Fall 11-22-2023

Prospective Relationship Between Co-rumination and Depressive Symptoms in Early Adolescence: Brooding Rumination as a Mechanism

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Prospective Relationship Between Co-rumination and Depressive Symptoms in Early Adolescence: Brooding Rumination as a Mechanism

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A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

In

Clinical Psychology

Seattle Pacific University

School of Psychology, Family and Community

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ACKNOWLEDGEMENTS

This research was made possible by a grant from the National Institute of Mental Health (2R15098294-02) awarded to Dr. Amy Mezulis. I am thankful to Amy for her guidance and support on this project and for her encouragement of me as a researcher and clinician throughout my years as a graduate student. I would also like to thank the other members of my committee, Drs. Keyne Law and Jaclyn Aldrich, for their support of and contribution to this work. I am also thankful for my graduate school cohort, whose collaboration and humor helped me to persevere. I am grateful to my parents who encouraged me to pursue graduate education, and in particular my mother for her help with editing drafts and understanding statistics. Finally, I would also like to thank my partner, Mark, for his support and for being by my side throughout this process.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Katherine Benjamin

288

Adolescence is a developmental period during which there is a significant increase in depressive symptoms. Both interpersonal and intrapersonal emotion regulation strategies, including co-rumination and rumination, contribute to the development of depressive symptoms. However, there has been relatively little research investigating the connections between co-rumination and rumination and their associations with depression. Theories of depression, such as interpersonal theories and Response Styles Theory suggest that both relational processes and the ways in which an individual responds internally may promote and maintain depressive symptoms. The current study examined whether brooding rumination serves as the mechanism explaining the relationship between co-rumination and depressive symptoms across the course of 8 months. Participants were 150 adolescents (M_{age} = 13.03 years, 51.3% female). Analyses were performed to determine whether co-rumination predicted depressive symptoms and whether brooding rumination mediated the relationship between co-rumination and depressive symptoms both cross sectionally and longitudinally. Analyses were also performed to determine whether gender moderated the relationships among co-rumination, brooding rumination, and depressive symptoms. Study hypotheses were largely unsupported. Consistent with hypotheses, the indirect effect of co-rumination on depression through brooding rumination was statistically significant cross-sectionally. However, path models demonstrated that co-rumination was not found to predict symptoms across time and that brooding rumination did not mediate the relationship between co-rumination and depressive symptoms across time. Finally, multigroup analyses revealed that the model was not moderated by gender either cross-sectionally or prospectively; girls who engaged in co-rumination were not found to be at heightened risk of developing

depressive symptoms. Overall, results suggested that brooding rumination may help to explain the relationship between co-rumination and depressive symptoms proximally or within the same time point. Methodological limitations related to sample size and power may have impacted lack of significant study findings.

CHAPTER I: INTRODUCTION AND LITERATURE REVIEW

Adolescence is a developmental period defined by social and emotional changes, including increasing importance of peer relationships (Bukowski et al., 2011). In particular, adolescents begin to rely more on peers as their primary source of social support (La Greca & Harrison, 2005). Along with increased emotional and cognitive capabilities, adolescents are better able to understand others' perspectives and develop more intimate friendships with peers (Bagwell & Schmidt, 2011). Research also indicates that rates of depression increase significantly during the transition from childhood to adolescence (Kessler et al., 2012). The development of depressive symptoms during adolescence can negatively impact academic and social functioning (Essau & Chang, 2009) as well as enhance risk related to substance use and suicide (Mamorstein, 2010; Rhode et al., 2013). Past research and theory suggest that both relational processes such as co-rumination (Rudolph et al., 2016) and intrapersonal emotion regulation strategies such as rumination (Nolen-Hoeksema, 1991) may contribute to depressive symptomology. Thus, it is important to investigate the ways in which co-rumination and rumination may interact to contribute to the rise in depression during adolescence.

Co-rumination is an interpersonal process defined by individuals repeatedly discussing a problem, including excessively conversing about negative feelings and the causes and results of the problem (Rose, 2002). Although discussing feelings in the context of friendships can be protective against psychopathology and offer benefits (Rose & Rudolph, 2006), certain interpersonal processes such as co-rumination may enhance risk for mental health concerns. Co-rumination has been shown to reinforce the intimacy and quality of friendships (Rose, 2002). However, research also consistently finds that co-rumination confers risk for both concurrent

(Calmes & Roberts, 2008; Spendelow et al., 2017, Star & Davila, 2009) and prospective symptoms of depression (Bastin et al., 2021; Hankin et al., 2010; Stone et al., 2011).

Despite the association between co-rumination and depression, less research has investigated the mechanisms explaining this relationship. Both theory and preliminary findings (e.g., Bastin et al., 2021; Stone & Gibb, 2015) suggest that the relationship between co-rumination and depression may be explained through increased use of rumination. Rumination is an intrapersonal process in which an individual repetitively focuses on his or her problems, including the causes, outcomes, and negative feelings associated with the problems (Morrow & Nolen-Hoeksema, 1990). Rather than trying to resolve or cope with problems, an individual remains passively focused on his or her symptoms or the situation (Nolen-Hoeksema et al., 2008). Several researchers have examined whether engaging in co-rumination with a peer may in turn predict greater rumination on one's own. For instance, engaging in co-rumination with a best friend has been shown to be a risk factor for adolescents engaging in similar ruminative thinking on their own (Giletta et al., 2011). Using a prospective design, Stone and Gibb (2015) found that co-rumination predicted increases in depressive symptoms through increased time spent engaged in brooding ruminating. In the first study to investigate this relationship across three time points, Bastin and colleagues (2021) found that initial levels of co-rumination predicted brooding rumination a year later, and brooding rumination subsequently predicted increased symptoms of depression (Bastin et al., 2021).

Although research supports the previously mentioned relationship between co-rumination, rumination, and depression, less is known about how gender may impact these relationships. In general, girls tend to engage in co-rumination and rumination more than boys (Rose et al., 2002; Jose & Brown, 2008) and demonstrate higher rates of depressive symptoms

during adolescence (Salk et al., 2017). Additionally, girls who engage in co-rumination may be at heightened risk for depressive symptoms as compared to boys (Rose et al., 2007). However, results of other recent studies investigating whether gender moderates the relationship between co-rumination, rumination, and depression have not found gender differences (Bastin et al., 2021), though this may be due to age of the sample.

The purpose of the current study is to replicate and expand upon prior research that has examined the longitudinal relationships between co-rumination, brooding rumination, and depression. Specifically, brooding rumination is proposed to mediate the association between co-rumination and depressive symptoms over time. Given the lack of conclusive findings regarding how gender may impact these relationships, the current study will also investigate gender differences in the relationships among co-rumination, brooding rumination, and depressive symptoms. The current sample includes only early adolescents (ages 11-14), given that gender differences in depression (i.e., girls reporting more symptoms of depression) emerge by age 12 and reach their peak between ages 15-17 years old (Costello et al., 2008).

Depression During Adolescence

Depression is a significant mental health concern during adolescence, with research indicating a dramatic increase in rates of depression from childhood to adolescence. Specifically, during childhood (i.e., children under the age of 13), prevalence rates of major depressive episodes are estimated at 2.8% as compared to 5.6% in adolescents ages 13-18 (Costello et al., 2006). Additionally, according to the Substance Abuse and Mental Health Service Administration (SAMHSA, 2016), approximately 11% of adolescents met criteria for a major depressive episode within a one-year time frame. Regarding outcomes, depression during adolescence is associated with several negative consequences, including higher risk for substance

use, relationship challenges, difficulty in school, and suicide attempts (Essau & Chang, 2009; Mamorstein, 2010). Depression during adolescence is also a strong predictor of lifetime occurrence of depressive episodes and associated with difficulties functioning throughout the lifespan (Rao, 2006).

Depressive disorders are some of the most frequently diagnosed disorders during childhood and adolescence. Based upon DSM-5 criteria, a diagnosis of major depressive disorder during adolescence necessitates a two week or longer period in which an individual experiences persistent down or depressed mood, loss of interest or pleasure in activities, or irritability. In addition, an individual must experience at least four other symptoms, including feelings of worthlessness or guilt, trouble concentrating, changes in appetite, insomnia or hypersomnia, fatigue, or persistent thoughts of death or suicide. These symptoms must result in clinically significant distress or impairment and be a change from regular functioning.

