Explaining Co-Rumination: The Influence of Gender Role

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This study examined the influence of gender and gender role on co-rumination and emotional self-disclosure between various friend pairings of maturing young adults. We expected that gender role would influence an individual’s tendency to co-ruminate, and gender role of a friend would influence levels of co-rumination within the dyad. Participants (N=102, 32 male; 70 female) were college-aged students. Gender role of participants was assessed; participants also assessed the perceived gender role of a close male and female friend. Levels of co-rumination, emotional self-disclosure, and emotional impact of conversations with each friend close friend were measured in order to compare how participants co-ruminated and self-disclosed to male and female friend. Gender differences were found in co-rumination and amounts of positive and negative self-disclosure, with females having higher levels. Female friends were more often the recipients of co-rumination and disclosure. Categorical gender role of the participants moderated the effect of gender on co-rumination with a female friend. Perceived gender role of both male and female friends better predicted co-rumination than the gender or gender role of the participant. Dimensionally, femininity was consistently related to co-rumination and self-disclosure while masculinity was not. This study also examined emotional consequences of discussing problems with friends, with positive affect
experienced more often than negative affect, for both males and females. Positive affect was also positively related to negative and positive self-disclosure with male and female friends. This study contributes to the literature concerning co-rumination and suggests further inquiry into the function of gender role in co-rumination.
Table of Contents

Acknowledgments ........................................................................................................................... ii
Abstract ........................................................................................................................................ iii
List of Tables ................................................................................................................................... vii
List of Figures ............................................................................................................................... viii
Introduction ................................................................................................................................. 1
  Gender Differences in Co-Rumination ...................................................................................... 1
  Self-Disclosure .......................................................................................................................... 5
    Gender ....................................................................................................................................... 5
    Gender Role ............................................................................................................................. 7
  Rumination ................................................................................................................................. 8
    Gender Role ............................................................................................................................. 11
  Gender and Friendship ............................................................................................................. 11
  Current Study ............................................................................................................................ 13
Method ......................................................................................................................................... 16
  Participants ............................................................................................................................... 16
  Dependent Measures ................................................................................................................ 16
  Procedure .................................................................................................................................. 19
  Data Analysis ............................................................................................................................ 20
Results ......................................................................................................................................... 22
  Descriptive Statistics ............................................................................................................... 22
    First Order Correlations ........................................................................................................ 23
    Gender Effects ....................................................................................................................... 24
List of Tables

Table 1. Distribution of Gender Role Types among Males and Female Participants......42

Table 2. Distribution of Gender Role Types of Male and Female Friend by Participant Gender.................................................................................................................................43

Table 3. Descriptive Statistics of all Variables for Male and Female Participants........44

Table 4. Means and Standard Deviations (SD) for all Variables by Participant Gender Role Type................................................................................................................................................45

Table 5. First Order Correlations of all Variables.................................................................................................................................46

Table 6: First Order Correlations of all Variables by Gender........................................47
List of Figures

Figure 1. Differences in Co-Rumination with Female and Male Friends, by Gender of the Participant..........................................................48

Figure 2: Relationship between Valence of Emotional Disclosure, Gender of the Friend, and Gender of the Participant..........................................................49

Figure 3: Moderation Model of Co-Rumination with a Female Friend.........................50

Figure 4: Relationship Between Gender, Gender Role, and Co-Rumination with a Male Friend........................................................................................................51

Figure 5: Relationship between Female Friend Gender Role Co-Rumination...............52
Figure 6: Relationship between Male Friend Gender Role and Co-Rumination..........53
Explaining Co-Rumination: The Influence of Gender Role

It is likely that at least once in awhile, we find the need to talk to a friend about the same problem or issue over and over again, getting out all the negatives in some form of catharsis. We continually bring up the same problem, whether it is a failed romantic interest, a horrible boss, or issues with parents, consistently pointing out to friends how horrible this issue is, but never actually finding ways to deal with the problem. This only makes the problem worse or more potent to the mind, and it seems that not even talking to a friend about it will bring any positives to the situation.

In 2002, Amanda Rose presented the construct of co-rumination to explain why what should be emotionally protective friendships fail to buffer against depression and anxiety. Co-rumination is referred to as “excessively discussing personal problems within a dyadic relationship” and has the characteristics of “frequently discussing problems, discussing the same problem repeatedly, mutual encouragement of discussing problems, speculating about problems, and focusing on negative feelings” (Rose, 2002, p.1830). Research on co-rumination has combined research from areas of self-disclosure, friendship, and rumination. Overall, co-rumination seems to be an overlap between self-disclosure and rumination, as it is characterized as a social event that can be maladaptive to those who co-ruminate (Rose, 2002; Rose, 2007; Schwartz-Mette & Rose, 2012). Rose’s initial study on co-rumination (2002) suggested that co-rumination is similar to self-disclosure in that a dyad shares personal intimate thoughts that create a sense of closeness (Dindia & Allen, 1992; Sultan & Chaudry, 2008). However, it is also similar to
rumination in that it focuses on negative thoughts and feelings that may be related to emotional problems, in this case depression and anxiety, which would not be normally found in self-disclosure (Rose, 2002). The current study proposes to extend the literature on co-rumination and its role in friendships and in disclosure between individuals by exploring same-sex and mixed sex friendships, an area of research that has not been studied, and exploring the role of gender role in predicting self-disclosure and co-rumination. Previous research regarding co-rumination, self-disclosure, and rumination warrants exploring these concepts further.

