersonal vulnerability were examined using split-plots MANOVAs. First, the hypothesis that girls are uniquely vulnerable to experiencing heightened rates of dependent interpersonal stressors compared to boys was tested using a 2 (males vs. females) x 3 (dependent interpersonal vs. independent interpersonal vs. non-interpersonal Life Events) split-plot MANOVA (see Figure 1). Life Events served as the repeated measures factor, and gender served as the between subjects factor in this analysis. Results revealed that adolescents are significantly less likely to experience non-interpersonal life events than either dependent interpersonal life events or independent interpersonal life events, F(2,104)=53.8; p<.001. No significant gender difference was found. These results did not support the hypothesis that girls experience heightened rates of interpersonal stressors compared to boys.

Similarly, the hypothesis that adolescent girls are uniquely more likely to report depressogenic attributions for interpersonal stressors than for non-interpersonal stressors was explored using a 2 (males vs. females) x 2 (interpersonal vs. non-interpersonal attributions) split-plot MANOVA (see Figure 2). Cognitive attributional style served as the repeated measures factor, and gender served as the between subjects factor in this second analysis. Results from the analysis revealed that adolescents are significantly more likely to have maladaptive cognitions in relation to interpersonal domain stressors than achievement
domain stressors, F(1, 643)= 40.29; p<.001. No gender difference was found in the rate of depressogenic cognitions in either domain. These results support the hypothesis that girls report more depressogenic attributions for interpersonal stressors than for non-interpersonal stressors, although they also reveal that this pattern of attributions is not unique to girls.

Longitudinal Effects of Dependent Interpersonal Domain Stressors and Interpersonal Domain Cognitive Vulnerability on Depressive Symptoms

Hierarchical multiple regression was used to examine the hypothesis that the experience of dependent interpersonal stressors would be associated longitudinally with girls’ depressive symptoms, particularly when combined with a tendency to generate interpersonal-domain depressogenic attributions. Using Time 2 depressive symptoms as the dependent variable, corresponding Time 1 measures of depressive symptoms were entered on a first step, followed by main effects of dependent interpersonal stressors, interpersonal domain attributional style, and gender entered on a second step. All possible two-way interactions were entered on a third step to examine gender and domain specific depressogenic cognitions as moderators, and a three-way interaction term was entered on a fourth step (see Table 3). Analyses revealed a significant interpersonal domain cognitive vulnerability x gender interaction (see β step statistics in Table 3; unique effect $R^2 = .06$, p< .05), as well as a dependent interpersonal stressors x gender interaction (unique effect $R^2 = .06$, p< .01) for the prediction of depressive symptoms at T2.

Reduced, or “trimmed” models (i.e., including covariates and only significant predictors) were then run and new simple slope estimates were computed. Holmbeck’s (2002) most recent guidelines for post hoc probing of significant moderational effects were then used to explore the nature of this interaction. New product terms were computed at
different levels of the moderator variable (i.e., for girls and for boys), and the statistical significance of these slopes was examined at different levels of the moderator variable. Results revealed a significant effect of dependent interpersonal stressors for girls ($\beta = .39$, $p<.001$), indicating that greater levels of T1 dependent interpersonal stressors were associated with higher levels of depressive symptoms at T2, after controlling for initial levels of depressive symptoms. In contrast, the slope for boys was not statistically significantly different from zero ($\beta = .05$, n.s.). This finding supported the hypothesis that girls may be uniquely vulnerable to the effects of dependent interpersonal stressors in predicting the development of depressive symptoms. Contrary to the prediction that girls would display a unique cognitive vulnerability in the interpersonal domain, no significant effects were revealed for interpersonal domain cognitive vulnerability in either girls or boys.