Though these criteria must be met to qualify for major depressive disorder, symptoms of depression exist on a spectrum, with many adolescents experiencing sub-threshold symptoms of depression. In a large sample of adolescents (n = 12,395; ages 14-16), nearly one third of participants (29%) demonstrated subthreshold symptoms of depression (Balázs et al., 2013). Female participants were found to experience subthreshold depression at approximately double the rate of their male counterparts (Balázs et al., 2013). In the same study, subthreshold symptoms of depression were associated with increased likelihood to experience both functional impairment and suicidal ideation. Given that symptoms of depression are associated with negative outcomes during adolescence, it is important to understand factors contributing to these symptoms.

Gender differences in depression have been well studied, with past research indicating significantly higher rates of depression emerging for girls during the transition to adolescence (Salk et al., 2017). During childhood, research suggests either no gender difference in rates of depression or slightly higher rates of depression in boys (Avenevoli et al., 2008; Twenge & Nolen-Hoeksema, 2002). According to a seminal study by Hankin et al. (1998), gender differences in depression develop between ages 13-15 and increase further between ages 15-18. However, a recent meta-analysis of 95 studies investigating the emergence of depression disorders along with 65 studies investigating depressive symptoms found evidence that gender differences may emerge earlier than previously believed (Salk et al., 2017). Salk and colleagues (2017) found that gender differences emerge by age 12 and reach their highest levels between ages 13 to 15. In the United States, the SAMHSA (2012) found that 12% of girls ages 12-17 met criteria for major depressive disorder within a one-year time frame, compared to only 4.5% of boys. Theories of developmental psychopathology suggest that the differences that emerge are due to intersecting vulnerabilities and stressors during adolescence (Hyde et al., 2008). Hyde and colleagues' (2008) vulnerability stress model of depression highlights that intrapersonal factors (e.g., affective, biological, and cognitive susceptibilities) in addition to life stressors (e.g., peer victimization) and sociocultural factors interact in such a way to heighten the risk for depression among girls (Hyde et al., 2008; Hyde & Mezulis, 2020). Thus, stress, coupled with other vulnerabilities, may lead to a chain of intrapersonal and interpersonal processes that are aimed at regulating an individual's experience of stress, but which inadvertently heighten risk for depression among girls (Hyde et al., 2008; Hyde & Mezulis, 2020).

Theoretical Foundation: Models for Depression During Adolescence

Contemporary models of depression suggest that the way in which individuals respond to stress, both intrapersonally and interpersonally, is an important part of understanding how depression develops. In the following section, the contribution of intrapersonal emotional strategies, such as rumination, will be examined. In the next section, interpersonal strategies and co-rumination in particular will be highlighted.

Intrapersonal Models of Response Styles

Response Styles Theory (RST) is a cognitive model of depression which posits that the development, duration, and severity of depressive symptoms are impacted by the way an individual reacts to these symptoms (Nolen-Hoeksema, 1991). This theory highlights the role of intrapersonal emotion regulation strategies, such as rumination, as contributing to depression. Ruminative response style is defined by Nolen-Hoeksema as "behaviors and thoughts that focus one's attention on one's depressive symptoms and on the implications of these symptoms (Nolen-Hoeksema, 1991, p. 569)." Rumination is a maladaptive intrapersonal emotion regulation strategy in which individuals focus their attention on a problem or their symptoms of distress (Nolen-Hoeksema, 1991). A subtype of rumination, brooding rumination, is defined as a process in which individuals remain passively fixated on emotional distress and self-directed negativity (Treynor et al., 2003). Though ruminators may believe that this process will result in increased understanding or ability to cope with the situation (Papageorgiou & Wells, 2001), research indicates otherwise. Given that rumination centers attention on symptoms of distress, it may maintain negative affect by distracting individuals from more active forms of problem solving (Nolen-Hoeksema, 2008). Consistent with this theory, rumination has reliably been associated with and found to predict symptoms of depression in children (Abela et al., 2007; Abela 2002) and in adolescents (Abela & Hankin, 2011; Abela et al., 2009; Hosseinichimeh et al., 2018;

Nolen-Hoeksema et al., 2007; Nolen-Hoeksema et al., 2008). Additionally, past research suggests that brooding rumination is particularly likely to be associated with negative mental health outcomes, including depression (Burwell & Shirk, 2007; Dawson et al., 2022; Krause et al., 2018)

Interpersonal Models of Response Styles

According to interpersonal theories of depression, relational processes may also influence depressive symptomology (Rudolph et al., 2016). Most generally, interpersonal theories of depression highlight how unhealthy interpersonal dynamics, or a lack of healthy relationships may be risk factors for the development of internalizing symptoms (Rudolph et al., 2016). Adolescents who do not form close peer relationships may not garner the emotional support and positive interactions needed to buffer against stress (Rudolph et al., 2016). Recent research highlights that youth with anxiety and depression tend to report not only fewer friendships but lower quality friendships, which may further reduce their chances of receiving the protective benefits of friendships (La Greca et al., 2005). In addition to reduced access to friendship, depressed youth are more likely to engage in maladaptive interpersonal processes with their friends, such as co-rumination.

Co-rumination is an interpersonal emotion regulation strategy that entails repeated discussion of problems or negative feelings without a focus on problem solving (Rose, 2002). Key features of co-rumination include peers asking one another follow up questions about a problem or responding supportively to problem-focused discussions, both of which serve to further perpetuate co-rumination (Rose et al., 2014.) Although co-rumination may enhance interpersonal closeness, Rose (2002) described the process as also reinforcing symptoms of anxiety and depression as individuals fixate on negative experiences or affect. More recently,

researchers have identified that co-rumination is comprised of two components, co-brooding, and co-reflection (Bastin et al., 2014). Co-brooding involves "passive, repetitive, and catastrophizing" elements of co-rumination, while co-reflection entails the "active, analytical, and reflective" aspects of the process (Bastin et al., 2014 p. 5).

Past research corroborates the theory about the maladaptive impacts of co-rumination. Research has consistently found that co-rumination poses a risk factor for interpersonal stress (Hankin et al., 2010) and for more serious internalizing symptoms, including depression. In a meta-analysis of studies investigating the impacts of co-rumination in children, adolescents, and young adults, Spendelow and colleagues (2017) found that co-rumination had significant effects on depression symptoms, with small to moderate effect sizes. Studies with children and adolescents have demonstrated that participation in co-rumination is also associated with a lifetime history of depressive diagnoses (Stone et al., 2010) and with concurrent symptoms of depression (Calmes & Roberts, 2008; Spendelow et al., 2017, Star & Davila, 2009). Engagement in co-rumination also increases risk for prospective symptoms of depression (Bastin et al., 2021; Hankin et al., 2010; Rose et al., 2007; Stone et al., 2011). Importantly, co-rumination has been associated with increased symptoms of depression both within the same day that co-rumination occurred (e.g., Starr, 2015) and over longer periods of time (e.g., >1 year; Stone et a., 2011). However, Bastin and colleagues (2014) identified that co-reflection may be somewhat more adaptive. Co-reflection was not only inversely related to prospective depressive symptoms, but Bastin and colleagues also posited that it may account for the positive association between co-rumination and friendship quality.

Connections Between Intrapersonal and Interpersonal Response Styles

Although past research has established a clear association between co-rumination and depression, less is known about the underlying mechanisms that contribute to these findings. The Emotional Cascade Model may help to explain the links between co-rumination, rumination, and depression. According to this model, when individuals engage in emotion regulation strategies, such as rumination, this leads to a feedback cycle in which perseveration on negative affect and thoughts further amplifies negative affect and increases rumination (Selby & Joiner, 2009). A similar process may occur with co-rumination in which focus on negative affect through problem-focused discussion may enhance negative affective and propensity to ruminate individually. Thus, both existing theory and initial research findings indicate that the association between co-rumination and depression may be explained by the intrapersonal process of rumination (Bastin et al., 2021, Stone & Gibb, 2015).

In one of the first studies to do so, Stone and Gibb (2015) used a prospective design to investigate the relationships between co-rumination, brooding rumination, and depression within an adolescent sample (n = 201; M_{age} = 14.16; 51% female). Although the researchers did not find evidence for a direct effect of co-rumination on depression, they found that co-rumination indeed predicted increased symptoms of depression through increased time spent ruminating. An important limitation of this study is that data were only gathered at two time points and thus a complete longitudinal mediational model was not examined (Stone & Gibb, 2015).