**Gender Differences in Co-Rumination**

Multiple studies, starting with Rose’s 2002 study, have found connections between co-rumination and internalizing symptoms (Hankin et al., 2010; Rose et al., 2007; Schwartz-Mette & Rose, 2012; Starr & Davila, 2009; Stone, Uhrlass, & Gibb, 2010; Tompkins et al., 2011). Such connections have been the focus of most research concerning co-rumination. Initially, co-rumination was positively related to internalizing symptoms of depression and anxiety (Rose, 2002). Co-rumination completely mediated the relationship between gender and depressive symptoms, which was supported in Rose et al. (2007). In cross-sectional studies with various age ranges, higher amounts of co-rumination have consistently been linked to higher levels of internalizing symptoms (Calmes & Roberts, 2008; Hankin et al., 2010, Rose et al., 2007; Starr & Davila, 2009). Longitudinally, results vary. Rose et al. (2007) and Hankin et al. (2010) both reported co-rumination being linked with depressive symptoms over time. However, Starr and Davila (2009) were unable to show that co-rumination predicted increases in depressive symptoms over a one-year period. Although additional longitudinal work is needed,
overall there appears to be a clear connection between co-rumination and internalizing symptoms. Furthermore, research has suggested that co-rumination may explain gender differences in the development of depression and anxiety, given the gender differences in levels of co-rumination.

Work on co-rumination has shown a range of gender differences in the frequency of co-rumination, though the majority of research as focused solely on same-sex interactions. In a study examining children and adolescents, Rose (2002) found that girls co-ruminated more than boys did, and more so in adolescence than in childhood. This was replicated in subsequent studies examining co-rumination (Calmes & Roberts, 2008; Hankin, Stone & Wright, 2010; Rose, Carlson, & Waller, 2007; Tompkins, Hockett, Abraibesh, & Witt, 2011). Tompkins et al. (2011) compared the various age samples across studies (Calmes & Roberts, 2008; Rose, 2002) and concluded that gender differences were the greatest in early adolescence, and decreased after that. Although Hankin et al. (2010) showed girls co-ruminated more than boys did throughout adolescence, their results suggested also that older adolescent girls had higher rates of co-rumination than younger girls did in contrast to Tompkins et al. (2011). Furthermore, Calmes and Roberts (2008) showed significant gender differences still exist in college-aged students, finding that women co-ruminated significantly more within same-sex friendships than men. In general, it seems that regardless of age, males and females co-ruminate differently with same-sex friends. This in turn may influence males and females distinctly in terms of emotional consequences of co-rumination, as well as views on the friendship itself.

Research examining the link between differences in internalizing symptoms and
co-rumination has produced mixed results. Some studies report that girls report more co-rumination, along with higher levels of depression and anxiety (Rose, 2002; Starr & Davila, 2009). In some cases, the gender difference in depressive symptoms was mediated by the gender difference in co-rumination (Calmes & Roberts, 2008; Rose, 2002; Rose et al., 2007; Tompkins et al., 2011). Furthermore, Rose, et al. (2007) found evidence that for girls, co-rumination predicted increased internalizing symptoms over time, but the same did not hold true for boys. However, studies such as Hankin et al. (2010) failed to show that gender moderated the influence of co-rumination on depressive symptoms. Additionally, these researchers point out that their results do not support sex-specific pathways to developing internalizing symptoms through co-rumination (Hankin et al., 2010). Because of inconsistency in the literature, it is not clear if gender differences in co-rumination contribute in some way to gender differences in depression for adolescents and younger adults.

Co-rumination itself has significant effects on the relationship quality within friendship. In Calmes and Roberts’ study (2008), co-rumination was positively correlated with satisfaction of the relationship of individuals to a same-sex roommate, romantic partner, parents, and same-sex closest friend. Starr and Davila (2009) also concluded that greater co-rumination was positively related to positive aspects of friendship. It is not clear, however, if co-rumination improves friendship quality or if higher friendship quality allows the friends to feel comfortable enough with each other to co-ruminate. Rose et al. (2007) found that co-rumination predicted increasing positive friendship quality for both boys and girls, with girls reporting higher ratings of friendship quality than boys reported. If girls feel positive about the friendship and their behavior within the
friendship, it is likely that girls would continue to co-ruminate with each other, therefore increasing internalizing symptoms resulting from co-rumination.

The currently study proposes to address gaps in the co-rumination literature that may in time address the connections between co-rumination and internalizing symptoms. One overlooked portion of literature concerns the influence of gender role on co-rumination within a dyad. As stated by Rose (2002), co-rumination reflects components from the constructs of self-disclosure as well as rumination. The gender role endorsed by an individual does have influence on tendencies to ruminate and self-disclose to others.