**Longitudinal Effects of Independent Interpersonal Domain Stressors and Interpersonal Domain Cognitions on Depressive Symptoms**

In order to examine the effects of independent interpersonal stressors on girls’ concurrent and longitudinal depressive symptoms, as well the interaction between stressors in this domain and interpersonal-domain depressogenic attributions, a second hierarchical multiple regression was conducted. Using Time 2 depressive symptoms as the dependent variable, corresponding Time 1 measures of depressive symptoms were entered on a first step, followed by main effects of independent interpersonal stressors, interpersonal domain attributional style, and gender entered on a second step. All possible two-way interactions were entered on a third step to examine gender and domain specific depressogenic cognitions as moderators, and a three-way interaction term was entered on a fourth step (see Table 4).

Analyses revealed significant main effects of gender ($\beta=.15$, $p<.05$) and independent
interpersonal life events ($\beta = .19$, $p < .05$) in the prediction of depressive symptoms at T2, but no significant interaction effects between variables. These results suggest that being female significantly increases the risk of developing depressive symptoms over time, and that the occurrence of independent interpersonal life events also increases the likelihood of developing depressive symptoms.

*Longitudinal Effects of Non-Interpersonal Domain Stressors and Achievement Domain Cognitions on Depressive Symptoms*

A final hierarchical multiple regression was conducted to examine the domain specific hypothesis that the experience of *non-interpersonal* stressors would be associated with boys’ concurrent and longitudinal depressive symptoms, particularly when combined with a tendency for achievement domain depressogenic attributions. Using T2 depressive symptoms as the dependent variable, corresponding T1 measures of depressive symptoms were entered on a first step, followed by main effects of non-interpersonal stressors, achievement domain attributional style, and gender entered on a second step. All possible two-way interactions were entered on a third step to examine gender and domain specific depressogenic cognitions as moderators, and the hypothesized three-way interaction term (i.e. non-interpersonal stressors x gender x achievement related cognitive vulnerability) was entered on a fourth step (see Table 5). Analyses revealed a significant three way interaction (see $\beta$ step statistics in Table 5; unique effect $R^2 = .03$, $p < .05$) for the prediction of depressive symptoms at T2. Further analyses by gender revealed no significant two-way interactions among girls. Among boys, analyses revealed a significant interaction between the occurrence of achievement domain stressors and a non-interpersonal domain maladaptive cognitive style in the prediction of depressive symptoms. New product terms were then
computed at each level of the moderator variable (i.e., high vs. low scores on the CASQ). Simple slope estimates were then computed by including these new high vs. low product terms in “reduced” regression models that include only covariates and significant predictors, and examining the statistical significance of these simple slopes at each level of the moderator variable. Results revealed a significant ($\beta = -.30, p<.05$) interaction between non-interpersonal stressors and achievement domain cognitive style. Specifically, results revealed a significant ($\beta = .62, p < .01$) association between high levels of non-interpersonal stressors and the development of high levels of depressive symptoms for boys reporting maladaptive cognitions in the achievement domain (see Figure 3). For boys reporting adaptive cognitions in this same domain, the relationship between high levels of non-interpersonal stressors and the development of depressive symptoms was not significant ($\beta = -.01, \text{n.s.}$). These results indicate that a specific cognitive vulnerability (i.e., achievement domain maladaptive cognitions) may moderate the relationship between the occurrence of non-interpersonal life events and the development of depressive symptoms in boys.
CHAPTER 4
DISCUSSION

This longitudinal, prospective study examined the role that both domain specific stressors (i.e., dependent interpersonal, independent interpersonal, and non-interpersonal domain) and domain specific cognitive vulnerability (i.e., interpersonal versus achievement domain) may play in explaining the gender gap in depression prevalence that emerges during adolescence. Hypotheses proposed in the present study combined theory from cognitive, stress-generation, and interpersonal models of depression in an effort to explain girls’ increased risk for the development of depressive symptoms, relative to their male peers. In addition, a model of specific vulnerability for boys was explored, which proposed that non-interpersonal stressors and achievement related cognitions might be more relevant for understanding the development of depressive symptoms in adolescent males. Results offered mixed support for the study hypotheses.

