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Co-Rumination and Autobiographical Memory

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## Abstract:

Thirty three undergraduates participated in a study designed to explore the relationship between co-rumination and autobiographical memory. Participants' were scored on Rose's (2002) Co-Rumination Scale, the CESD Depression Scale (Radloff, 1977), and autobiographical memories. The main hypothesis was that those who scored higher on the Co-Rumination Scale would have more specific memories for an event upon which they had co-ruminated. Results indicated that regardless of the level of co-rumination, memories were more specific for the control event than either the positive or negative event. However, it was found that males co-ruminate more with a romantic partner and females co-ruminate more with a same-sex friend. Although autobiographical memories did differ as a function of valence of the event asked about, neither depression level nor co-rumination level were associated with the expected differences in autobiographical memory specificity.

### Co-Rumination and Autobiographical Memory

Self-disclosure is discussing problems that an individual has concerning situations of personal relevance. The friendship literature about self-disclosure stems from the 1950s. Taylor, Wheeler, and Altman (1973) define self-disclosure as “the voluntary presentation of information that is of an intimate or personal nature to another person” (p. 40). A recent study states that “self-disclosure is an important aspect of interpersonal relationship and features prominently in theories of friendship development, which posit that close relationships develop as a result of an escalation of the breadth and intimacy of the information that two individuals reciprocally disclose to one another” (Turner, Hewstone, and Voci, 2007, p. 370). Excessively discussing problems between friends has been given the term co-rumination and is a relatively new topic in the field of psychology. Rose (2002) was the first to use co-rumination, which refers to “excessively discussing personal problems within a dyadic relationship” and is characterized by several items such as frequently discussing problems and discussing the same problem repeatedly (p. 1830). An example of co-rumination would be early adolescents talking at length about whether the ambiguous behavior of a boyfriend or girlfriend is signaling the demise of the relationship (Rose, 2002).

In order to delve into the relatively small pool of research regarding co-rumination, a look into its origin, rumination, is necessary. Unlike co-rumination the term rumination has been around since the 1990s. Nolen-Hoeksema (1994) defined rumination as an individual and cognitive process in which one focuses on the negative aspects and meaning of one’s life. An interesting aspect of rumination in recent years has been its connection to negative affect, specifically with depression and anxiety (Nolen-

Hoeksema, 2000). To extend this connection, the link between depression and overgeneral autobiographical memory and its correlations are important to examine as well as to tie the triadic relationship of rumination, depression, and autobiographical memory all together (Kao, Dritschel, and Astell, 2006; Raes and Hermans, et. al, 2006; Sutherland and Bryant, 2006). Mention of the similarities between rumination and co-rumination and their association with negative affect is prevalent in the existing research. Moreover this research frequently mentions listing negative consequences of co-rumination such as elevated internalizing symptoms of depression and anxiety (Newman, Lohman, and Newman, 2007). Therefore, it would seem logical that co-rumination might also be associated with overgeneral autobiographical memory.

To date, there is no research regarding co-rumination and autobiographical memory. However, the existing literature on co-rumination appears to lend support to the notion that co-ruminators will remember more details (specific vs. categoric) about an event or problem that they have co-ruminated on than for other neutral events. The current study looks to determine this by measuring the level of co-rumination and comparing it with autobiographical memories. Support for this hypothesis will be examined through the research regarding two distinct paths that ruminators versus co-ruminators take in the pathways to autobiographical memory.

Rumination, as previously defined by Nolen-Hoeksema (1991), has had many follow up studies that add to its definition. Sutherland and Bryant (2007) stated that ruminations consist of repetitive cognitions that focus attention on the causes of one's low mood and the implications of these symptoms. The characteristics of rumination concern how one thinks, mainly by the style of thought being repetitive and/or obsessive

rather than the specific content of that thought (Ciesla and Roberts, 2007). In other words it is not the topic that people are repeatedly obsessing about, it is simply the fact that the person is solely focusing on that topic that can be maladaptive. It is possible that one could ruminate about work, vacation plans, school, or even the weather.

It is important to note the reasons that individuals ruminate. Studies have suggested that people ruminate in response to stressful life events, or when the individual perceives a lack of control in regard to their goal discrepancy (Ciesla and Roberts, 2007; Wanke and Schmid, 1996; Thomsen, 2006). Similarly it has been suggested that rumination occurs when there is a lack of discrepancy between the individual's schemata and the actual event. Therefore, rumination may serve the function of incorporating the events into the schemata in order to make sense of it (Ciesla and Roberts, 2007). In accordance with schemata theories, people ruminate in an attempt to search for alternative paths toward a goal or as an attempt to make sense of an event. Unfortunately when no conclusions or alternative solutions are found, rumination may persist until the individual has disengaged from the goal, which can result in the maladaptive outcomes (Thomsen, 2006). Thomsen (2006) also states that people ruminate because they believe that ruminating about their mood and depressive symptoms will help them understand the causes of their mood and themselves better. This is actually maladaptive because it instead enhances sad mood by focusing the individual's attention on the mood. Another reason why people may ruminate involves thought suppression. Erber and Wegner (1996) propose that when an individual suppresses a thought, he or she achieves this by thinking about other things, which then indirectly becomes associated with the thought.

Therefore, the distracters may cue and activate the thought in turn making it more accessible (Thomsen, 2006).

These ideas about why people ruminate bring about the question of its consequences and whether rumination is related to depression and anxiety or if it also shows relations to other negative affects. Previous research has shown that rumination, or negative dwelling, is related to emotional problems such as depression and anxiety (Hart and Thompson, 1997). Thomsen (2006) found that rumination and focusing on the negative beliefs of the self and maintaining low self-esteem are all vulnerabilities to depression. In Thomsen's (2006) study there were two groups in which participants were either induced to ruminate by thinking about sentences that were either self and symptom focused (eg. What their feelings might mean) or they were induced to a distract condition (eg. Think of Mona Lisa's smile). Their mood was then measured on a Likert scale. Their results show that people who were in the self and symptom focused group exhibited more signs of depression and anxiety than the distract condition.