In order to fill this gap, Bastin and colleagues (2021) used a longitudinal design with three time points to investigate the relationships amongst co-rumination, brooding rumination, and depression in a sample of 5^{th}-9^{th} graders (n = 1549; M_{age} = 12.93; 53.4% female). Overall, they found support for an indirect effect of co-rumination on depression symptoms through brooding rumination (Bastin et al., 2021). Specifically, levels of co-rumination at time point one

predicted levels of brooding rumination at time point two, and brooding rumination was subsequently found to predict an increase in depression symptoms at time point three. Counter to hypotheses, co-rumination did not directly predict symptoms of depression, suggesting that within their sample the relationship between co-rumination and depression was predominantly indirect. These study findings are consistent with the theory that as adolescents become familiarized with the process of repetitively engaging in non-solution-oriented discussion of problems with their friends, they may be more likely to adopt a similar style when thinking on their own (e.g., rumination; Aldrich et al., 2019; Felton at al., 2013).

Gender as a Moderator

Past research indicates that girls may be more vulnerable to emotional difficulties within friendship than are boys due to heightened concern about being accepted and focus on peer relationships (Rose & Rudolph, 2006). Regarding the intrapersonal process of rumination, previous research suggests that not only do adolescent girls engage in rumination more than boys, but that the association between rumination and depression is stronger for girls than for boys (Jose & Brown, 2008). Similarly, researchers have found that girls also engage in co-rumination more often than boys, and that girls who engage in co-rumination prospectively experience more symptoms of depression than do their male counterparts (Rose et al., 2007). This disparity in outcomes may relate to differences in the co-rumination process between boys and girls. It has been suggested that when boys co-ruminate, they focus more on possible ways to resolve problems, whereas girls may spend more time discussing components of a problem that cannot be shifted or that they find confusing (Haggard, et al., 2011). Consistent with this hypothesis, preliminary evidence highlights a relationship between co-rumination and problems solving only for boys and not girls (Lentz et al., 2016). Similarly, researchers have identified that

co-distraction may be an adaptive way in which boys, but not girls are able to regulate negative affect (Stone et al., 2019). Thus, there may be ways in which boys engage differently with their peers that may be protective against the negative impacts of co-rumination.

However, past research investigating the moderating role of gender on the relationships between co-rumination, intrapersonal cognitive processes, and depression has yielded conflicting findings. While some studies have found gender differences, such that females are at increased risk (Balsamo et al., 2015), others have failed to find gender differences (e.g., Bastin 2021; Stone & Gibb, 2015). In recent research, contrary to the hypothesis that the previously mentioned indirect effect would be heightened for girls, gender was not found to moderate the relationship (e.g., Bastin 2021; Stone & Gibb, 2015). Put another way, both boys and girls who engaged in co-rumination were equally at risk for engaging in rumination and subsequently experiencing increases in symptoms of depressions. Additional research is needed to clarify these contradictory findings.

The Current Study

The purpose of the current study was to examine how co-rumination and brooding rumination were related in the prediction of depressive symptoms among adolescents, and whether gender moderated this relationship. Specifically, the current study expanded upon past research by investigating whether brooding rumination mediated the association between co-rumination and depressive symptoms both cross sectionally and longitudinally. Additionally, to help clarify the conflicting findings in previous studies regarding the moderating role of gender on the relationship among co-rumination, brooding rumination, and depressive symptoms, the current study examined gender differences in these relationships. Given these considerations, I hypothesize that:

Hypothesis 1. Co-rumination will predict depressive symptoms prospectively.

Hypothesis 2. Brooding rumination will mediate the relationship between co-rumination and depressive symptoms cross sectionally (see Figure 1).

Hypothesis 3. Gender will moderate the relationships between co-rumination, brooding rumination, and depressive symptoms cross sectionally, such that the effect of co-rumination on brooding rumination and subsequent depressive symptoms will be stronger for girls than boys (see Figure 2).

Hypothesis 4. Brooding rumination will mediate the relationship between co-rumination and depressive symptoms prospectively such that higher levels of co-rumination will predict brooding rumination, which will subsequently predict heightened depressive symptoms (see Figure 3).

Hypothesis 5. Gender will moderate the relationships between co-rumination, brooding rumination, and depressive symptoms prospectively, such that the effect of co-rumination on brooding rumination and subsequent depressive symptoms will be stronger for girls than boys (see Figure 4).

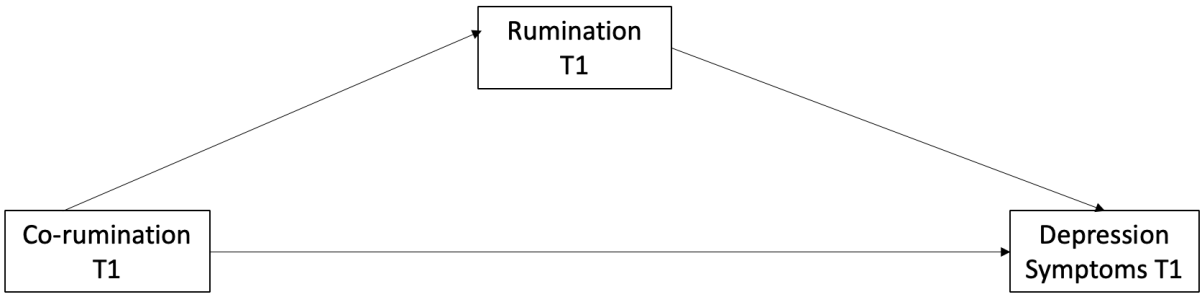

Figure 1. Proposed model examining the mediation of the relationship between co-rumination and depressive symptoms by brooding rumination cross sectionally.

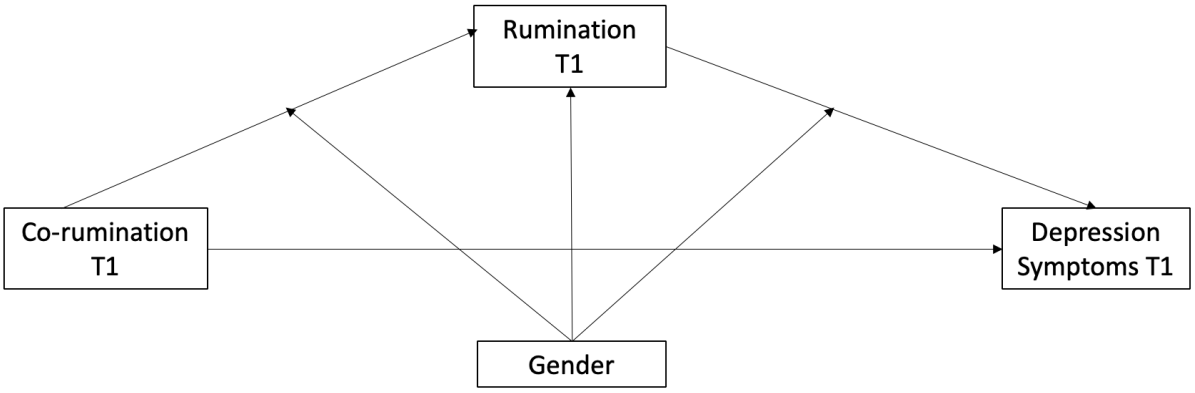

Figure 2. Proposed model examining the mediation of the relationship between co-rumination and depressive symptoms by brooding rumination, as well as the moderating role of gender on the relationships between co-rumination, brooding rumination, and depressive symptoms cross sectionally.

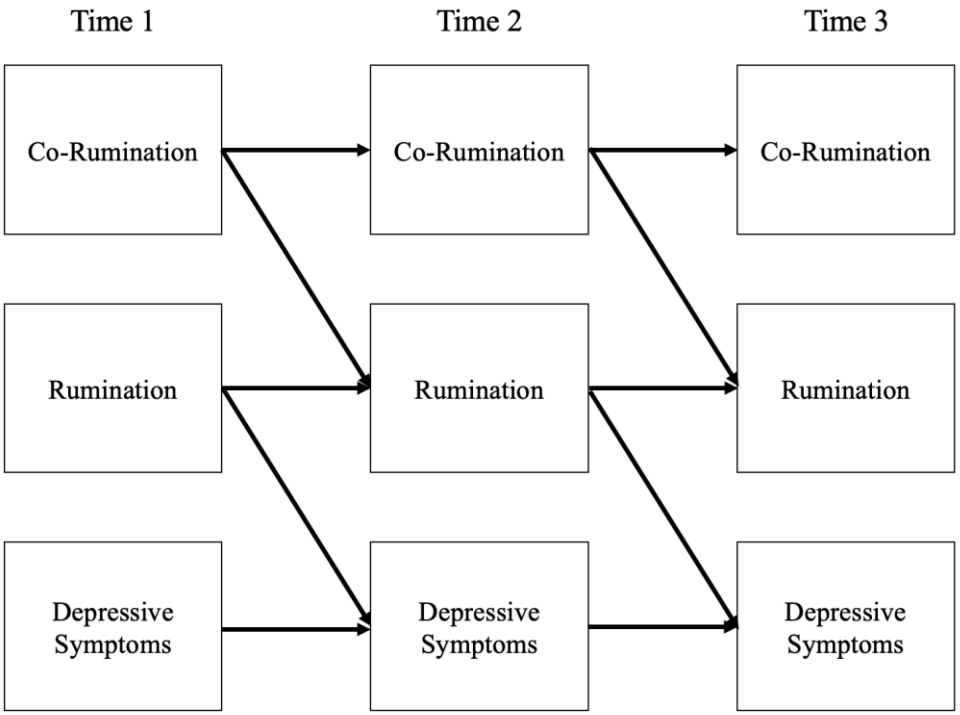

Figure 3. Proposed model examining the mediation of the relationship between co-rumination and depressive symptoms by brooding rumination prospectively.