An initial hypothesis was that girls would experience heightened rates of dependent interpersonal stressors relative to boys (e.g. Rudolph, 2002; Hankin et al., 2007). This hypothesis represents a domain specific extension of stress-exposure models, which suggest that sex differences in depressive symptoms can be explained in part by the fact that girls experience heightened rates of stressors relative to boys (e.g. Hankin et al., 2007). Although the current study did not find higher rates of dependent interpersonal stressors in girls than in boys, it is possible that the age group captured in this study was slightly younger than the
cohort in which stress exposure differences are typically observed. That is, while the current study was conducted using 7th and 8th grade students, research suggests that changes occurring during and after the high school transition may be more relevant to the emergence of a gender gap in depressive symptoms and related risk factors (e.g. Nolen-Hoeksema & Girgus, 1994). The current study was based on a sample in which boys and girls reported comparable rates of depressive symptoms, supporting the notion that changes associated with the gender difference in depressive symptoms had not yet occurred for this group.

Consistent with interpersonal models of depression, it also was expected that adolescent girls would experience greater rates of stressors in the dependent interpersonal domain than in either the independent interpersonal or non-interpersonal domains. The finding that both males and females experience heightened rates of interpersonal stressors, relative to non-interpersonal stressors, is consistent with developmental literature suggesting that the transition to adolescence is a period in which interpersonal stressors become both more frequent and more salient (e.g., Rudolph & Hammen, 1999; Rudolph, 2002). Past research has suggested that adolescents play a more active role in their social environments (i.e., choosing friends, establishing cliques, forming romantic relationships, etc.) than do younger children, and hence have more opportunities for interpersonal stressors to arise. However, these results did not support models suggesting that girls experience higher rates of dependent interpersonal stressors than boys do (e.g. Hankin et al., 2007). Again, it is possible that because the current study was conducted in a pre-high school sample, gender differences related to the experience of interpersonal domain stressors were not yet apparent. Based on previous literature, the emergence of gender differences in depressive symptoms and related risk factors would be expected by the age of fifteen (e.g. Nolen-Hoeksema & Girgus, 1994).
Consistent with the proposed domain specific cognitive vulnerability model, a second analysis explored the hypothesis that girls would report a greater number of depressogenic attributions in relation to interpersonal domain events than to achievement domain events, while boys would report the inverse. Results revealed that adolescents are significantly more likely to make maladaptive attributions in relation to the interpersonal domain than the achievement domain, but there was no gender difference found in the rates of domain specific maladaptive attributions. While these results are consistent with the hypothesis that adolescent girls report more depressogenic attributions in relation to interpersonal domain events than to achievement domain events, they do not indicate a gender difference in domain specific cognitive vulnerability in this age group. These results highlight the importance of studying interpersonal domain cognitive vulnerability in adolescents of both genders.

Previous research has revealed mixed evidence for the hypothesis that girls are more reactive than boys to the experience of stressors in general (i.e., not domain-specific) (Hankin et al., 2007). In addition, several studies have provided evidence in support of a domain specific stress-reactivity model of depression, which says that adolescent girls are more likely than adolescent boys to develop depressive symptoms following the experience of interpersonal stressors (e.g. Goodyer & Altham, 1991). The current study expands on this existing literature, with the finding that girls’ experience greater levels of depressive symptoms than boys in response to the experience of dependent interpersonal stressors. Similar relationships between domain specific stressors and the development of depressive symptoms in girls were not revealed for either independent interpersonal stressors or non-interpersonal stressors. This set of findings suggests that girls’ heightened reactivity to
interpersonal events may be specific to the dependent interpersonal domain, and may help explain why studies that examine girls’ reactivity to stressors, more broadly defined, often have mixed results.