**Self-Disclosure**

Self-disclosure is considered by Rose (2002) an important component of co-rumination, given that self-disclosure involves sharing intimate personal details that create a feeling of closeness between individuals (Dindia & Allen, 1992). Co-rumination does involve sharing intimate problems with another, and as demonstrated by research, is related to feelings of satisfaction within the relationship. Dindia and Allen (1992) argued that self-disclosure theories frame it as a consistent personality trait. Further research recognizes that self-disclosure is related to one’s gender, reinforcing the idea that co-rumination tendencies may also follow this trend (Dindia & Allen, 1992; Rose, 2002, Rose, 2007). If the likelihood of self-disclosure is related to the likelihood co-rumination, the apparent gender differences in self-disclosure will be important to understanding differences in co-rumination.

**Gender.** Research has found distinct differences between men and women when self-disclosing. Women tend to self-disclosure more than men do (Dindia & Allen, 1992; Dolgin, Meyer, & Schwartz, 1991; Landoll, Schwartz-Mette, Rose & Prinstein, 2011;
This finding is consistent throughout various age groups, and across self-report and observational methods (Dindia & Allen, 1992; Landoll et al., 2011; Rose, 2002; Rose & Rudolph, 2006). Rose and Rudolph (2006) point out that one of the major gender differences in the friendships of children is self-disclosure, with girls being more willing to disclose to same-sex friends. This difference continues through adolescence and into adulthood. Furthermore, patterns of self-disclosure are moderated by other influences.

The recipients of self-disclosure also differ by gender. Women disclose more to other women than men do, but are more often the recipients of self-disclosure than men (Dolgin et al., 1991; Foubert & Sholley, 1996; Snell, Miller, & Belk, 1988; Sultan & Chaudry, 2008). This is because men will disclose more to female friends than to a close male friend (Dindia & Allen, 1992; Dolgin et al., 1991; Snell et al., 1988). Both males and females disclose moderately to opposite-sex individuals, as opposed to the high disclosure found in female-female relations or low levels in male-male relations (Dindia & Allen, 1992). Additionally, men tend to disclose more to strangers and acquaintances than women do, though this is not always a consistent finding (Dindia & Allen, 1992; Stokes, Childs, & Fuehrer, 1981).

Men and women also differ when considering topics of disclosure. Studies of emotional self-disclosure have found that the gender of the disclosure recipient will influence what kinds of emotions are discussed between friends (Snell et al., 1988; Snell, Miller, Belk, Garcia-Falconi, & Hernandez-Sanchez, 1989; Sultan & Chaudry 2008). In Snell et al.’s (1988; 1989) studies on the validation of an emotional disclosure scale, women and men did not differ greatly when disclosing different subjects to male friends;
however, when disclosing to a female friend, men tended to not disclose about negative emotions such as depression, anger, anxiety, and fear. Sultan and Chaudry (2008) did not replicate these exact patterns using the same scale, though the difference in generations may account for different disclosure patterns. Instead, they found that women disclosed feelings of happiness, anger, jealousy, calmness and apathy to female friends, and depression, anxiety, and fear to male friend (Sultan & Chaudry, 2008). Men, on the other hand, disclosed emotions of jealousy, anger, and calmness to female friends, and happiness and apathy to male friends (Sultan & Chaudry, 2008). In children, girls have been found to disclose more about personal thoughts and feelings to female friends (Landoll et al., 2011; Rose & Rudolph, 2006). It is clear that men and women disclose differently to male and female friends. This may be influenced by different expectations and ideas of friendship, which will be discussed further in this paper. The way that men and women disclose to others may further be affected by the gender role of the individual.

**Gender Role.** Gender role differs from biological gender; whereas biological gender (sex) refers to the physiological gender one is born with, gender role refers to the degree to which an individual exhibits traditionally masculine and feminine characteristics (i.e., although an individual may be biologically male, he may not necessarily be masculine in terms of gender role). Bem (1974) suggested that instead of masculinity and femininity being seen as two opposite ends of the same spectrum, it is possible to treat masculinity and femininity as separate spectrums. Therefore, it would be possible for an individual to be high in both masculine and feminine characteristics, that is, ‘androgynous’ (Bem, 1974). Researchers have also addressed the unique roles of those
termed undifferentiated (being low in both masculine and feminine characteristics; e.g., Bem, 1974). The connotations of an endorsed gender role are more social in nature. The traits of each gender role are based on the social desirability of the trait for each sex. For example, masculine traits, traits that are socially more accepted of males, include characteristics such as aggressive, assertive, competitive, and dominant (Bem, 1974). While feminine characteristics include compassionate, gentle, sympathetic, and understanding. When developing a measure of gender role, Bem (1974) suggests that a strict endorsement of masculine characteristics may inhibit feminine actions, while the converse is also true. This idea is important to consider in the realms of both self-disclosure and rumination.