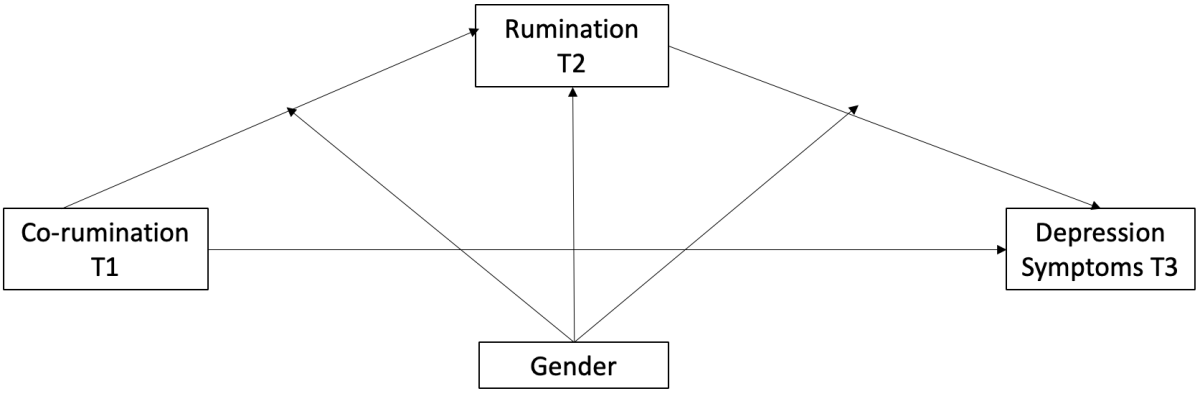

Figure 4. Proposed model examining the mediation of the relationship between co-rumination and depressive symptoms by brooding rumination, as well as the moderating role of gender on the relationships between co-rumination, brooding rumination, and depressive symptoms prospectively.

CHAPTER II: METHOD

Sample and Participant Selection

Participants

Participants included 150 young adolescents (51.3% female) who were recruited from three urban middle schools in the Pacific Northwest. Participants ranged in age from 11 to 14 years old (M_{age} = 13.01, SD = .93). Approximately 77.5% of participants identified as Caucasian, 9.8% Biracial, 8.0% Native American/Pacific Islander, 7.8% Asian American, 1.6% African American, and 1.6% Hispanic/Latinx. Adolescents and at least one guardian were required to be fluent in English to participate in the study. Additional eligibility criteria included that adolescents did not have learning or attention challenges that would hinder their ability to attend to tasks during study visits and were not currently taking psychotropic medications, apart from stimulants.

Sampling Procedures

Graduate research assistants presented a brief description of the study to adolescents in 6th-8th grade classrooms at public middle schools that had agreed to participate in the study. Interested students were given an informational packet about study participation to share with their parents or guardians. Prospective participants completed a phone screen to determine eligibility and were then invited to partake in laboratory visits. Prior to the first university-based laboratory visit, parents provided consent and adolescents provided assent to participate. Participants completed electronic self-report questionnaires during the baseline visit (T1), which assessed for affective, cognitive, and physiological vulnerabilities for depressive symptoms. Specifically, questionnaires assessed depressive symptoms as well as propensity to engage in co-rumination and rumination. After the baseline visit, participants completed follow up lab visits, 4-months (T2), 8-months (T3) post baseline. During the follow up visits, participants completed the same self-report measures. Adolescent participants were compensated with $35 and $15 for the baseline and follow up visits, respectively. Parents were compensated $50 for the baseline visit and $25 for the follow up visits. All procedures were approved by the university's Institutional Review Board.

Measures

Co-rumination

Co-rumination was assessed using a modified 16-item version of the full 27-item Co-Rumination Questionnaire (CRQ; Calmes & Roberts 2008) at baseline and follow up visits. The measure contains 4 items specifically measuring co-brooding, 4 items measuring co-reflection, and 8 items measuring general propensity to engage in co-rumination. Overall, the CRQ short form measures how frequently adolescents engaged in co-rumination within all their close relationships. Responses to each item ranged from 1 (not at all true) to 5 (really true). Co-brooding questions include items such as "When my close other and I talk about a problem that I

have we spend a long time talking about how sad or mad I feel." Co-reflection questions include items such as "When my close other and I talk about a problem that I have, we talk a lot about the problem in order to understand why it happened." According to past research with similar non-clinical samples of adolescents, the modified version of the CRQ has adequate internal consistency (α = .94; Calmes & Roberts, 2008; Rose et al., 2002), and test-retest reliability and validity (Hankin et al., 2010). In the current study, the CRQ demonstrated good internal consistency across time points (.92 -.94).

Brooding Rumination

Adolescents' ruminative response style to negative emotions was assessed at baseline and follow up visits using the 5-item Ruminative Response Style – Brooding Subscale (RRS-B; Treynor et al., 2003). The RRS-B is a subscale of the full Rumination Response Scale and has been demonstrated to be the specific factor that predict depression (Treynor et al., 2003). Responses to each item ranged on a 5-point Likert scale from 1 (almost never) to 5 (almost always) on items such as [thinking] "Why do I have problems other people don't have?" and "Why can't I handle things better?" Previous research with similar non-clinical samples of adolescents demonstrates that the RRS-B has adequate internal consistency (Burkwell & Shirk, 2007; Lei et al., 2017) as well as adequate convergent validity when compared to other similar measures of rumination (Schoofs et al., 2010). In the current study, the RRS-B demonstrated adequate internal consistency across time points (α =. 77-.84).

Depressive Symptoms

Adolescents' depressive symptoms were assessed at baseline and follow up visits using the 28-item Child Depression Inventory-2 (CDI-2; Kovacs, 2010). Responses on the CDI-2 ranged from 0 (indicating a lack of symptoms) to 2 (indicating definite symptoms) on statements

including, “I am sad once in a while,” “I am sad many times,” and “I am sad all the time.” Scores ranged from 0 to 54, with higher scores representing more depressive symptoms. Previous research with similar non-clinical samples of adolescents indicates that the CDI-2 has evidence of acceptable convergent validity with other similar measures of depression such as the Child Depression Rating Scale (Burwell & Shirk, 2007). The CDI-2 has also demonstrated strong internal consistency (Burwell & Shirk, 2007) and been shown to adequately differentiate between children with and without depressive disorders (Kovacs, 2010). In the current study, the CDI-2 demonstrated adequate internal consistency across time points (α =.81-.84).

Data Analytic Approach

Data was analyzed using SPSS version 28.0 and Mplus version 8.0 (Muthén & Muthén, 2017). As noted, data were gathered at baseline and three additional follow up visits. Descriptive statistics and hypotheses 1 were analyzed using SPSS. The PROCESS macro for SPSS was used to analyze the significance of the cross-sectional mediation model for hypothesis 2 (model 4) and the cross-sectional moderated mediations models for hypothesis 3 (model 7). Specifically, the PROCESS macro was used to determine indirect effects using confidence intervals and 5000 bootstrapped samples.