Although it seems plausible that girls’ increased reactivity to dependent interpersonal stressors would be associated with a cognitive vulnerability in this domain, results indicated that interpersonal domain cognitive vulnerability did not prospectively predict depressive symptoms in either girls or boys. Similarly, examination of interaction effects did not support the idea that an interaction between domain specific stressors and domain specific cognitive vulnerability underlies girls’ increased vulnerability to depressive symptoms (i.e., the domain specific cognitive-vulnerability-stress model, as applied to girls). This finding may provide evidence that girls’ increased vulnerability to depressive symptoms in the face of dependent interpersonal stressors is not moderated by a domain specific cognitive vulnerability. There are several reasons that these findings should be interpreted with caution, however. First, it is possible that the interpersonal-domain measure of cognitive vulnerability used in this study (i.e., the CASQ) did not include the same sorts of items that girls’ actually experienced as dependent interpersonal stressors, and therefore was not a valid measure of their cognitive response style to “real life” dependent interpersonal stressors (e.g. traumatic experiences, such as sexual assault by a peer, were not included in the measure of cognitive vulnerability).  

Also, the measure of cognitive vulnerability (i.e., the CASQ) administered was not originally designed to assess for domain specific cognitive vulnerability, and may not represent an ideal instrument for assessing this construct. Finally, because there were a limited number of items available on the CASQ, a measurement of attributions for dependent interpersonal scenarios was not possible. The development of a domain specific (i.e., dependent interpersonal
domain, independent interpersonal domain, and achievement domain) measure of cognitive vulnerability would help to address these potential limitations.

Results from the second domain specific regression analysis revealed support for the well-established finding that being female significantly increases the risk of developing depressive symptoms over time. Results also indicated that the occurrence of independent interpersonal life events increases the likelihood of developing depressive symptoms, but no interaction with gender was found. Similarly, no interaction was reported between gender and the occurrence of non-interpersonal life events. The contrast between these findings and the reported presence of an interaction between dependent interpersonal stressors and being female provides support for the notion that dependent interpersonal stressors may be more relevant than independent interpersonal, or non-interpersonal stressors in explaining the gender gap in depressive symptoms. The finding that dependent interpersonal stressors uniquely interact with gender to predict depressive symptoms also supports the value of differentiating between domains of stressors. Beyond this, there is at least one additional reason that the differentiation between dependent and independent interpersonal stressors may be of value for explaining the gender gap in depressive symptoms. Stress-generation theories suggest that individuals who are depressed are more likely to generate interpersonal stress, and will therefore be more likely to experience dependent stressors than non-depressed individuals. Given previous evidence that girls experience more stressors than boys, both generally and in the interpersonal domain, it may be of value to determine whether the types of stressors that girls are experiencing more of are those to which they are more likely to contribute.

Results from the final domain-specific regression analysis provided full support for the
domain specific cognitive vulnerability model proposed for adolescent males. This analysis revealed a significant association between high levels of non-interpersonal stressors and the development of high levels of depressive symptoms for boys reporting maladaptive cognitions in the achievement domain. The finding that achievement domain maladaptive cognitions may moderate the relationship between the occurrence of non-interpersonal life events and the development of depressive symptoms in boys is consistent with theory suggesting that adolescent boys place paramount importance on aspects of their identity related to achievements and activities, rather than on relationships (Hankin et al., 2007). These results provide initial evidence that boys who experience non-interpersonal stressors and have a specific cognitive vulnerability in the achievement domain may be at higher risk than other boys for the development of depressive symptoms over time. Past research has suggested that the interaction between a domain-specific orientation (i.e., placing greater value on events in the achievement domain versus interpersonal domain) and the experience of matching domain specific stressor may predict depressive symptoms (Little and Graber, 2000). Of note, most of these studies have supported a domain specific vulnerability model for the interaction of interpersonal stressors and interpersonal domain orientation. Relatively few studies have demonstrated support for the notion that achievement related stressors interact with an achievement orientation to predict depressive symptoms (Brown, Hammen, Craske, & Wickens, 1995). Findings from the current study may help to explain why the interaction between and achievement orientation and achievement stressors is not sufficient to explain depressive symptoms. First, the current findings suggest that cognitive vulnerability to achievement related events may moderate the relationship between the experience of achievement related stressors, and the development of depressive symptoms in
boys. Second, consideration of gender differences in domain specific cognitive vulnerabilities may also help to explain variation in the circumstances under which boys and girls differentially develop depressive symptoms. These conclusions should be interpreted with caution however, as the current study did not measure achievement related stressors as a separate domain. Rather, achievement related stressors were included in a broader category of non-interpersonal stressors. A more stringent measure solely assessing achievement related stressors