Gender role may also have important ties to self-disclosure within friendships. In terms of gender role, feminine, masculine, and androgynous individuals differ significantly concerning the amount of self-disclosure compared to undifferentiated individuals (Foubert & Sholley, 1996; Lavine & Lombardo, 1984). The tendency to disclose for each gender role has not always been consistent across studies. In one study, feminine and androgynous females reported significantly more self-disclosure than did undifferentiated females, while feminine, undifferentiated, and androgynous males reported less self-disclosure than masculine males (Foubert & Sholley, 1996). Several studies have shown that either androgyny or femininity was positively related to the amount of self-disclosure (Bowman, 2008; Foubert & Sholley, 1996; Lavine & Lombardo, 1984; Stokes et al., 1981). Masculinity, however, tends to be associated with less self-disclosure under certain circumstances (Bowman, 2008; Foubert & Sholley, 1996). In Bowman’s (2008) study, increased masculinity in men was associated with
decreased likelihood to disclose negative information about the self, but not overall self-disclosure. Furthermore, masculinity has been associated with disclosing more to strangers than to close friends (Stokes et al., 1981). These few studies suggest that gender role plays a part in self-disclosure, which also may suggest that gender role of an individual may influence how much individual’s co-ruminate with a specific friend. Given that gender role affects the formation and strength of cross-sex and same-sex friendships (Reeder, 2003), further exploration is needed to determine whether gender role orientation matters within a co-ruminating dyad.

Studies have shown that feminine individuals have greater numbers of female friends compared to masculine or androgynous individuals (Reeder, 2003). Masculine individuals have more male friends, while androgynous persons had equal numbers of male and female friends. In terms of preference for friends, however, Reeder (2003) showed that masculine and feminine individuals reported no preference for the gender of the friend, followed by a preference for having male friends, and then a preference for having female friends. In contrast, both males and females reported significantly greater closeness to female friends than to male friends. Supporting this, Wright and Scanlon (1991) found that relationships between women were stronger than women’s relationships with men. Women were also noted to be better at perceiving the gender roles of their friends. This may affect whether an individual chooses to self-disclose, and in turn co-ruminate, with another. If a woman is better able to perceive that a friend is understanding and compassionate (feminine), she may choose to disclose to that friend about problems. Gender role clearly may have an influence on the outward, social aspect
of co-rumination. Rumination, another component of co-rumination, must also be considered in terms of gender and gender role.

**Rumination**

Rumination is defined as repetitive thoughts and behaviors that cause an individual to focus on his or her depressed mood and any consequences of the symptoms (Nolen-Hoeksema, 1991). Response Style Theory states that females are more prone to rumination when experiencing a depressed mood compared to males, while males are more likely to distract from feelings of depression (Nolen-Hoeksema, 1987; Nolen-Hoeksema, 1991; Nolen-Hoeksema, Larson, & Grayson, 1999). Additionally, Response Style Theory posits that rumination and distraction differentially affect depressed states. A ruminative response to depression may prevent an individual from engaging in instrumental or problem-solving behaviors, prolonging the depression by focusing on the symptoms (Nolen-Hoeksema, 1991). Distraction from a depressed mood may reduce the depressive feelings, possibly through reducing feelings of helplessness (Nolen-Hoeksema, 1991). This theory has received strong support. When faced with a depressed mood, women are more likely to focus on those feelings and the meaning behind those feelings. However, men are more likely to focus outwardly and distract themselves from their depressed feelings. This does not mean that men do not ruminate, only that a gender difference exists in the amount of rumination.

These findings have been extended to the adolescent literature (Broderick & Korteland, 2004; Hilt, McLaughlin, & Nolen-Hoeksema, 2010; Wright, 2005). One study reported that among one sample of young adolescents, girls reported higher levels of rumination and problem solving compared to boys, with rumination being positively
associated with depressive symptoms (Hilt et al., 2010). Surprisingly, no gender differences in the amount of distraction were found. Although girls seem to be attempting problem-solving techniques, it may not be as effective as problem solving attempted by boys (Broderick & Korteland, 2004; Hilt et al., 2010). Regardless of age, males and females respond to feelings of depression in different ways.

**Gender Role.** Gender role also has been linked to varying degrees of rumination. Femininity, regardless of gender, is associated with increasing amounts of rumination (Broderick & Korteland, 2004; Conway, Giannopolous, & Stiefenhofer, 1990; Simonson, Mezulis, & David, 2011). Those endorsing an androgynous or masculine gender role show significantly less rumination (Broderick & Korteland, 2004). Conway et al. (1990) also found that masculinity was associated with distraction. Given that gender role orientations involve the endorsement of socially desirable traits, it makes sense that the emotional and interpersonal nature of the feminine gender role contributes to the tendency of rumination. This would then extend an individual’s likelihood to co-ruminate. To understand co-rumination better, it is important that gender role orientation be considered.

**Gender and Friendship**

As suggested earlier, gender differences concerning friendship, in addition to gender differences in self-disclosure, may contribute to whom individuals co-ruminate with, as well as how co-rumination will affect emotional states later on. Women are more likely to characterize their friendships in terms of intimacy, disclosure, and other emotional qualities (Adams, Blieszner, & de Vries, 2000; Fehr, 2004). Men’s friendships tend to be less intimate and more focused on shared activities (Bank & Hansford, 2000;
Fox, Gibbs, & Auerbach, 1985). Men also think of their friendships more in terms of the frequency of contact or the length of the friendship (Adams et al., 2000). Because of this difference, women seem predisposed to co-ruminate compared to men.