Hypotheses 3 and 4 were analyzed with path analyses in Mplus. To investigate hypothesis 3, co-rumination, rumination, and depressive symptoms were added as observed variables to determine the structural relationship among variables (see Figure 2). Hypothesis 4 was tested with multi-group analyses (see Figure 3). A constrained model was compared to a model that was left free to vary to determine moderation by gender. The constrained model was created such that all paths are set as equal for girls and boys. A multi-group model was created such that all paths were free to vary by gender, given that paths between variables were predicted

to differ between boys and girls (e.g., paths between co-rumination to brooding rumination, and rumination to depressive symptoms). Age was added in all models as a covariate. The command MODEL INDIRECT was run for both models to determine the indirect impact of co-rumination on depressive symptoms through brooding rumination. Bias-corrected bootstrapping was used to determine the significance of indirect effects. Various indices were used to evaluate the fit of models, such as the χ^2 test of model fit, the comparative-fit-index (CFI), and the standardized root mean square residual (RMSEA). Acceptable model fit is characterized by a non-significant χ^2 test, a CFI close to or above .95, and an RMSEA less than or equal to 0.06 (Hu & Bentler, 1999).

CHAPTER III: RESULTS

Data Preparation and Descriptive Analyses

Missing data, normality of data, and descriptive analyses for study variables were examined through SPSS version 28. Descriptive statistics, including means, standard deviations, and skew and kurtosis, can be found in Table 1. Based upon participant attrition across study time points, data were available for 150 participants at T1, 136 at T2, and 121 at T3. Item level missing data ranged from 4.1% at T3 to 6.8% at T1. Missing data were handled in Mplus using full information maximum likelihood (FIML), which reduces the possibility of distorted estimates. The assumption of normality was assessed using the Kolmogorov-Smirnov (K-S) test and variable skew and kurtosis (see Table 1). Based upon the K-S test, the assumption of normality was violated ($p < .001$) for rumination and for depressive symptoms. The assumption of normality of residuals was assessed using the Durbin Watson test. In the current study, the Durbin Watson test statistic was 1.89, suggesting that residuals were not autocorrelated and did not violate normality. Skew and kurtosis for the variables of rumination and depressive

symptoms were above normal ranges. In other words, most participants experienced low to moderate levels of rumination and depressive symptoms. These violations of normality were expected in the study sample as it was drawn from a non-clinical population. Based upon the non-normality of data, robust maximum likelihood (MLR) was used for analyses conducted in Mplus, given that MLR does not necessitate normality (Kline, 2016).

Correlations among study variables are shown in Table 2. Correlations between brooding rumination and depressive symptoms were medium to high. Co-rumination and brooding rumination were found to have low correlations at some, but not all time points. Lastly, co-rumination was not found to be significantly correlated with depressive symptoms at any time point. Correlations between study variables were also conducted separately for boys and girls. As evidenced in Tables 3 and 4, there were few notable differences between boys and girls. Given the particular focus on gender differences in the pathway from co-rumination to brooding rumination, Fisher's Z transformation was used to examine whether there were significant differences in correlations between these variables for boys and girls. There was not a significant difference in the correlation coefficients between T1 co-rumination and T1 brooding rumination between boys and girls ($z = .13$, $p = .90$), nor was there a significant difference in the correlation coefficients between T2 co-rumination and T2 brooding rumination ($z = -1.03$, $p = .30$). There was a significant difference in the correlation coefficients between T3 co-rumination and T3 brooding rumination between boys and girls ($z = 2.35$, $p = .02$), the magnitude of the correlation for girls was low (e.g., $r = .26$). Lastly, examination of prospective correlations revealed that there was not a significant difference between T1 co-rumination and T2 brooding rumination ($z = 1.03$, $p = .30$), nor was there a significant difference between T2 co-rumination and T3 brooding rumination between boys and girls ($z = .75$, $p = .45$).

Table 1
Descriptive statistics for primary study variables.

Variable	N	Mean	SD	Range	Skew	Kurtosis
Age T1	150	13.03	.90	11.47-14.87	0.26	-0.93
Age T2	136	13.27	.91	11.83-15.25	0.19	-0.93
Age T3	121	13.79	.89	12.14-15.58	0.17	-0.96
Co-rumination T1	141	2.84	.85	1.00-4.88	.120	-0.50
Co-rumination T2	132	2.94	.80	1.00-4.88	-0.04	-0.53
Co-ruminationT3	126	3.03	.82	1.00-4.94	-0.19	-0.02
Brooding Rumination T1	147	9.46	3.00	5.00-19.00	0.67	-0.01
Brooding Rumination T2	135	9.33	3.40	5.00-20.00	1.21	1.43
Brooding Rumination T3	121	9.37	3.12	5.00-20.00	1.14	1.19
Dep Symptoms T1	148	6.46	5.44	0.00-29.00	1.76	4.00
Dep Symptoms T2	134	5.72	4.94	0.00-26.00	1.30	2.04
Dep Symptoms T3	121	6.31	5.96	0.00-39.00	1.81	4.73

Table 2
Means, standard deviations, and correlations among study variables.

	1	2	3	4	5	6	7	8	9
1. Co-rumination T1	-		.						
2. Co-rumination T2	.57**	-							
3. Co-rumination T3	.52**	.64**	-						
4. Brooding Rumination T1	.27**	.14	.11	-					
5. Brooding Rumination T2	.26**	.10	.04	.66**	-				
6. Brooding Rumination T3	.18	.04	.08	.55**	.62**	-			
7. Dep Symptoms T1	.03	-.02	-.09	58**	53**	.45**	-		
8. Dep Symptoms T2	.13	.05	.02	.49**	.54**	.48**	.78**	-	
9. Dep Symptoms T3	-.07	-.05	-.14	.49**	.54**	.59**	.69**	.86*	-

Note. T1 = Time 1, T2 = Time 2, T3 = Time 3; *p<0.05, **p<0.0

Table 3
Means, standard deviations, and correlations among study variables for boys.

	M (SD)	1	2	3	4	5	6	7	8	9
1. Co-rumination T1	2.68 (.81)	-								
2. Co-rumination T2	2.83 (.82)	.64**	-							
3. Co-rumination T3	2.94 (.92)	.64**	. 72**	-						
4. Brooding Rumination T1	9.08 (2.80)	.24	.16	.17	-					
5. Brooding Rumination T2	8.71 (3.13)	.32**	.17	.10	.66**	-				
6. Brooding Rumination T3	8.60 (2.61)	-.03	-.08	-.17	. 48**	. 66**	-			
7. Dep Symptoms T1	5.80 (4.20)	.21	.13	.10	.46**	55**	.40**	-		
8. Dep Symptoms T2	5.22 (4.42)	.26	.09	.13	.44**	.53**	.41**	.75**	-	
9. Dep Symptoms T3	5.68 (5.60)	-.02	-.03	-.22	.50**	. 56**	. 67**	.67**	.78**	-
10. Age	13.01 (.84)									

Note. T1 = Time 1, T2 = Time 2, T3 = Time 3; $p<0.05$, $^{**}p<0.01$

Table 4
Means, standard deviations, and correlations among study variables for girls.

	M (SD)	1	2	3	4	5	6	7	8	9
1. Co-rumination T1	3.00 (.86)	-								
2. Co-rumination T2	3.04 (.76)	. 48**	-							
3. Co-rumination T3	3.11 (.71)	.38**	.52**	-						
4. Brooding Rumination T1	9.81 (3.16)	.26*	.10	.01	-					
5. Brooding Rumination T2	9.98 (3.58)	.15	-.01	-.06	.66**	-				
6. Brooding Rumination T3	10.11 (3.40)	.21	.06	.26*	.58**	. 56**	-			
7. Dep Symptoms T1	7.08 (6.37)	-.09	-.13	-.23	.64**	.51**	.45**	-		
8. Dep Symptoms T2	6.24 (5.42)	-.01	-.01	-.08	.51**	.54**	.50**	.80**	-	
9. Dep Symptoms T3	6.91 (6.27)	-.18	-.11	-.09	.47**	.53**	.54**	. .69**	.90**	-
10. Age	13.04 (.96)									

Note. T1 = Time 1, T2 = Time 2, T3 = Time 3; *p<0.05, **p<0.01

Primary Analyses

In order to address hypothesis 1, co-rumination at T1 was regressed onto depressive symptoms at T3; age and gender were included as covariates. Co-rumination was not found to be predictive of depressive symptoms (β = -.78, SE = .68, p = .25). To address hypothesis 2, a cross-sectional mediation model was examined. Specifically, PROCESS was used to examine the mediating effect of brooding rumination on the relationship between co-rumination and depression. The model tested whether co-rumination at T1 predicted symptoms of depressive at T1 through individual brooding rumination at T1; age and gender were included as covariates. Within the model, approximately 35% of the variance in depressive symptoms (R^2 = .35) was accounted for by brooding rumination. Results suggested that the indirect effect of co-rumination on depressive symptoms was statistically significant (β = 1.01, CI95 0.28 to 1.92). The direct effect of co-rumination on depressive symptoms was not significantly different from zero (β = -.63, p =.17, CI95 -1.52 to .27), nor was the total effect statistically significant (β = .38 p =.49, CI95 -.67 to 1.43). Table 5 presents the model paths, including the indirect and direct effects found in the regression model. Figure 1 displays the model summary.