This study represents a fruitful extension of past research on cognitive vulnerability-stress theories by examining the relationships between domain specific cognitive vulnerability, domain specific stressors, gender, and the development of depressive symptoms. Furthermore, the use of a longitudinal, prospective design allowed for examination of the temporal relationship between these variables. Despite these strengths, several limitations of the current study highlight the need to interpret these results with caution. A main limitation of this study is the use of a relatively small, ethnically homogenous sample. In particular, having only 100 participants in the sample precluded the simultaneous analysis of all study hypotheses in a single regression. The use of a larger, more representative sample would have allowed for direct comparison between each specific vulnerability model, as well as increased confidence in the external validity of these results.

Another limitation of this study is the poor internal consistency (i.e., low alpha) among items in each domain for cognitive attributions. It is possible that items considered to be in the same domain on this measure may not constitute a unified construct. Some items in the non-interpersonal domain, for example, refer to very isolated incidences (e.g. “You walk into a door and you get a bloody nose”), while others may represent more enduring patterns
of events (e.g., “You fail a test”). Similarly, some items that fall into the non-interpersonal domain may still have interpersonal implications (e.g., a child who fails a test may be limited from social activities by his/her parents). Future research might benefit from the development of measures explicitly designed to assess *domain specific* attributions for scenarios that clearly fall into achievement versus interpersonal domains. Additionally, there is a growing body of research suggesting that the extent to which an individual places value on a given domain of life events (i.e., interpersonal versus achievement domains) may be important for understanding the development of depressive symptoms in the face of domain-specific stressors (Little and Garber, 2000). While the current study examined attributional style for interpersonal versus achievement domains, it did not directly explore the relative importance of these domains for males versus females.

A final potential limitation of this study is the fact that measurement of depressive symptoms at the second time point in this study occurred eleven months after the initial time point. Given that adolescence is a time of enormous transition, it is possible that the domain and frequency of life events measured at the initial time point did not provide an accurate picture of life events more proximally related to the development of depressive symptoms at the second time point. Particularly given findings the transition to adolescence is marked by increased peer contact, it is possible that the incidence and importance of interpersonal stressors may have increased dramatically between these two time points. It is also possible that the observed relationship between non-interpersonal stressors, achievement related cognitions, gender and the development of depression is mediated in part by a third variable, such as increased likelihood of affiliation with a deviant peer group for cognitively vulnerable boys experiencing achievement related stressors.
In summary, this study provides initial evidence that domain specific cognitive-vulnerability-stress models may help elucidate gender differences in risk factors for depressive symptoms. In particular, results suggest that males and females may differ in terms of the relevance of particular domains of life events (i.e., dependent interpersonal, independent interpersonal and non-interpersonal) and domain specific (i.e., interpersonal versus achievement domain) cognitive attributions in predicting the onset of depressive symptoms. Findings indicate that continued research along these lines might be fruitful in helping to explain gender differences in the development and trajectory of adolescent depression.
Table 1. Means (and standard deviations) for Primary Variables at Time 1 and Time 2. n=100