Similar studies support a connection between rumination and anxiety but also to a lesser extent anger, embarrassment, helplessness, stress, and negative mood (Papageorgiou and Siegle, 2003; Thomsen, 2006; Nolen-Hoeksema, 1994; Ciesla and Roberts, 2007). Nolen-Hoeksema (1991) states that rumination appears to predict depressive disorders and that it may be one of the reasons for common comorbidity between depression and anxiety. The specific content of ruminative thoughts at any given moment may influence whether an individual is anxious or depressed, but it is the ruminative process that keeps the individual in either an anxious or depressed mood much of the time. Similarly when people believe that rumination is necessary to

understand the problems of one's emotions, attempts at suppression are likely to maintain rumination (Thomsen, 2006, p. 1217-8).

Interestingly, while research on rumination has been growing, the term co-rumination has seemed to emerge from rumination and self disclosure. Co-rumination, as mentioned earlier is a conversation type in which a person discusses personal problems with another person (Rose, 2002). Rose, Carlson, and Waller (2007) have added rehashing problems and focusing on negative affect as additional characteristics of Rose's (2002) definition of co-rumination. Similar to the concept of rumination and its association with negative affect, co-rumination also has negative consequences (Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Thomsen, 2006; Sutherland and Bryant, 2007; Raes, et. al, 2006).

Unlike rumination, a study by Rose (2002) found that co-rumination may also have benefits. Co-rumination is positively related to having high-quality, close friendships. Rose (2002) suggested that co-rumination can be conceptualized as a specific type of self-disclosure because of the tendency to disclose information intensely and about emotional topics, which is often the basis of co-rumination, leading to feelings of closeness and thus more intimate relationships.

Despite this potentially positive aspect of co-rumination, more often the negative connotations are illustrated in the literature which suggests that excessively seeking reassurance and over involvement in others' problems can be linked to emotional problems and depression (Rose, Carlson, and Waller, 2007). Rose (2002) conducted a study that illustrates the elevated internalizing symptoms of those who co-ruminate in contrast to those who self-disclose. This study included third-, fifth-, seventh-, and ninth-

grade students. Data was collected in two phases that took place an average of 8.9 days apart. Several materials were used and included the 27-item Co-Rumination Questionnaire, the 21-item Rumination Scale, the 5-item Self-Disclosure Scale, the Friendship Nomination Scale, Friendship Quality Questionnaire, Friend-Reported Friendship Quality and Closeness, Internalizing symptoms, as well as responses the Depression Questionnaire (Nolen-Hoeksema and Morrow, 1991). Important to note is how co-rumination was measured. The Co-Rumination Questionnaire assessed three items from each of nine content areas: 1) frequency of discussing problems, 2) discussing problems instead of engaging in other activities, 3) encouragement by the focal child of the friend's discussing problems, 4) encouragement by the friend of the focal child's discussing problems, 5) discussing the same problem repeatedly, 6) speculation about causes of problems, 7) speculation about consequences of problems, 8) focusing on negative feelings (Rose, 2002, p. 1832). This study suggests that because individuals are discussing their problems with another person that problems therefore become more salient. The results show that both positive friendship quality and depression and anxiety each predicted increases in co-rumination, although more so for females than males (Rose, 2002). The similarity to the rumination and depression literature would suggest that focusing on one's problems in co-rumination may be just as maladaptive as rumination. It may be that due to a co-ruminators' consistent negative focus on troubling topics, the tendency to exacerbate worries about whether problems will be resolved, and thoughts regarding the potential negative consequences of those problems may be a precursor to negative affects (Rose, Carlson, and Waller, 2007).



To summarize, the difference between rumination and co-rumination is important in terms of their relationships to both depression and anxiety and autobiographical memory. Co-rumination is said to lie at the intersection of self-disclosure and rumination and is conceptualized as being related to the constructs of both self-disclosure and rumination. It is thought to be more extreme and negative than self-disclosure is typically defined, and it includes a social aspect that is lacking in typical assessments of rumination (Rose, 2002). Co-rumination and rumination relate in the fact that each involves a strong negative feeling and may interfere with other activities (Rose, 2002). Rose (2002) states that “co-rumination is a social process and rumination in an individual cognitive process” that allows for elaboration and reflection on the thought (p. 1831).

Previous research has been done regarding autobiographical memory and shows a strong connection between rumination, depression, and overgeneral autobiographical memory (Raes and Hermans, et. al, 2006). Rumination has emerged as a clear predictor of a poor prognosis in depression (Nolen-Hoeksema, 2004). Several other studies suggested that those who focus on the internal self and mood are more likely to instigate prolonged rumination and negative affect, and that the rumination thinking style negatively impacts the specificity with which people retrieve autobiographical memories (Thomsen, 2006; Raes and Hermans, et. al, 2006; Kao, Dritschel, and Astell, 2006; Watkins et. al, 2000). Sutherland and Bryant (2007) state that “rumination is a mediating mechanism in the retrieval of overgeneral memories” (p. 2407). The fact that reduced autobiographical memory specificity is associated with rumination and that rumination has been shown to be a reliable predictor of depression suggests that the relation between

reduced autobiographical specificity and a poor outcome in depression may be mediated by rumination (Raes et al., 2006, p. 700).

In a study by Raes et al. (2006), researchers categorized memories into overgeneral (extended or categoric) and specific memories. They manipulated rumination in two groups and found that relative to controls, individuals who ruminated showed an increase in overgeneral memories in the form of categoric errors. Researchers try to explain the results by suggesting that perhaps there is more overgeneral retrieval because negative rumination reduces working memory functioning. This view speculates that when a depressed person is captured by rumination on a negative thought, they will have fewer cognitive resources to devote to retrieval searches for specific memories (Thomsen, 2006).

Since co-rumination is related to rumination and both are related to depression and anxiety, it would appear that co-rumination should also be linked with overgeneral memory. This link to overgeneral memory, however, would contradict the hypothesis that co-ruminators would have a more specific memory for those events in which they have co-ruminated. Ironically, it is the same link that ties co-rumination with depression and anxiety that leads to how co-rumination might be linked to more specific memory recall of a specific event. Because co-rumination involves a *preservative focus* on the details of a problem, it also may cause problems to seem more significant and thus harder to resolve. Therefore, focusing on the details of a problem for an excessive amount of time would lead one to believe that this individual should have better recall for that event in comparison to a neutral event because of elaboration, emotion-regulation, and focus on

the self. It differs from rumination in the fact that co-ruminators are prompted to elaborate on their memories and explore all the causes and reasoning for the event.