Table 5

Effects of Co-Rumination on Depressive Symptoms through Brooding Rumination.

Model Paths	b	SE(b)	95% CI
Co-rumination → Brooding rumination	.99	.30	.39-1.59
Brooding rumination → Dep symptoms	1.01	.13	.76-1.26
Co-rumination → Brooding rumination → Dep symptoms	1.09	-	.35-2.04
Total effect	.38	.53	-.67-1.43
Total direct effect of Co-rumination → Dep symptoms	-.63	.45	-1.52-.27

Note: Dep symptoms = Depressive symptoms

To investigate hypothesis 3, PROCESS was used to examine the mediating effect of brooding rumination on the relationship between co-rumination and depressive symptoms and

the moderating impacts of gender on all three paths. The model tested whether co-rumination predicted depression symptoms through individual brooding rumination at T1 and whether gender moderated the associations between co-rumination and brooding rumination, between brooding rumination and depressive symptoms, or between co-rumination and depression symptoms. Results demonstrated that gender did not moderate the relationship between co-rumination and brooding rumination (i.e., a non-significant interaction between co-rumination and gender on brooding rumination; b = -0.056, p = 0.93, CI95 -1.26 to 1.16). Similarly, gender did not moderate the relationship between co-rumination and depression symptoms (i.e., a non-significant interaction between co-rumination and gender on depressive symptoms; b = -1.08, p = .21, CI95 -2.80 to .63). In other words, the relationships among these variables were not significantly different between boys and girls. However, gender did moderate the relationship between brooding rumination and depressive symptoms (i.e., a significant interaction between rumination and gender on depressive symptoms; b = 0.66, p = .01, CI95 .20 to 1.13). These results suggest that at similar levels of rumination, girls reported experiencing significantly higher levels of depressive symptoms than did boys. Table 6 presents a summary of the results mentioned above.

Table 6.

Brooding rumination as a mediator and gender as a moderator in the relationship between co-rumination and depressive symptoms.

Criterion	Predictors	Estimate	95% CI LL	95% CI UL	p
Brooding rumination					
	Co-rumination	1.03	.13	1.92	.03
	Co-rumination x gender	-.06	-1.26	1.16	.93
Dep symptoms	Co-rumination	-.57	-1.44	.31	-1.28
	Brooding rumination	1.02	.78	1.27	<.001
	Co-rumination x gender	-1.08	-2.80	.63	.21
	Brooding rumination x gender	.66	.20	1.13	<.05

Note: Dep symptoms = Depressive symptoms

To address hypothesis 4, a prospective mediational model was conducted to examine the impact of co-rumination on depressive symptoms through brooding rumination. All study variables were regressed on age and gender. Within time associations, auto-regressive paths and stability paths from the first to the third time point were calculated to optimize model fit. Paths were drawn from co-rumination at T1 (i.e., the independent variable), to brooding rumination at T2 (i.e., the mediator), to depressive symptoms at T3 (i.e., the dependent variable). To start, stability coefficients and directional paths were left unrestricted, or free to vary, χ^2 (13) = 24.27, p <0.029; CFI = 0.98, RMSEA = 0.08, SRMR = 0.05. For the unrestricted model, the chi-square index was statistically significant, indicating the possibility of poor model fit and need for referring to other fit statistics. However, the CFI indicated acceptable fit, the RMSEA value suggested mediocre fit, and the SRMR value fell below the warning criteria of .10, suggesting acceptable fit. Then, the restricted model was run, such that paths were constrained to be equal across the 8-month interval, χ^2 (18) = 43.59, p <0.001; CFI = 0.96, RMSEA = 0.10, SRMR = 0.07. Similarly, the chi-square index for the restricted model was statistically significant,

indicating possible poor fit. The CFI and SRMR values still indicated acceptable fit. The RMSEA value again suggested marginal fit, which was a slightly worse fit compared to the unrestricted model. Further comparison of the models indicated that there was a significant difference in fit between the unrestricted and restricted models, $\Delta\chi 2\ (5) = 19.32$, $p < .01$; ΔRMSEA = 0.02 and ΔCFI = 0.02. Examination of fit statistics indicated that the unrestricted model fit the data better. Co-rumination at T1 was not found to be a significant predictor of brooding rumination at T2. However, brooding rumination at T2 did significant predict depressive symptoms at T3. Counter to hypotheses, there was no evidence of an indirect effect of co-rumination on depressive symptoms 8 months later through brooding rumination, point estimate = 0.01, SE = 0.01, p = 0.56, 95% CI = [-0.01, 0.03]. Figure 5 shows the standardized path coefficients for the unrestricted model.

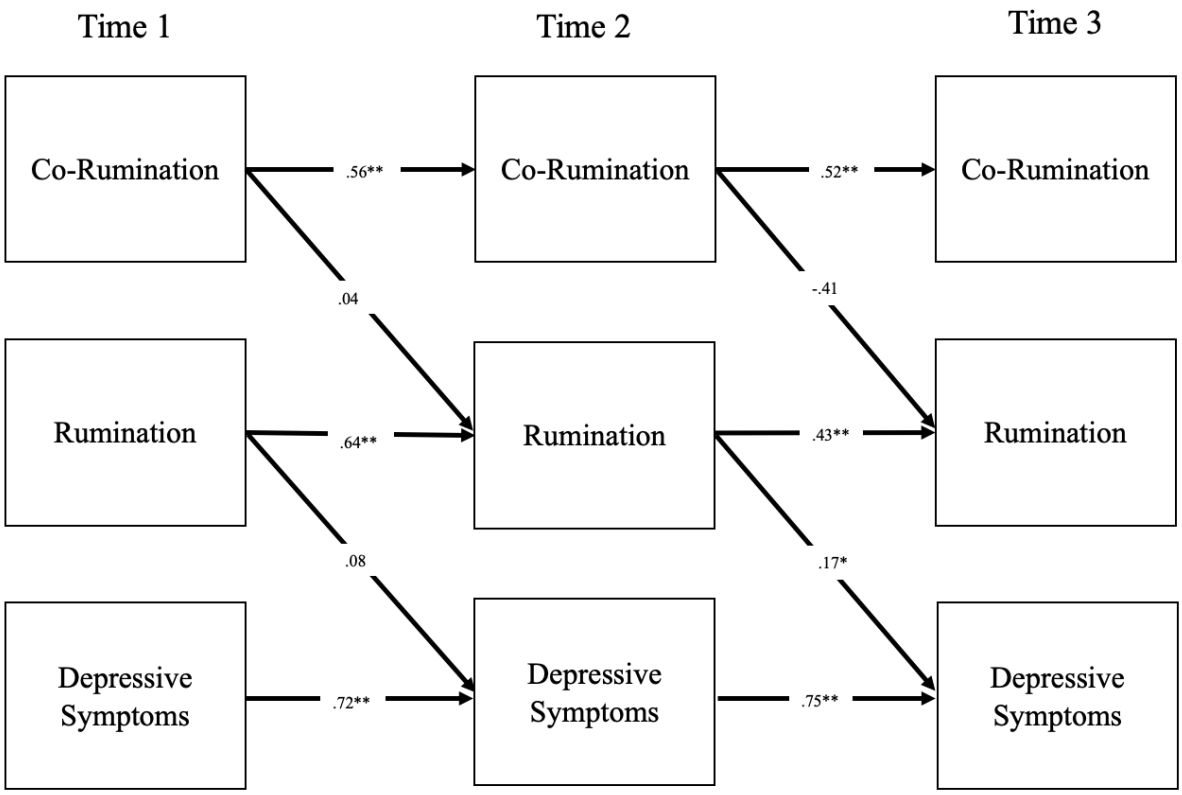

Figure 5. Model demonstrating the proposed mediational relationship of co-rumination predicting depressive symptoms through brooding rumination. Stability paths and cross lagged paths are unrestricted. Path coefficients are standardized. Within time correlations, autoregressive paths, and paths from gender and age are not depicted. *p < .05; **p < 0.01.