Among children and adolescents, boys and girls have various feelings about talking about problems with friends. Research suggests that girls more than boys expect talking about problems with a friend will make them feel like their emotions are no longer bottled up, they are cared for, and they are understood (Rose, Schwartz-Mette, Smith, Asher, Swenson, Carlson, and Waller, 2012). Girls also feel that talking about a problem with a friend makes them feel better about the problem. Boys, however, expected that talking about problems would make them feel like they were wasting time, and that they felt uncomfortable talking about problems (Rose et al., 2012). This does not mean boys did not see the positives in discussing problems, but compared to girls, boys had relatively more negative perceptions (Rose et al., 2012). The perception of these expectations may affect whether an individual chooses to talk about problems with a friend. If boys more often feel negatively about discussing problems, they might choose not to talk with friends about their problems. For adults, Gottman (1993) suggested that men feel overwhelmed when they discuss problems with others.

Co-rumination is thought to be an extremely negative form of self-disclosure and a social form of rumination that is connected to internalizing symptoms (Rose, 2002). One aspect of co-rumination that can be explored further is how co-rumination either increases or maintains internalizing symptoms. Gender differences in friendships and thoughts on friendship may have some effect. If males feel negatively about discussing problems with a friend, they are likely not to engage in co-rumination. Women that see
self-disclosure as part of friendship will be more likely to want to discuss problems with a friend, and will feel more positively about doing so. However, co-ruminating, instead of problem-solving, may make an individual feel positive in the short term (as a sense of catharsis) but over time may have more rumination-like effects by dwelling further on the unsolved problem or on the conversation itself. The individual may then further co-ruminate because the problem or issues remain unsolved. The current study will examine this idea in an exploratory effort to understand the immediate and long-term effects of co-rumination.

**Current Study**

The current study addressed the function of gender role in predicting differing amounts of co-rumination in mixed and same-sex friendship dyads. This study has several specific purposes. First, this study aims to expand literature on the topic of co-rumination by examining how an individual’s gender role and the perceived gender role of a friend influence co-rumination within a dyad. This concept has never been examined in any previous research, but is an important component when considering the development of friendships, and self-disclosure between friends. Individuals may choose to disclose or co-ruminate to friends dependent upon the characteristics they observe within that friend, which in this case would be the perceived gender role. Furthermore, the design of this study will provide insight into gender differences in co-rumination, not only between same-sex dyads, but also between mixed-sex dyads. This area of research has also lacked attention, as for the most part, only same-sex friendships have been of interest. Lastly, this study aims to assess the perceptions of the consequences of talking about problems and co-rumination by asking individuals to retrospectively consider how
discussing problems with male and female friends makes them feel. To test these purposes, we focused on gender differences, participant gender role, and perceived gender role of friends.

A. In terms of gender differences, we hypothesized that:

1. Gender differences in co-rumination would be found, with higher rates of co-rumination between female-female dyads compared to mixed gender or male-male dyads.

2. Females would self-disclose more negative emotions (depression, anxiety, fear, apathy, anger) than men would to female friends, and that men would disclose more positive emotions than negative (happiness, calmness) to male friends.

B. In terms of participant gender role, we hypothesized that:

1. Increasing femininity would be related to increased co-rumination with a female close-friend, while increasing masculinity will be negatively related to co-rumination with a female friend.

2. Increasing femininity will be related to increase self-disclosure on all emotions, while increasing masculinity will be related to decreased disclosure of negative emotions (depression, anxiety, fear, apathy, anger).

3. Gender role of the participant would moderate the effect of gender in co-rumination, such that the gender role endorsed by the participant would affect the amount of co-rumination males and female report. Being higher in femininity (androgynous or feminine) would likely increase co-rumination for both male and female participants, while being high in only masculinity (masculine) would decrease co-rumination.

C. In terms of friends’ perceived gender role, we hypothesized that:
1. Perceived femininity of a female close friend by a female would be related to increased co-rumination.

2. Perceived gender role of male and female friends would also moderate the relation between gender of the participants and co-rumination, so that the perceived gender role of each friend would affect how much male and female participants co-ruminated with that friend. It is likely that perceiving a friend as high in femininity (androgynous or feminine) would result in more co-rumination.

Finally, individuals who feel more positive affect after talking to friends about problems will have increased amounts of co-rumination.
Method

Participants

Participants were undergraduate students recruited from psychology classes at Brandeis University. The sample consisted of 102 students, of which 32 were male and 70 were female. The mean age of the sample was 19.25, with a range of ages from 18 to 24. The sample consisted of a large portion of Caucasian students (58.8%) and Asian students (26.5%). All participants gave informed consent to participate in the study and received debriefing at the end of the study.

Measures

Demographic Questionnaire. This questionnaire was designed to obtain basic demographic information from participants. This included age, gender and ethnicity.