Barnard, Watkins, and Ramponi (2006) found that autobiographical memory recall has been associated with the degree of elaboration in self-related representation. Another study by Eldridge, Barnard, and Bekerian (1994) found that participants who provided more elaborated and differentiated descriptions of a typical day at work recalled more detailed autobiographical memories of a working day from the previous week, than those with less differentiated representations. Ramponi, et al. (2004) found that categoric memory recall in nonclinical participants was significantly predicted by an individual difference variable indexing differentiation in affect-related self-representation. During this descriptions of self-related feelings in various interpersonal scenarios were coded for degree of differentiation. They found that low levels of differentiation in self-representation were linked to elevated retrieval of categoric memories. This suggests that those who do not differentiate their self-representation and do not elaborate on their experiences do in fact have more categoric autobiographical memories. Therefore, co-ruminators who repeatedly discuss personal problems with others and receive encouragement and speculate the causes and consequences would also create more specific and detailed memories for a specific event that they have elaborated on. Furthermore, research by Barnard, Watkins, and Ramponi (2006) concluded that maladaptive rumination involves relatively unelaborated, undifferentiated and negative self-representation. This leads to depressive symptoms where the regeneration of the same negative event resulting in continuous ruminative thought on similar themes acts to maintain depression. Essentially because co-rumination is a verbal elaboration of a

specific problem of the self, it would lead to a more practiced version of the event, meaning that more details would be readily available for recall.

In depressed patients, experientially focusing attention directly on *feelings* reduced overgeneral memory whereas analytical thinking about feelings maintained overgeneral memory (Watkins and Teasdale, 2004). As Ciesla and Roberts (2007) stated earlier, rumination concerns *how* one thinks. It is characterized by a style of thought (repetitive or obsessive) rather than specific content of that thought. Therefore because co-rumination differs from rumination in the fact that it focuses on the specific content of the event and that it focuses on the feelings present at the time, it suggests a reduction in co-ruminators retrieval of overgeneral memory.

Lastly, Neumann and Philippot (2007) found that like worrying, rumination in depression is a recurrent self-related negative thinking pattern characterized by reduced concreteness. In studies manipulating the mode of self-focused rumination, Watkins and Teasdale (2004) gathered evidence that suggests, an abstract focus on the causes and consequences of mood and symptoms is a maladaptive type of rumination, whereas a concrete focus on the experience of specific symptoms decreases overgeneral autobiographical memory and improves problem solving and self-esteem in depression. In their study of a mental imagery task, intense emotions were observed when participants were instructed to activate information related to the emotional responses (self) but not when they were instructed to focus on the situational and contextual characteristics of the emotional situation (Watkins and Teasdale, 2004). Therefore, because rumination is focused on the negative symptoms and meaning of those symptoms

and co-rumination is focused on the experience and making sense of the problem, it would suggest a decrease in overgeneral autobiographical memory.

In conclusion, previous research has provided sound evidence for the similarities of rumination and co-rumination and their association with negative aspects of the self. Similarly, research supports the link between co-rumination and self-disclosure in their association of involving another person. Studies have found that both rumination and co-rumination are linked with depression and anxiety, which essentially leads to overgeneral autobiographical memory. However, the differences between rumination and co-rumination are such that the effects and symptoms of co-rumination outweigh those of depression and anxiety in creating more specific memories for events. Because co-rumination is associated within a dyadic relationship and focuses on specific negative events for a prolonged period of time, it is plausible that elaboration, emotion, and self focus are factors that thereby create more detailed memories about a specific event that has been co-ruminated on. This is the main hypothesis for this research. The second hypothesis is that females will co-ruminate more than males.

Implications of this research are extremely important. Autobiographical memory has been a topic of interest because it provides insight into the way people remember their past and past events. Co-rumination is a type of conversation that has both positive and negative outcomes. However, if the link between co-rumination and autobiographical memory shows that people who co-ruminate about an event have more detailed autobiographical memory, this research may add to the benefits of co-rumination.

## Method

### *Participants*

Thirty-three undergraduate volunteers (eight males, 25 females) from a small mid-western liberal arts college took part in this study. Each of the participants were enrolled in General Psychology classes and volunteered for the study via an online registration. None of the participants knew the purpose of the experiment and none had seen the experimental information prior to being tested. General Psychology students were required to participate in three on-campus studies and participating in the current study will fulfill one third of these requirements. However, students were given the option to choose an optional assignment if they did not feel comfortable participating in any experimental studies.

### *Materials*

Several different scales were used to measure rumination, co-rumination, depression and autobiographical memory. To assess co-rumination, a computer program that included the Rose (2002) Co-rumination scale was used. They were also given the Center for Epidemiological Studies-Depression Scale (CESD) by Radloff (1977). To access the autobiographical memories, a computer program was written to acquire three specific memories from the ninth grade. The first memory asked for was a neutral, unprompted memory, the second asked for a personal success or positive experience, and the third asked for a personal problem they had experienced with a friend or romantic partner. These memories were assessed using the Linguistic Inquiry and Word Count (2001).

*Procedure*

This experiment was conducted in two phases. In the first experiment, each participant was invited into the computer lab. Each participant had the first programmed questionnaires on the computer in front of them ready to be answered. The first programmed questionnaires including the Rumination Scale, the Co-Rumination Scale, and the CESD Depression Scale. Once all the participants arrived, the door was closed and consent forms were handed out. Participants were told to read and fill it out and then wait for further instructions, at which time they were also informed that they were free to leave at any time during the study without penalty. Upon completion of the consent form the participants in Room 1 were told to record the number that was on the upper right hand of the consent form into the question box labeled “subject number” on the questionnaire. They were told that the purpose of this study was to examine conversations with friends and that the questionnaire would take approximately twenty to twenty-five minutes to complete. Each student was free to leave when he or she finished the questionnaire.