To investigate hypothesis 5, gender differences were investigated using multigroup analyses. First, a constrained model was created such that all the cross lagged paths and stability coefficients were set to be equal for girls and boys, χ^2 (41) = 69.52, p <0.004; CFI = 0.96, RMSEA = 0.096, SRMR = 0.11. The chi-square index was statistically significant, indicating possible poor fit. However, the CFI value indicated acceptable fit, the RMSEA value suggested marginal fit, and the SRMR value fell above the warning criteria of .10. Next, a multi-group model was created in which all cross lagged paths were free to vary, given the hypothesis that relationships among study variables would be different for boys and girls, χ^2 (39) = 69.01, p <0.002; CFI = 0.95, RMSEA = 0.10, SRMR = 0.11. The chi-square index was again statistically significant. However, the CFI value indicated acceptable fit, the RMSEA value suggested marginal fit, and the SRMR value fell above the warning criteria of .10. The model fit of the constrained model did not significantly vary from the fit of the free model, $\Delta\chi^2$ (2) = 0.51, p = 0.77; ΔRMSEA = -0.004; and ΔCFI = 0.01. Based on these findings, the constrained model was kept, indicating that gender did not moderate the paths among study variables. To further understand the differences between boys and girls, Figures 6 and 7 depict the path coefficients for boys and girls separately.

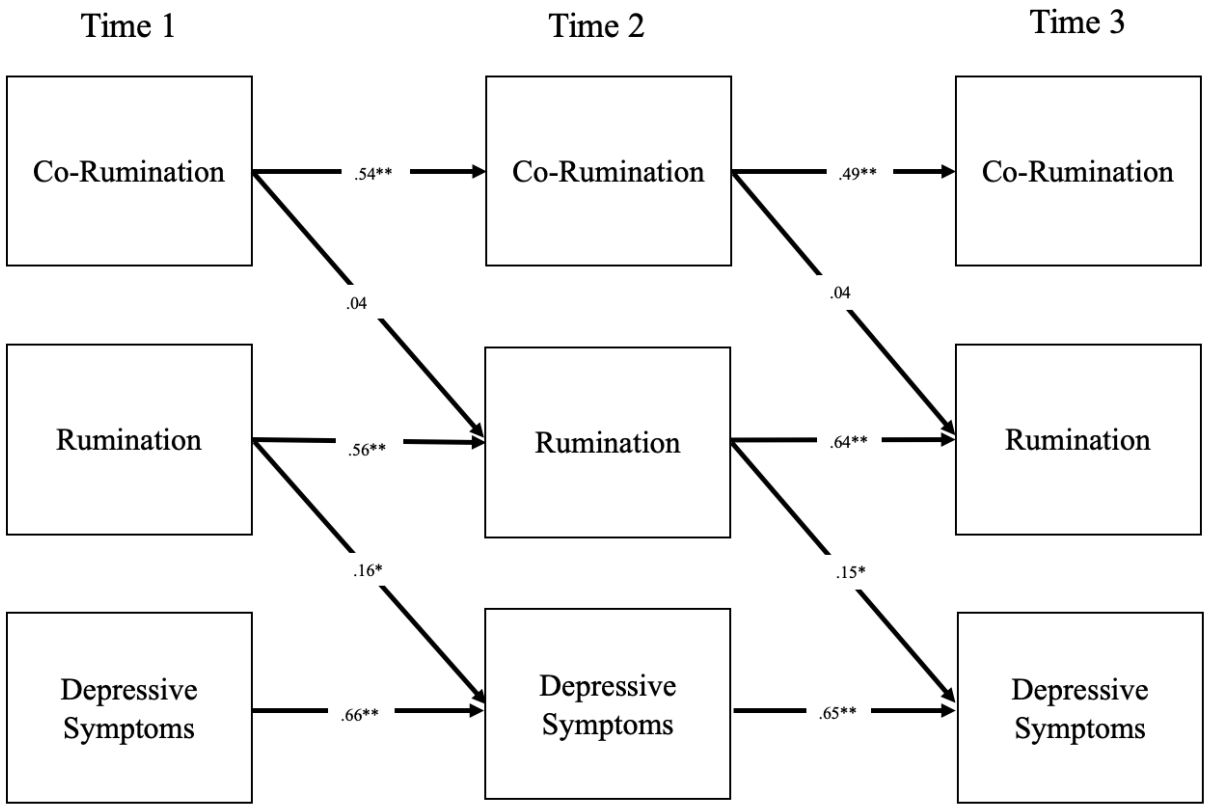

Figure 6. Model demonstrating the proposed mediational relationship of co-rumination predicting depressive symptoms through brooding rumination for boys. Stability paths and cross lagged paths are unrestricted (i.e., free to vary). Path coefficients are standardized. *p < .05; **p < 0.01.

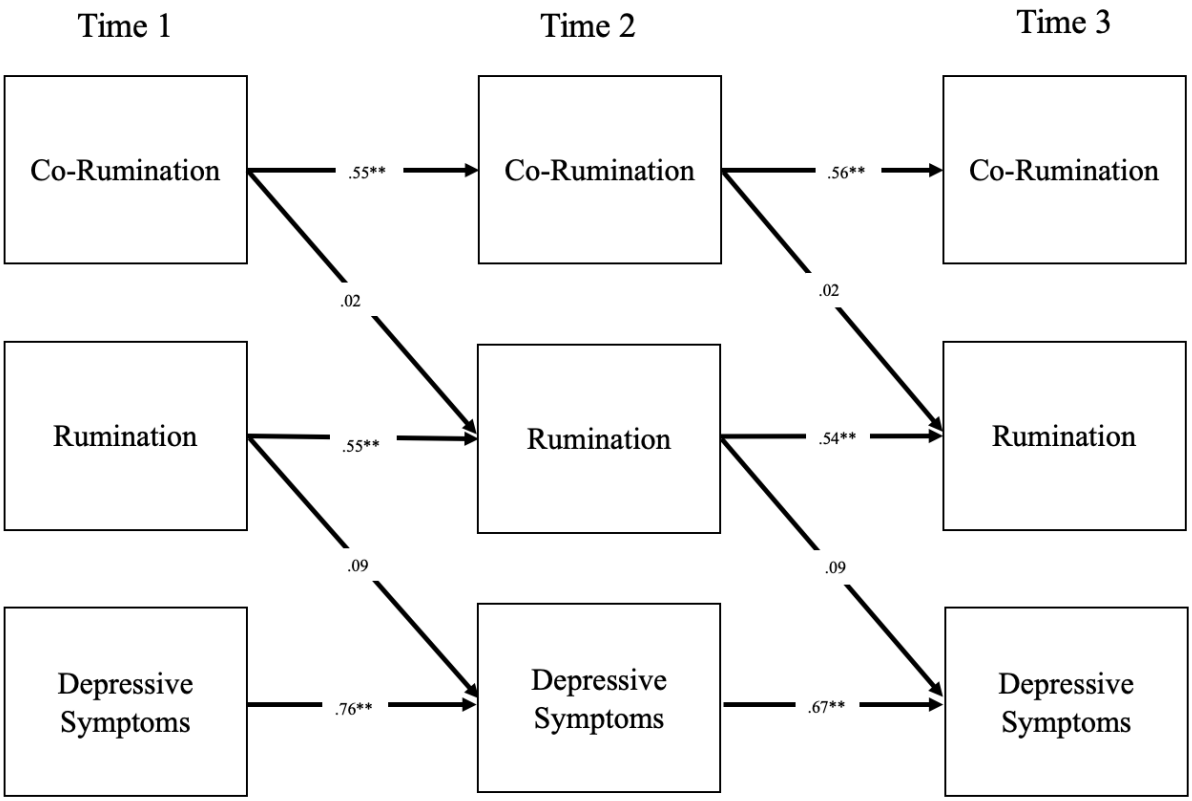

Figure 7. Model demonstrating the proposed mediational relationship of co-rumination predicting depressive symptoms through brooding rumination for girls. Stability paths and cross lagged paths are unrestricted (i.e., free to vary). Path coefficients are standardized. *p < .05; **p < 0.01.

CHAPTER IV: DISCUSSION

Rates of depressive have been shown to increase significantly during the transition from childhood to adolescence and are associated with significant functional impairment. Theories such as RST and interpersonal theories of depression suggest that intrapersonal (e.g., rumination) and interpersonal (e.g., co-rumination) emotion regulation strategies may contribute to vulnerability to depression. The literature further suggests that the perseverative problem focused thinking or discussion patterns that are characteristic of rumination and co-rumination are

associated with and predictive of depressive symptoms (Nolen-Hoeksema et al., 2008; Rose, 2002).