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>t (98)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CASQ Interpersonal</td>
<td>.35(.46)</td>
<td>.45(.44)</td>
<td>-1.07</td>
</tr>
<tr>
<td>CASQ Achievement</td>
<td>.59(.32)</td>
<td>.53(.34)</td>
<td>.93</td>
</tr>
<tr>
<td>LE Dependent Interpersonal</td>
<td>.22(.30)</td>
<td>.32(.36)</td>
<td>-1.55</td>
</tr>
<tr>
<td>LE Independent Interpersonal</td>
<td>.22(.27)</td>
<td>.25(.25)</td>
<td>-.46</td>
</tr>
<tr>
<td>LE Non-Interpersonal</td>
<td>.05(.12)</td>
<td>.06(.13)</td>
<td>-.52</td>
</tr>
<tr>
<td>Depressive Symptoms</td>
<td>.32(.28)</td>
<td>.27(.22)</td>
<td>1.01</td>
</tr>
<tr>
<td><strong>Time 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressive Symptoms</td>
<td>.21(.20)</td>
<td>.24(.21)</td>
<td>-.92</td>
</tr>
</tbody>
</table>

CASQ = cognitive attributional style  
LE = Life Events/Stressors.
Table 2. Bivariate Associations among Primary Variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CASQ Interpersonal</td>
<td>-</td>
<td>.02</td>
<td>-.22</td>
<td>-.13</td>
<td>.04</td>
<td>.09</td>
<td>-.11</td>
</tr>
<tr>
<td>2. CASQ Achievement</td>
<td>.02</td>
<td>-</td>
<td>-.14</td>
<td>-.26*</td>
<td>.11</td>
<td>-.55***</td>
<td>-.43**</td>
</tr>
<tr>
<td>3. LE Dependent Interpersonal</td>
<td>-.12</td>
<td>-.24*</td>
<td>-</td>
<td>.01</td>
<td>.05</td>
<td>.29*</td>
<td>.18</td>
</tr>
<tr>
<td>4. LE Independent Interpersonal</td>
<td>.06</td>
<td>.02</td>
<td>.06</td>
<td>-</td>
<td>.32*</td>
<td>.03</td>
<td>.16</td>
</tr>
<tr>
<td>5. LE Non-interpersonal</td>
<td>.11</td>
<td>-.06</td>
<td>.20</td>
<td>.42**</td>
<td>-</td>
<td>-.09</td>
<td>.07</td>
</tr>
<tr>
<td>6. Depressive Symptoms</td>
<td>-.10</td>
<td>-.50***</td>
<td>.22</td>
<td>.16</td>
<td>.13</td>
<td>-</td>
<td>.69***</td>
</tr>
<tr>
<td><strong>Time 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Depressive Symptoms</td>
<td>.03</td>
<td>-.36**</td>
<td>.53***</td>
<td>.34**</td>
<td>.37**</td>
<td>.65***</td>
<td></td>
</tr>
</tbody>
</table>

Note: Correlations for males appear above the diagonal; correlations for females appear below the diagonal. * p < .05; ** p < .01; *** p < .001

CASQ = cognitive attributional style
LE = Life Events/Stressors.
Table 3: Longitudinal Prediction of Depressive Symptoms by Gender, Dependent Interpersonal Stressors, and Interpersonally Oriented Cognitive Vulnerability