In the second phase of the experiment, participants returned to the computer lab to complete the autobiographical memory tasks. Participants were again handed out consent forms with a subject number in the upper right hand corner and told to put that number in the space that said “subject number” on the computer questionnaire. This time the autobiographical memory task was written into a program so that the first memory participants were asked was simply, “Please tell me about a specific memory that you have from the ninth grade” (control A). The second two memories were random in their order. Some participants received the positive memory second, “Please tell me about a

personal success or positive experience that you remember from the ninth grade” (positive B); followed by the negative memory, “Please tell me about a personal problem that you’ve experienced with a friend or romantic partner” (negative C). Other participants had Control A, negative C, and then positive B. After each memory recall the computer prompted participants to answer questions regarding each memory. Participants were free to leave when they had finished recalling all three memories and finished all three questionnaires about each of those memories. The participants were all debriefed, thanked, and informed that they would have an opportunity to learn of the results of the study.

### Results

The primary question of interest concerned the level of co-rumination and whether it influenced the specificity of autobiographical recall in the negative memory. Specifically I looked at participants’ scores on the co-rumination scale and compared them with a specificity rating. The main hypothesis is that a higher level of co-rumination results in more specific memory recall regarding the negative memory than for either the control memory or the positive memory.

To determine whether participants’ indeed scored high versus low on the co-rumination scale, a frequency test examining participants’ scores were run. The results indicated a median score of 2.48. This mean score was the deciding factor in determining whether participants were high versus low in co-rumination; each of the participants who scored 2.49 or above were classified as being a high co-ruminator and each of the participants who scored 2.48 or lower were classified as being a low co-ruminator.



A three (memory) by two (level of co-rumination) by two (gender) ANOVA was used to examine the impact of co-rumination (high versus low) and type of memory (control event, positive event, negative event) and gender (male versus female) on memory specificity. A main effect was found for type of memory,  $F(2, 58) = 3.86, p < .027, \eta^2 = .067$ . Unprompted memories were more specific ( $M = 2.90, SD = 1.96$ ) than either memories for positive events ( $M = 2.04, SD = 1.56$ ) or negative events ( $M = 1.97, SD = 1.63$ ). No effect was found for level of co-rumination ( $F(1, 29) = 2.12, p < .16$ ) or gender ( $F(1,29) = 2.61, p < .12$ ). There were no significant interactions. The joint impact of co-rumination and memory type is shown in Figure 1.

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Place Figure 1 about here.

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A two (type of relationship) by two (gender) ANOVA was used to determine the effect of gender (male versus female) and co-rumination with type of relationship (romantic partner versus same-sex friend) on level of co-rumination. There was no main effect found for gender, ( $F(1,31) = .01, p < .920$ ). There was no main effect found for type of relationship,  $F(1,31) = .32, p < .576$ . There was a interaction found between gender and type of relationship  $F(1,31) = 6.49, p < .016, \eta^2 = .173$  with males co-ruminating more with a romantic partner than a friend and females co-ruminating more with a friend than with a romantic partner. The interaction of gender and type of relationship is shown in Figure 2.

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A three (type of memory) by two (level of co-rumination) by two (gender) ANOVA was used to examine the effects of co-rumination (high versus low) and type of memory (control event, positive event, negative event) and gender (male versus female) on the length of each memory (number of words). No main effect for type of memory was found ( $F(2,58) = 1.68, p < .196$ ). No effect was found for level or co-rumination ( $F(1,29) = 2.93, p < .098$ ) or gender ( $F(1,29) = 1.85, p < .184$ ). No interactions were significant. These findings are shown in Figure 3.

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A three (type of memory) by two (level of co-rumination) by two (gender) was used to examine the impact of type of memory (control, positive, negative) and co-rumination (high versus low) and gender (male versus female) on the frequency of the word “I.” There was no main effects for either co-rumination ( $F(2,58) = .007, p < .935$ ) or for type of memory ( $F(2,58) = 3.53, p < .036$ ), although the positive event had a slightly higher frequency of the word “I” ( $M = 9.96, SD = 4.38$ ) than either the control ( $M = 7.97, SD = 3.06$ ) or negative event ( $M = 7.86, SD = 3.49$ ). No effect was found for gender ( $F(1,29) = .001, p < .975$ ). No interactions were significant. These findings are shown in Figure 4.

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A three (type of memory) by two (level of co-rumination) by two (gender) ANOVA was used to determine the effect of co-rumination (high versus low) and type of memory (control, positive, negative) and gender (male versus female) on emotional valence (the number of positive emotion words minus the number of negative emotion words). There was a main effect found for type of memory ( $F(2,58) = 12.02, p < .0001$ ). The positive event elicited more positive emotional valence ( $M = 3.73, SD = 3.28$ ) than either the negative event ( $M = .22, SD = 2.27$ ) or the control event ( $M = .85, SD = 2.43$ ). There was no effect found for level of co-rumination ( $F(1,29) = .66, p < .424$ ). There were no significant interactions. The joint impact of type of memory and emotional valence is found in Figure 5.

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Analyses were then run to determine whether participants' levels of depression affected their autobiographical memories. To determine whether participants' indeed scored high versus low on the CESD depression scale, a frequency test examining participants' scores were run. The results indicated a mean score of 10. This mean score was the deciding factor in determining whether participants were high versus low in depression; each of the participants who scored 11 or above were classified as being a high-depressed and each of the participants who scored 10 or lower were classified as being a low-depressed.

A three (memory) by two (level of depression) by two (gender) ANOVA was used to examine the impact of depression (high versus low) and type of memory (control event, positive event, negative event) and gender (male versus female) on memory

specificity. No main effect was found for type of memory ( $F(2,58) = 2.10, p < .13$ ). There was no effect of gender ( $F(1,29) = .60, p < .45$ ) or for level of depression ( $F(1,29) = .87, p < .36$ ). There were no significant interactions found. Findings can be shown in Figure 6.

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An Independent Samples T-test was used to examine the effects of level of depression (high versus low) on gender (male versus female). No main effect was found ( $t(31) = 1.23, p > .05$ ).