Co-Rumination Questionnaire (CRQ). The Co-Rumination Questionnaire (Rose, 2002) is a 27-item assessment that measures the amount of co-rumination between two individuals. This questionnaire assesses nine areas of co-rumination: frequency of discussing problems, discussing problems instead of engaging in other activities, encouragement by both the focal person to discuss problems and the friend of the focal person to discuss problems, discussing the same problem repeatedly, speculation about the causes of problems, speculation about the consequences of problems, speculation about parts of the problem that are not understood, and focusing on negative feelings (Rose, 2002). Participants rate the 27 items on a 1 to 5 scale, with 1 indicating “not at all
true” and 5 indicating “really true.” The ratings on all items are averaged to create the total co-rumination score.

This scale was originally developed to assess co-rumination between same-sex friends; however, it has also been used with romantic partners or a child/parent relationship (Calmes & Roberts, 2008). In Rose’s (2002) original study, this scale showed excellent internal reliability (Cronbach’s alpha = .96). In the current study, the participants filled out two versions of the questionnaire: one for a close same-sex friend and one for a close opposite-sex friend, and the instructions of the questionnaire were modified accordingly. In this study, the Cronbach’s alphas for co-rumination with a male friend and a female friend were .928 and .928 respectively.

**Bem Sex Role Inventory (BSRI).** The Bem Sex Role Inventory (Bem, 1974) was used as a measure of participants’ masculinity and femininity levels to determine the participants’ gender role types. This inventory contains 60 items. Participants were asked to rate these different characteristics on a scale from ‘1’ (‘Never or almost never true’) to ‘7’ (‘Always or almost always true’). A higher score for an item indicates greater endorsement of that trait. The 60 items are divided into a masculine scale (20 items), a feminine scale (20 items), and 20 other neutral items that perceived as neither traditional masculine nor traditional feminine characteristics. The masculine scale contains items that are perceived as traditionally masculine, including traits such as assertive and dominant, while the feminine scale contains traditionally feminine traits such as emotional or understanding. These scales were used to create averages of femininity and masculinity for each participant to classify participants by their gender roles. Participants completed a BSRI form for themselves, a form for a same-sex close friend and a form for
an opposite-sex close friend, a procedure used in other studies (Wright & Scanlon, 1991). The Cronbach’s alphas for each group’s masculinity and femininity scales were .84 and .81 for participants, .86 and .82 for female friends, and .86 and .84 for male friends.

**Emotional Self-Disclosure Scale.** The Emotional Self-Disclosure Scale (ESDS; Snell, Miller & Belk, 1988) is a 40-item scale used to determine emotional self-disclosure with others. The 40 items list various emotions that make up eight subscales: depression, happiness, jealousy, anxiety, anger, calmness, apathy, and fear. Participants rated each emotion on a scale of ‘1’ to ‘5’, with ‘1’ indicating, ‘I have not discussed this topic’ and ‘5’ indicating, ‘I have fully discussed this topic,’ while thinking about how willing they are to discuss each topic with a specified person. Higher scores correspond to greater willingness to self-disclose emotionally. This scale has been tested and used for measuring self-disclosure with male friends and female friends (Snell et al., 1988). Additionally, Snell et al. (1988) determined that that the internal consistencies (all Cronbach’s alpha > .83) and test-retest reliabilities were high for all subscales. Again, participants completed one ESDS to assess emotional self-disclosure with a close same-sex friend and one for the close opposite-sex friend. For the purposes of this study, the positive emotions (happiness and calmness) and negative emotions (depression, anxiety, anger, apathy, fear, and jealousy) were grouped together as subscales for analyses. For female friends, the internal consistency of the positive emotion subscale was 0.92, and the negative emotion subscale was 0.95. For male friends, the internal consistencies of the subscales were 0.92 for positive and 0.94 for negative.

**Positive Affect Negative Affect Schedule.** The Positive Affect Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a 20-item mood scale consisting
of two subscales: Positive Affect and Negative Affect. Positive Affect reflects the degree to which an individual feels enthusiastic, alert, and active. Negative Affect reflects distress caused by anger, guilt, fear, and nervousness. The PANAS may be used in a range of situations, including state affect or general feelings (trait affect), and all situational testing of the PANAS have shown it to have good reliability and test-retest reliability (Watson et al., 1988). Watson et al. (1988) also gives instructions on how to administer the scale with differing instructions. For the purpose of this study, the instructions were modified (see Appendix A) to ask participants to think about how they feel after they talk with their close same-sex friend and close opposite-sex friend about problems. Participants rate each feeling on a scale of ‘1’ to ‘5’, with ‘1’ indicating ‘very slightly or not at all’ and ‘5’ indicating ‘extremely.’ Participants completed two forms of the PANAS, one for a same-sex close friend and one for an opposite-sex close friend. The subscales of Positive Affect and Negative Affect were used for this study. For female friends, the internal consistency of the Positive Affect subscale was .84 and for the Negative Affect subscale was .86. For male friends, the internal consistency for the Positive Affect subscale was .87, and the Negative Affect subscale was .85.