The current study investigated whether adolescents' engagement in co-rumination enhances their risk for depressive symptoms through increased use of brooding rumination. I hypothesized that co-rumination would predict symptoms of depression. I also hypothesized that brooding rumination would mediate the relationship between co-rumination and depressive symptoms both cross sectionally and prospectively. Lastly, I hypothesized that these relationships would be moderated by gender such that the impact of co-rumination on brooding rumination and subsequent depressive symptoms would be stronger for girls.

Study hypotheses were predominantly unsupported. Counter to hypothesis 1, co-rumination did not prospectively predict symptoms of depression among adolescents several months later. Cross-sectionally, co-rumination did not directly predict depressive symptoms, but rather indirectly through increased use of brooding rumination. Hypothesis 2 was supported, suggesting that the relationships between co-rumination and depressive symptoms at baseline can be explained through increased use of brooding rumination, also at baseline. In other words, heightened levels of co-rumination were associated with heightened brooding rumination, which were in turn associated with heightened depressive symptoms. Hypotheses 3 and 4 were unsupported. Levels of co-rumination at baseline did not predict depressive symptoms 8 months later through increases in brooding rumination. Furthermore, the indirect impact of co-rumination on depressive symptoms did not differ between boys and girls (i.e., there was not a moderation by gender). There are several factors that may help to explain the lack of significant findings, including methodological and theoretical factors.

Methodological Factors

The current study has several methodological constraints that may have contributed to lack of significant findings. Firstly, the sample size consisted of 150 adolescents at T1, 136 at T2, and 121 at T3, due to attrition. Although the literature suggests that a sample size of 130 is sufficient for power in SEM (Bentler & Chou 1987), it is possible that the relatively small sample size contributed to lack of significant findings for hypothesis 3 and 4. Additionally, this study used a community sample of adolescents rather than a clinical sample. Thus, it is possible that a lack of variability within co-rumination, brooding rumination, and depressive symptoms scores due to the non-clinical sample could have contributed to non-significant study findings.

Another methodological factor that may have contributed to lack of significant findings is the inclusion of both co-brooding and co-reflection items within the abbreviated co-rumination questionnaire (Bastin et al., 2014). Given that co-reflection has been predictive of more adaptive outcomes (e.g., increasing friendship quality, reduced symptoms of depression; Bastin et al., 2018), the current study may not have effectively isolated the maladaptive impacts of co-brooding on rumination and subsequent depressive symptoms. It is possible that across time, the potentially adaptive impacts of co-reflection neutralized the more maladaptive impacts of co-brooding.

Theoretical Factors

Theoretical considerations may also help to explain study findings. The lack of direct impact, either prospectively or cross sectionally, was unexpected given previous research demonstrating the negative impact of co-rumination on mood across time (White & Shih, 2012). Given that the current study is only one of several known studies to investigate the relationship between co-rumination and depressive symptoms across multiple months, it is possible that the

strength of the relationship was weakened across such an extended time period. However, the findings are consistent with other recent studies, which similarly did not find that co-rumination was a direct predictor of depressive symptoms (Bastin et al., 2021; Stone & Gibb, 2015). Thus, results may be indicative that the relationship between co-rumination and depressive symptoms amongst adolescents is primarily indirect in nature. Future research should continue to investigate whether co-rumination predicts maladaptive mental health outcomes over time.

The lack of a significant indirect effect of co-rumination on depressive symptoms through brooding rumination across time was also surprising, given that other researchers have previously found this relationship (Bastin et al., 2021; Stone & Gibb, 2015). Interestingly, the current study did find support for this indirect relationship proximally, within the same time point. In other words, when adolescents engaged in co-rumination with a peer, within that same time frame they also ruminated more on their own and reported feeling more depressed. This finding is consistent with prior research, which suggested that engagement in co-rumination predicted increased use of brooding rumination in response to negative events at the daily level (Aldrich et al., 2019). Theoretically, I expected that the same process would also transfer longitudinally. However, it is possible that across time, these trait processes may have been attenuated due to other variables that also predict both rumination and depressive symptoms across time. If future research continues to find a similar pattern of results, this may be indicative that the relationships amongst co-rumination, brooding rumination, and depressive symptoms are strongest when proximal to a stressful or upsetting event.

Counter to hypotheses, gender did not moderate the relationships among co-rumination, brooding rumination, and depressive symptoms. Given past research, I expected that there would be a more significant maladaptive impact of co-rumination on outcomes for girls than for boys

(Rose et al., 2002). However, my lack of significant findings is consistent with more recent research, which found that the indirect effect of co-rumination on depressive symptoms was equally maladaptive for girls and boys (Bastin et al., 2021; Stone & Gibb, 2015). One possible explanation is that boys who engage in high levels of co-rumination may place a high level of importance on interpersonal relationship, similar to their female counterparts. Such value on interpersonal relationships could contribute to increased internalization of communication styles used within friendships (Bastin et al., 2021). It is also possible that changes in socialization of emotion, including increasing discussions of mental health issues and increased focus on social emotional learning in classrooms could influence the more recent lack of gender differences in the literature. For example, it has been suggested that Generation Z has an increased awareness related to mental health concerns as compared to previous generous (Cuncic, 2021). More research is needed to determine if reductions in gender differences related to emotion regulation strategies could be due to changes in emotional socialization and mental health awareness. Specific to the current study, it again should be noted that sample characteristics, such as relatively low overall reports of symptoms, may have contributed to challenges in distinguishing patterns between boys and girls.

Limitations

Although this study has several strengths, including the focus on a relatively understudied area, there are several limitations of note. In the current study, co-rumination, brooding rumination, and depressive symptoms were assessed using self-report measures. Though self-report measures are widely used, they enhance risk of self-report bias and concerns about shared method variance. Future researchers could off-set these concerns by gathering data from

friendship dyads and integrating reports of co-rumination within those dyads (Schwartz-Mette & Smith, 2016).

As previously mentioned, a search of the literature suggested that a sample size above 130 would be sufficient for power. However, post-hoc power analyses revealed that a sample size of 361 would have been necessary to achieve a power of .80. Given that the current study's sample size ranged from 121-150, the lack of significant findings should be considered in light of this power limitation. Another methodological limitation of the current study noted above is the use of a relatively homogenous, non-clinical sample of adolescents. Given these constraints, results are not generalizable to clinical samples of adolescents (e.g., adolescents who have clinically significant levels of depressive symptoms), or to adolescents who identify as racial or gender minorities. Future research should investigate the relationships across time among co-rumination, rumination, and depressive symptoms within clinical samples as well as within more diverse samples of adolescents.

A final limitation of this study is the inclusion of items from the co-rumination questionnaire measuring both co-brooding and co-reflection. As previously mentioned, only recently have researchers identified that co-rumination is comprised of two distinct process, co-reflection and co-brooding (Bastin et al., 2014). Co-reflection is thought of as a more active and adaptive form of co-rumination as compared to co-brooding. Furthermore, co-reflection has been shown to be inversely related to symptoms of depression and may even help account for the relationship between co-rumination and friendship quality (Bastin et al., 2018). At the time of initial study development, the distinction between co-reflection and co-brooding had not yet published. Nevertheless, the inclusion of co-reflection items may have diluted the negative impact of co-brooding on rumination and subsequent depressive symptoms.

Conclusion

Despite the importance of peer relationships during adolescence, little research has investigated the relationships among interpersonal and intrapersonal emotion regulation strategies and depressive symptoms in this population. Given this lack of research, I aimed to replicate a previous longitudinal study investigating the relationships among co-rumination, brooding rumination, and depressive symptoms. Overall, I found that rumination acted as a mechanism explaining the link between co-rumination and depressive symptoms within the same time point. However, this same pattern of results was not found across time. Though additional research is needed, these findings could suggest that the maladaptive links among co-rumination, brooding rumination, and depressive symptoms are strongest when proximal to a stressful event. The current study also added to the debate regarding whether co-rumination should be considered adaptive or maladaptive. Like other recent research (Bastin et al., 2021), I did not find that co-rumination directly predicted depressive symptoms. Future researchers should continue to investigate whether certain forms of co-rumination (e.g., co-reflection versus co-brooding) differentially predict adaptive versus maladaptive outcomes. Similar to other recent studies, (Bastin et al., 2021) gender differences were not found. Though continued research related to gender differences is warranted, it is also possible that changes in socialization of emotion, including increased discussions of mental health issues, could be contributing to a reduction in gender differences reported in the literature.

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