A three (type of memory) by two (level of depression) by two (gender) ANOVA was used to examine the effects of depression (high versus low) and type of memory (control event, positive event, negative event) and gender (male versus female) on the length of each memory (number of words). There was no main effect found for type of memory ( $F(2,58) = .995, p < .38$ ). There was no main effect found for gender ( $F(1, 29) = 2.29, p < .14$ ) and no main effect for level of depression ( $F(1, 29) = 1.81, p < .19$ ). There were no significant interactions found.

A three (type of memory) by two (level of depression) by two (gender) was used to examine the impact of type of memory (control, positive, negative) and depression (high versus low) and gender (male versus female) on the frequency of the word "I." A main effect for type of memory was found ( $F(2,58) = 3.78, p < .03, \eta^2 = .115$ ). The positive event elicited more uses of the word "I" ( $M = 9.96, SD = 4.38$ ) than either the control event ( $M = 7.97, SD = 3.06$ ) or the negative event ( $M = 7.86, SD = 3.49$ ). There

was no effects found for level of depression ( $F(1, 29) = .001, p < .98$ ) or gender ( $F(1, 29) = .06, p < .82$ ). No significant interactions were found.

A three (type of memory) by two (level of depression) by two (gender) ANOVA was used to determine the effect of depression (high versus low) and type of memory (control, positive, negative) and gender (male versus female) on emotional valence (the number of positive emotion words minus the number of negative emotion words). A main effect for type of memory was found ( $F(2,58) = 14.70, p < .001, \eta^2 = .336$ ). The positive event was higher in emotion valence ( $M = 3.73, SD = 3.28$ ) than either the control event ( $M = .85, SD = 2.43$ ) or the negative event ( $M = .217, SD = 2.27$ ). No effects were found for level of depression ( $F(1,29) = 1.55, p < .22$ ) or for gender ( $F(1, 29) = .49, p < .49$ ). An interaction for memory and level of depression was found ( $F(2,58) = 3.97, p < .024, \eta^2 = .120$ ). Another interaction was found for type of memory, gender, and level of depression ( $F(2,58) = 4.05, p < .023, \eta^2 = .123$ ). These interactions can be shown in Figure 7.

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### Discussion

In this study, I examined the relationship between participants' scores on the Co-Rumination Scale, CESD Depression Scale, and their autobiographical memories. I hypothesized that participants who scored higher on the Co-Rumination Scale would recall more specific memories in regards to the personal problem (negative)

autobiographical memory. In addition, I examined whether females co-ruminated more than males.

Much of the previous research has pointed out the negative aspects of co-rumination. Rose (2002) found that co-rumination can be linked to emotional problems and depression. In relation to autobiographical memory, links have been made between rumination, depression and overgeneral autobiographical memory (Raes and Hermans, et al, 2006). Other studies have found similar results in which ruminative thinking style negatively impacts the specificity with which people retrieve their autobiographical memories (Thomsen, 2006; Kao, Dritschel, and Astell, 2006; Watkins et. al, 2000). The results of this study neither provide support nor oppose previous research. In regards to the first hypothesis, I did not find that participants who were high in co-rumination recalled more specific memories for the personal problem (negative) memory. However, I also did not find that participants recalled less specific memories for the personal problem memory either. I did find that regardless of being a low or high co-ruminator, the unprompted memory elicited the most specific memories. This was true in the length of the memories as well. Both emotional valence and the number of times the word “I” was used was highest in the positive memory than in the control or the negative memory. However, it was found that males tended to co-ruminate more with a romantic partner than with a same-sex friend and that females tended to co-ruminate more with a same-sex friend than with a romantic partner. These findings replicate the findings of Rose’s (2002) study.

With the findings that contradicted my hypothesis regarding the level of co-rumination and autobiographical memory specificity, it was thought that perhaps the link

between depression and autobiographical memory was stronger than the link with co-rumination. Therefore analyses were run on the level of depression and autobiographical memory. Referring to the previous literature mentioned, depression has been shown to be related with overgeneral autobiographical memory (Raes, et. al, 2006). However, the results that we found did not support or negate this research. In regards to the findings on depression and autobiographical memory specificity, it was found that both memory specificity and length of the memory was dependent upon being high or low in depression. However, the number of times the word “I” was used was shown to be higher in the positive event than either the control or the negative event. There was also an effect shown in the emotional valence of the memories, in which regardless of being high or low in depression, the positive event was higher in emotional valence than either the control or negative event. There were also interactions found for the type of memory and depression. Interactions were also found for the type of memory, level of depression and gender. These interactions suggest that our measurement system is accurate in that it showed that memories were sensitive to the type of memory and that they were also separated by gender and depression level, despite the fact that these results were not found for our hypothesis regarding co-rumination. These depression findings were similar to what we had expected. This suggests that our instruments were not the reason for not finding the desired outcomes of co-rumination and that perhaps with a larger sample size different outcomes would result.

Since this research was the first to be done on co-rumination and autobiographical memory, future research is needed. Although we found no significant results in accordance with our hypothesis perhaps having a larger sample size would provide a

better chance of getting results. Another change to the study would be ask for memories during which people would be more likely to have more emotional personal problems. This might include having older adults look back on their college years instead of college students looking back to ninth grade. It may be that ninth grade is not a significant enough year in their lives to have elicited the wanted results. One last suggestion that might change the outcome of the results would be to have participants speak their memories out loud instead of writing them down. Perhaps because co-ruminating is a verbal event, there was a loss in the translation in having the participants record their memories on paper. In either case, this is an extremely interesting and relevant research topic that should be explored further.