Procedure

Participants were recruited from several undergraduate psychology courses at Brandeis University. Measures were administered in individual or small group settings. Participants were told that the purpose of the study focused on how individuals talk to different friends about different types of problems based on the personal characteristics of each friend. Participants gave informed consent before starting the study: they were asked to answer each question honestly and to the best of their ability. The titles of the scales
were not displayed to the participants. Participants completed three packets of questionnaires: one focused on their personal characteristics, one focused the relationship with a same-sex best friend, and one focused the relationship with an opposite-sex best friend. Participants were asked to think of a specific best friend before starting each packet in order to maintain consistency. At the end of the study, participants were debriefed about the purpose and hypotheses of this study.

**Data Analysis**

All data were entered into SPSS 19.0 for analyses. For demographic information, no data was missing from the three variables. For all other questionnaires, missing data was treated in the following way. If a participant had missing values on more than 10% of the total items for a subscale, the participant was excluded from all analyses. If the participant had missing values for less than or equal to 10% of the total items, the missing values were replaced by the mean of the remaining values of the subscale. Under these criteria, five participants were excluded from all analyses, leaving 97 participants for the data analyses.

To determine the gender role of the participants and their male and female friends, the median-split method was used. For each group, the median of the femininity scale and masculinity scale of the BSRI was determined. Next, the mean scores of each scale were compared to the median of the scale. If a participant’s score was higher than the median for his or her group, that participant was considered ‘high’ in that trait. If the score was lower than the median, the participant was considered ‘low’ in that trait. This procedure was followed for participants, female friends, and male friends. The criterion for classifying the gender role types are as follows: Masculine, high in masculinity, low in
femininity; Feminine, high in femininity and low in masculinity; Androgynous, high in both masculinity and femininity; and Undifferentiated, low in both masculinity and femininity.
Results

Descriptive Statistics

Table 1 displays the distribution of gender role types among participants, while Table 2 displays the distribution among male and female friends by the gender of the participants. Females were classified predominantly as feminine, while males were predominantly masculine. For both males and females, the second highest classification was undifferentiated. Female participants reported masculine types more often for their male friends and female friends (N= 28 and 22, respectively). The most frequent gender role type male participants reported for their male friends was undifferentiated (N=16) and for their female friends most frequently feminine (N=11).

Descriptive statistics for all outcome and predictor variables by gender of the participant are listed in Table 3. Female participants had higher co-rumination with both male and female friends than male participants did. Female participants also had higher rates of both positive and negative self-disclosure with male and female friends than males. Table 4 displays the means and standard deviations of all variables by participants’ gender role types. Feminine individuals had the highest co-rumination score with female friends, while androgynous individuals had the highest positive and negative emotional self-disclosure score with female friends. Additionally, feminine and androgynous individuals had the highest rates of co-rumination with male friends. Androgynous participants also had the highest score of positive and negative emotional self-disclosure with a male friend.
**First Order Correlations.** Table 5 displays all first order correlations on the scale variables. Femininity of the participants and perceived femininity of male and female friends were significantly positively correlated with several variables of interest. Perceived femininity of male and female friends was significantly positively correlated with the corresponding co-rumination, positive emotional self-disclosure, and negative emotional self-disclosure. Femininity of participants was positively related to co-rumination and positive self-disclosure with female friends and positive and negative self-disclosure with male friends. These significant correlations were expected, given previous research concerning the relationship between femininity and self-disclosure. A relationship between perceived gender role and co-rumination and participants’ gender role and co-rumination indicate that both may be important in predicting co-rumination overall. Only masculinity of male friends was correlated negatively with the corresponding co-rumination, although it was positively significantly related to negative and positive self-disclosure. This may indicate that though individuals are sharing intimate feelings with masculine friends, the disclosure does not become maladaptive co-rumination. Positive affect felt after discussing problems with a female friend was positively related to both the masculinity and femininity of a female friend.

First order correlations were also conducted with the genders split. These are shown in Table 6. This displays an interesting pattern of results. Femininity and masculinity of female participants were not significantly correlated with co-rumination with either friend, though femininity was positively correlated with positive and negative self-disclosure with male friends. It is surprising that femininity and masculinity of participants were not related to increases or decreases in co-rumination, respectively.
However, because perceived femininity of both male and female friends was significantly positively correlated with co-rumination, it suggests perceived gender role has a more important relationship. Masculinity of a male friend was also correlated negatively with the corresponding co-rumination, though it was correlated positively with disclosure of negative emotions. Again, this suggests that masculinity of a male friend may deter females from co-rumination but promotes self-disclosure.

A different pattern emerges for male participants. The participants’ femininity scores were significantly correlated with their positive and negative emotional self-disclosure with the participants’ female friends, but not the participants’ male friends. Perceived femininity of a male friend was significantly positively correlated with co-rumination with a male friend, which was expected. Lastly, the perceived masculinity of a male friend was positively correlated with both kinds of emotional self-disclosure with a male friend. It is interesting that masculinity of male friends appears to be connected to the likelihood of both valences of self-disclosure, whereas we expected masculinity to deter individuals from sharing negative emotions.