<table>
<thead>
<tr>
<th>Predictors</th>
<th>ΔR²</th>
<th>b (se b)</th>
<th>β</th>
<th>b (se b)</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1 CDI</td>
<td>.43</td>
<td>.53 (.06)</td>
<td>.65***</td>
<td>.54 (.06)</td>
<td>.67***</td>
</tr>
<tr>
<td>Step 2</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent Interpersonal LE</td>
<td>.14 (.05)</td>
<td>.23**</td>
<td>-.07 (.08)</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Interpersonal CASQ</td>
<td>-.00 (.03)</td>
<td>-.01</td>
<td>-.09 (.05)</td>
<td>-.20</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.49 (.03)</td>
<td>.12</td>
<td>.06 (.03)</td>
<td>.15*</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent Interpersonal LE x Gender</td>
<td>.30 (.09)</td>
<td>.37**</td>
<td>.31 (.09)</td>
<td>.39**</td>
<td></td>
</tr>
<tr>
<td>Dependent Interpersonal LE x Interpersonal CASQ</td>
<td>-.04 (.09)</td>
<td>-.03</td>
<td>-.11 (.16)</td>
<td>-.09</td>
<td></td>
</tr>
<tr>
<td>Interpersonal CASQ x Gender</td>
<td>.15 (.07)</td>
<td>.23*</td>
<td>.15 (.07)</td>
<td>.24*</td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td>.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal CASQ x Gender x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent Interpersonal LE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total R²</td>
<td>.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001; CDI = Depressive Symptoms; Interpersonal CASQ = interpersonal domain attributional style; LE = Life Events/Stressors.
Table 4: Longitudinal Prediction of Depressive Symptoms by Gender, Independent Interpersonal Stressors, and Interpersonally Oriented Cognitive Vulnerability

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Step Statistics</th>
<th>Final Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ΔR²</td>
<td>b (se b)</td>
</tr>
<tr>
<td>Step 1</td>
<td>.43</td>
<td></td>
</tr>
<tr>
<td>Time 1 CDI</td>
<td>.53 (.06)</td>
<td>.65***</td>
</tr>
<tr>
<td>Step 2</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Independent Interpersonal LE</td>
<td>.15 (.06)</td>
<td>.19*</td>
</tr>
<tr>
<td>Interpersonal CASQ</td>
<td>-.02 (.03)</td>
<td>-.04</td>
</tr>
<tr>
<td>Gender</td>
<td>.06 (.03)</td>
<td>.15*</td>
</tr>
<tr>
<td>Step 3</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>Independent Interpersonal LE x</td>
<td>.10 (.12)</td>
<td>.09</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent Interpersonal LE x</td>
<td>.16 (.13)</td>
<td>.10</td>
</tr>
<tr>
<td>Interpersonal CASQ</td>
<td>.09 (.07)</td>
<td>.14</td>
</tr>
<tr>
<td>Step 4</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Interpersonal CASQ x Gender x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent Interpersonal LE</td>
<td>-.10 (.27)</td>
<td>-.04</td>
</tr>
<tr>
<td>Total R²</td>
<td>.52</td>
<td></td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001; CDI = Depressive Symptoms; Interpersonal CASQ = interpersonal domain attributional style;; LE = Life Events/Stressors
Table 5: Longitudinal Prediction of Depressive Symptoms by Gender, Non-Interpersonal Stressors, and Achievement Oriented Cognitive Vulnerability

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Step Statistics</th>
<th>Final Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ΔR²</td>
<td>b (se b)</td>
</tr>
<tr>
<td>Step 1</td>
<td>.43</td>
<td></td>
</tr>
<tr>
<td>Time 1 CDI</td>
<td></td>
<td>.54 (.06)</td>
</tr>
<tr>
<td>Step 2</td>
<td>.08</td>
<td>Non-Interpersonal LE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achievement CASQ</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>.05 (.03)</td>
</tr>
<tr>
<td>Step 3</td>
<td>.02</td>
<td>Non-Interpersonal LE x Gender</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Interpersonal LE x Achievement CASQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achievement CASQ x Gender</td>
</tr>
<tr>
<td>Step 4</td>
<td>.03</td>
<td>Achievement CASQ x Gender x Non-Interpersonal LE</td>
</tr>
<tr>
<td>Total R²</td>
<td>.56</td>
<td></td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001; CDI = Depressive Symptoms; Achievement CASQ = achievement domain attributional style; LE = Life Events/Stressors
Figure 1: Estimated marginal means of three domains of Life Events (i.e. stressors) by Gender
Figure 2: Estimated marginal means of two domains of Attributional Style by Gender
Figure 3: Interaction between non-interpersonal stressors and achievement domain cognitive style in predicting depressive symptoms among boys
REFERENCES