## References

- Barnard, P. J., Watkins, E. R., & Ramponi, C. (2006). Reducing specificity of autobiographical memory in nonclinical participants: The role of rumination and schematic models. *Cognition & Emotion. Special Issue: Autobiographical Memory Specificity and Psychopathology*, 20(3-4), 328-350.
- Ciesla, J. A., & Roberts, J. E. (2007). Rumination, negative cognition, and their interactive effects on depressed mood. *Emotion*, 7(3), 555-565.
- Eldridge, M. A., Barnard, P. J., & Bekerian, D. A. (1994). Autobiographical memory and daily schemas at work. *Memory*, 2(1), 51-74.
- Erber, R. (. , & Wegner, D. M. (1996). *Ruminations on the rebound*. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Hart, B. I., & Thompson, J. M. (1996). Gender role characteristics and depressive symptomatology among adolescents. *Journal of Early Adolescence*, 16(4), 407-426.
- Kao, C., Dritschel, B. H., & Astell, A. (2006). The effects of rumination and distraction on overgeneral autobiographical memory retrieval during social problem solving. *British Journal of Clinical Psychology*, 45(2), 267-272.
- Neumann, A., & Philippot, P. (2007). Specifying what makes a personal memory unique enhances emotion regulation. *Emotion*, 7(3), 566-578.
- Newman, B. M., Lohman, B. J., & Newman, P. R. (2007). Peer group membership and a sense of belonging: Their relationship to adolescent behavior problems. *Adolescence*, 42(166), 241-263.

- Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology, 109*(3), 504-511.
- Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 loma prieta earthquake. *Journal of Personality and Social Psychology, 61*(1), 115-121.
- Nolen-Hoeksema, S., Morrow, J., & Fredrickson, B. L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology, 102*(1), 20-28.
- Nolen-Hoeksema, S., Parker, L. E., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology, 67*(1), 92-104.
- Papageorgiou, C., & Siegle, G. J. (2003). Rumination and depression: Advances in theory and research. *Cognitive Therapy and Research, 27*(3), 243-245.
- Raes, F., Hermans, D., Williams, J. M. G., Beyers, W., Eelen, P., & Brunfaut, E. (2006). Reduced autobiographical memory specificity and rumination in predicting the course of depression. *Journal of Abnormal Psychology, 115*(4), 699-704.
- Raes, F., Hermans, D., Williams, J. M. G., Demyttenaere, K., Sabbe, B., Pieters, G., et al. (2006). Is overgeneral autobiographical memory an isolated memory phenomenon in major depression? *Memory, 14*(5), 584-594.
- Ramponi, C., Barnard, P. J., & Nimmo-Smith, I. (2004). Recollection deficits in dysphoric mood: An effect of schematic models and executive mode? *Memory, 12*(5), 655-670.

- Rose, A. J. (2002). Co-rumination in the friendships of girls and boys. *Child Development, 73*(6), 1830-1843.
- Rose, A. J., Carlson, W., & Waller, E. M. (2007). Prospective associations of co-rumination with friendship and emotional adjustment: Considering the socioemotional trade-offs of co-rumination. *Developmental Psychology, 43*(4), 1019-1031.
- Sutherland, K., & Bryant, R. A. (2007). Rumination and overgeneral autobiographical memory. *Behaviour Research and Therapy, 45*(10), 2407-2416.
- Taylor, D. A., Wheeler, L., & Altman, I. (1973). Self-disclosure in isolated groups. *Journal of Personality and Social Psychology, 26*(1), 39-47.
- Thomsen, D. K. (2006). The association between rumination and negative affect: A review. *Cognition & Emotion, 20*(8), 1216-1235.
- Turner, R. N., Hewstone, M., & Voci, A. (2007). Reducing explicit and implicit outgroup prejudice via direct and extended contact: The mediating role of self-disclosure and intergroup anxiety. *Journal of Personality and Social Psychology, 93*(3), 369-388.
- Wänke, M. (., & Schmid, J. (1996). *Rumination: When all else fails*. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Watkins, E., Teasdale, J. D., & Williams, R. M. (2000). Decentring and distraction reduce overgeneral autobiographical memory in depression. *Psychological Medicine, 30*(4), 911-920.

Watkins, E., & Teasdale, J. D. (2001). Rumination and overgeneral memory in depression: Effects of self-focus and analytic thinking. *Journal of Abnormal Psychology, 110*(2), 353-357.

Watkins, E., & Teasdale, J. D. (2004). Adaptive and maladaptive self-focus in depression. *Journal of Affective Disorders, 82*(1), 1-8.

## Figure Captions

*Figure 1.* Memory specificity as related to level of co-rumination and type of memory by gender.

*Figure 2.* Effect of gender and level of co-rumination with the type of relationship on co-rumination.

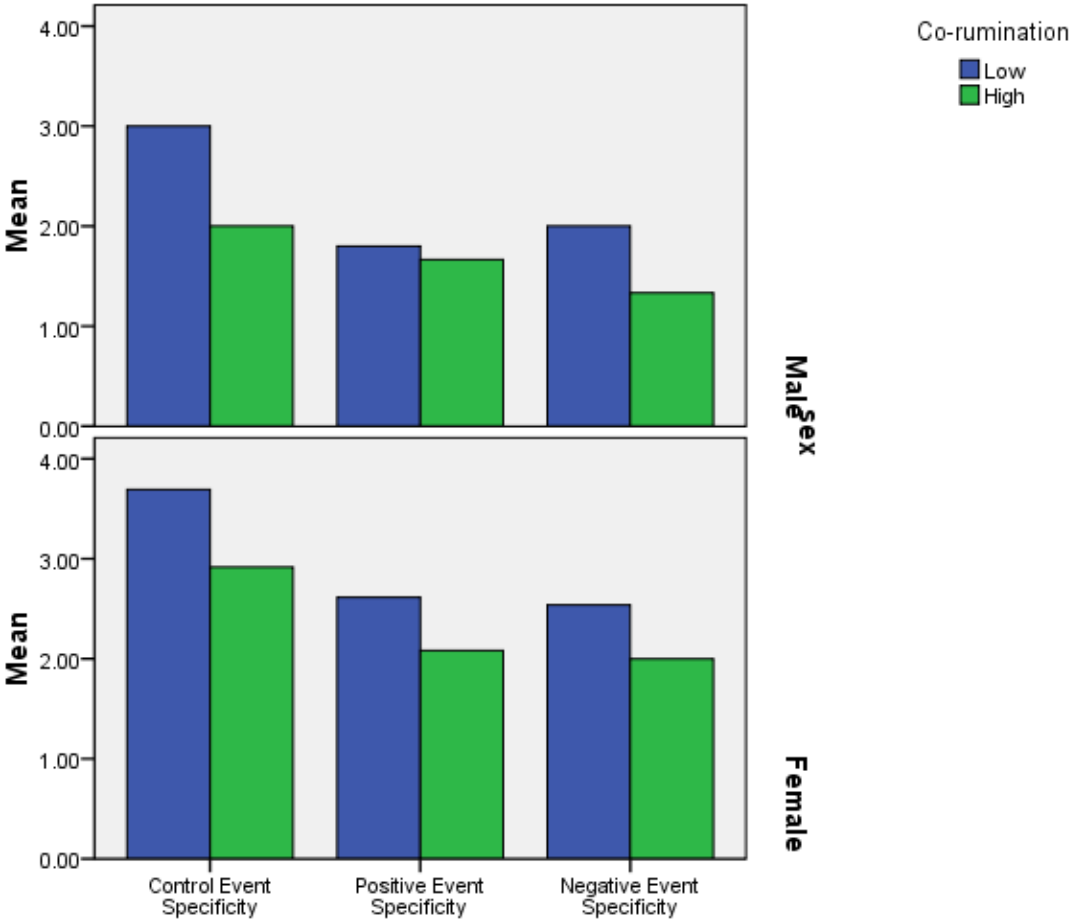
*Figure 3.* Length of autobiographical memories as related to the level of co-rumination type of event by gender.

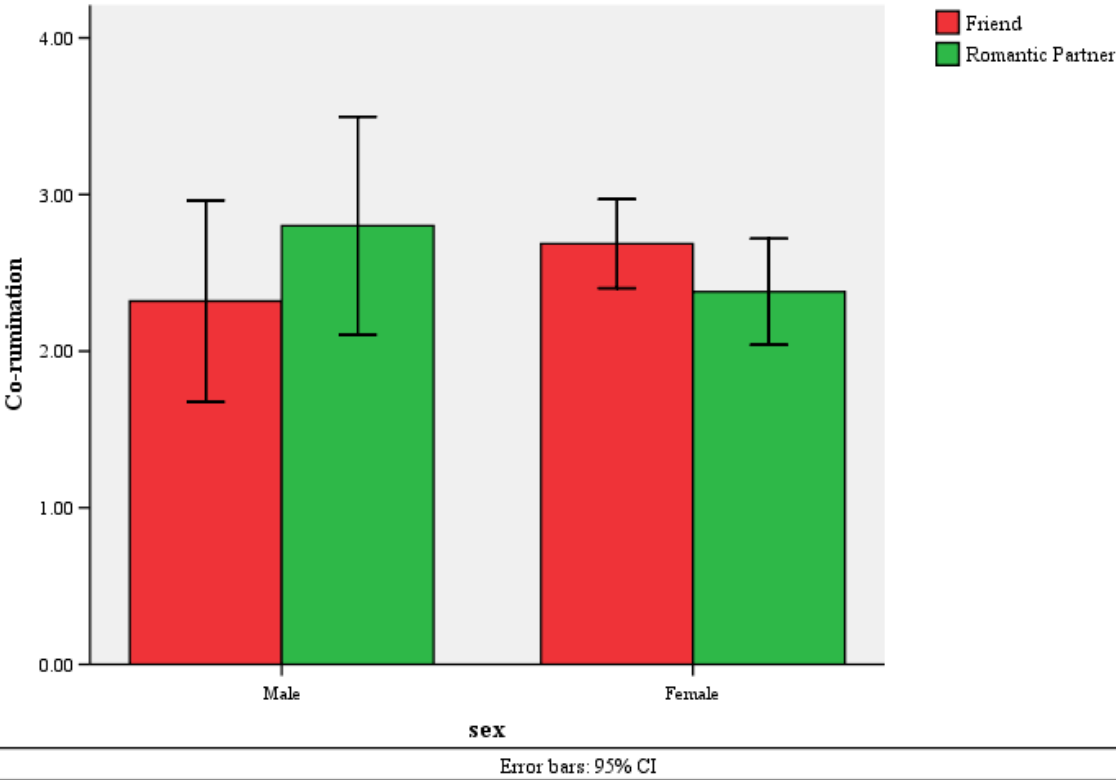
*Figure 4.* Usage of the word “I” as related to the level of co-rumination and type of event by gender.

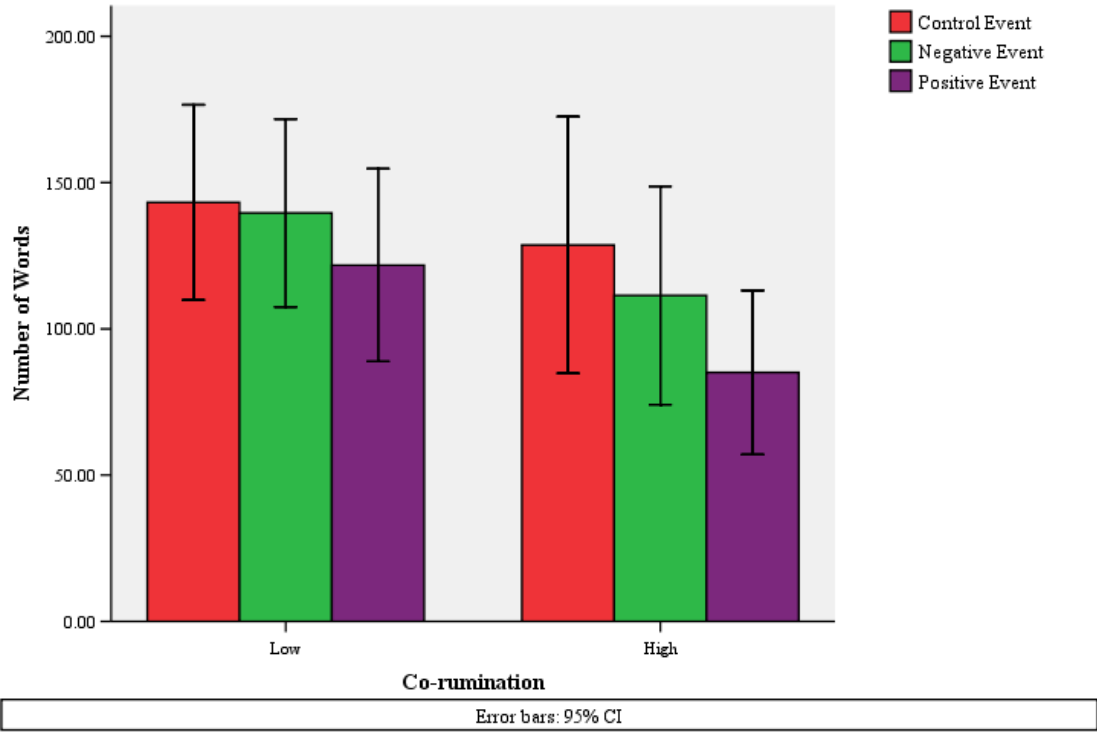
*Figure 5.* Emotional valence as related to the level of co-rumination and type of event by gender.

*Figure 6.* Memory specificity as related to level of depression and type of memory by gender.

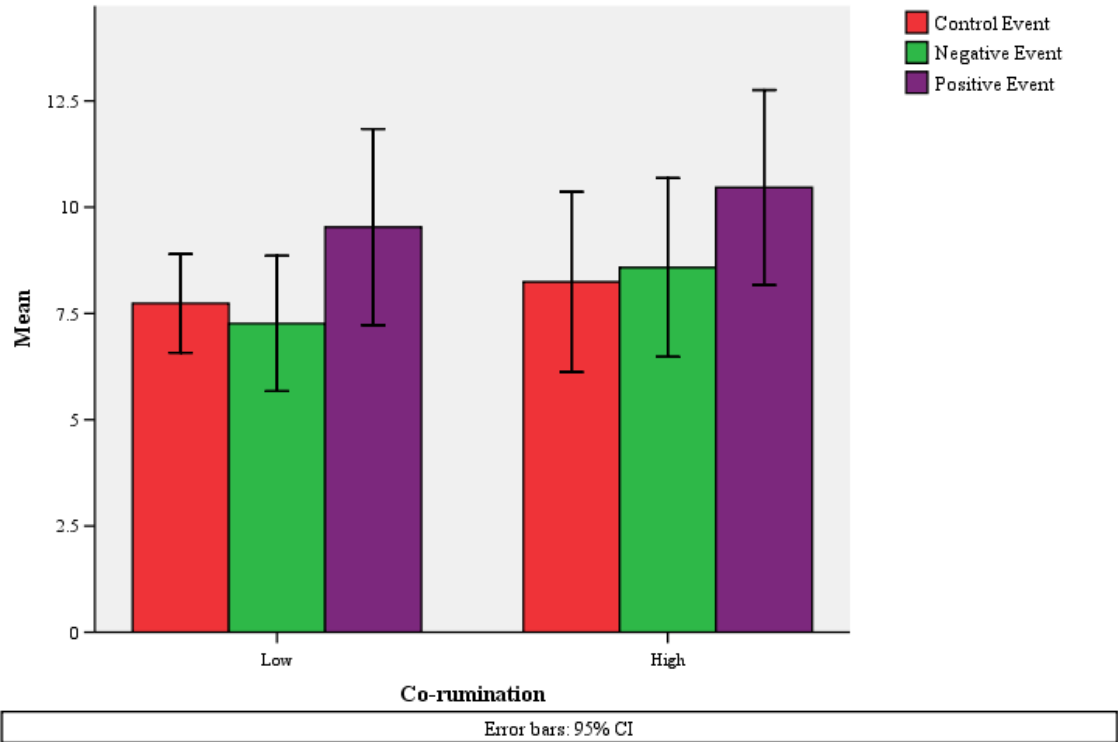
*Figure 7.* Interactions of emotional valence as related to the level of depression and type of memory by gender.

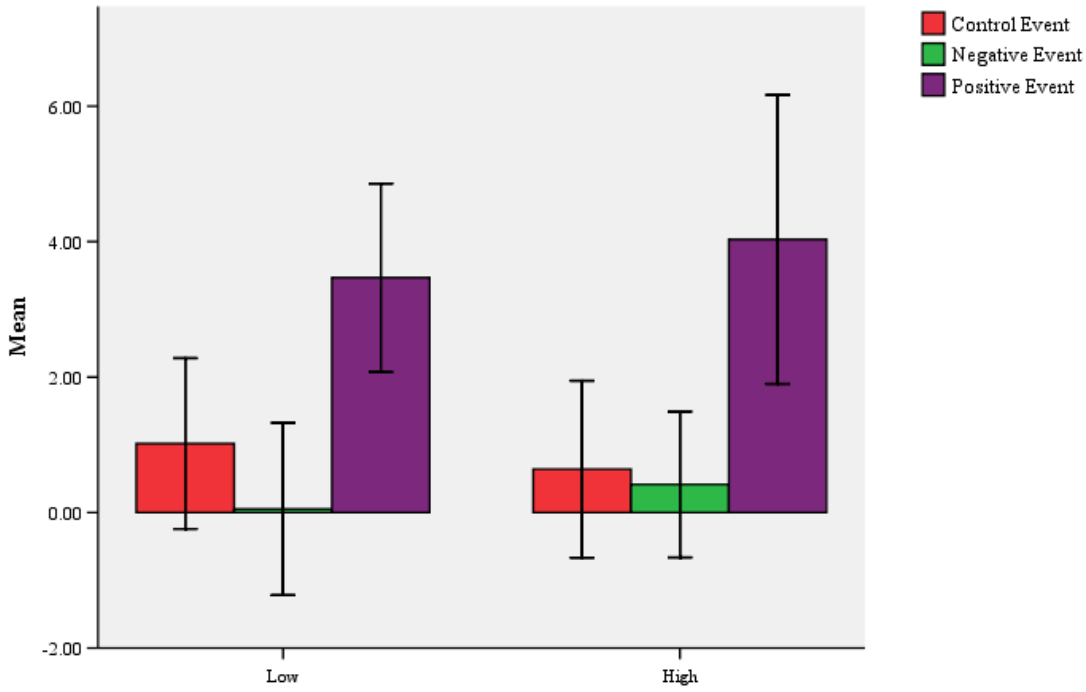












Error bars: 95% CI