**Gender Differences**

To assess the gender differences in co-rumination with male and female friends, a 2 (participant gender) x 2 (friend gender) mixed design analysis of variance (ANOVA) was conducted. Significantly more co-rumination was reported occurring with female friends, $M=3.19, SE=.65$, than with male friends, $M=2.69, SE=.68$ regardless of the gender of participants. This result was significant, $F(1, 99)= 28.06, p<.001, \eta^2=.22$. Additionally, a significant main effect of gender was found, $F(1, 99)= 4.33, p=.04, \eta^2=.97$ with females reporting more co-rumination ($M=3.01, SE = 0.06$) than males did.
Looking at the means of co-rumination for males and females, female participants had higher co-rumination with females than males (females, $M=3.27$, $SD=.65$; males, $M=2.99$, $SD=.64$) and higher co-rumination with male friends than males did (females, $M=2.75$, $SD=.71$; males, $M=2.57$, $SD=.59$). Moreover, independent samples t-tests showed only a significant difference between male and females in co-rumination with a female friend, $t(99)=2.06$, $p=.04$, but no significant difference in co-rumination with a male friend. Figure 1 displays the relationship between co-rumination with each friend and gender.

We hypothesized females would self-disclose more negative emotions than males would to female friends, and that males would disclose more positive emotions than negative emotions to male friends. To assess differences in emotional self-disclosure, a 2(participant gender) x 2(disclosure valence) x 2 (friend gender) mixed-design ANOVA was conducted. As previously, participants reported higher levels of co-rumination with female friends, $F(1, 100)=5.57$, $p=.02$, $\eta^2=.05$ (males, $M=2.96$, $SE=.08$; females, $M=3.12$, $SE=.08$) and a significant effect of valence of disclosure, $F(1, 100)=6.17$, $p=.02$, $\eta^2=.06$ (negative, $M=2.95$, $SE=.07$; positive, $M=3.14$, $SE=.09$). In addition, females reported self-disclosing more than males did, $F(1, 100)=10.24$, $p=.002$ $\eta^2=.09$ (males, $M=2.18$, $SE=.12$; females, $M=3.27$, $SE=.08$). No interactions were significant, although the interaction between the gender of the friend and the valence of the emotional disclosure approached significance, $F(1, 100)=3.75$, $p=.056$, $\eta^2=.04$. Pairwise comparisons of this interaction show a significant difference with male friends between positive and negative disclosure, $M_{diff}=.26$, 95% CI [.09, .44], $p=.003$. The difference between positive and negative disclosure with female friends was not significant.
Comparisons show that female participants had significantly higher overall disclosure, with female friends receiving significantly more disclosure. In terms of valence, positive emotions were shared significantly more than negative disclosure. Figure 2 illustrates gender differences between each valence with male and female friends.

**Participant Gender Role**

Femininity of the participant and co-rumination with a female friend were positively associated, $r = .21, p = .04$. However, masculinity and co-rumination with a female friend were not significantly related.

Further, we suggested that gender role of the participant would moderate gender differences in co-rumination with a male and female friend. Following Baron and Kenny’s (1986) guidelines, a 2 (participant gender) x 4 (participant gender role) ANOVA was conducted for both co-rumination with a female friend and a male friend. Co-rumination with a female friend was not predicted significantly by participant gender, $F(1, 93)= 2.77, p = .09, \eta^2 = .03$ (males, $M=2.99, SE = .14$; females, $M=3.26, SE = .08$), or gender role, $F(3, 93)= 1.18, p = .32, \eta^2 = .04$ (masculine, $M=3.12, SE = .12$; feminine, $M=3.08, SE = .23$; androgynous, $M= 3.32, SE = .14$; undifferentiated, $M=2.97, SE = .12$). However, the interaction between gender and gender role was significant, $F(3, 93)= 3.165, p = .03, \eta^2 = .09$ (see Figure 3). Pairwise comparisons were conducted and significant differences were found between masculine males and masculine females, $M_{diff} = .575, 95\% CI [.096, 1.05], p = .02$. Masculine females had significantly higher rates of co-rumination with female friends than masculine males. Additionally, for males, androgynous individuals had significantly higher co-rumination than masculine individuals, $M_{diff} = .74, 95\% CI [.15, 1.33], p = .01$, and undifferentiated individuals, $M_{diff} =$
.75, 95% CI [.14, 1.36], \(p=.02\). Males had higher co-rumination with a female friend if the male was androgynous.

For co-rumination with a male friend, results showed no significant effects of gender, \(F(1, 94)= .05, \ p=.83, \ \eta^2 = .00\) (males, \(M=2.71, \ SE=.15\); females, \(M=2.74, \ SE=.08\)), gender role of the participant, \(F(3, 94)= 1.22, \ p=.31, \ \eta^2 = .04\) (masculine, \(M=2.58, \ SE=.13\); feminine, \(M=2.93, \ SE=.25\); androgynous, \(M= 2.85, \ SE=.16\); undifferentiated, \(M=2.55, \ SE=.13\)) or the interaction term, \(F(3, 94)= .89, \ p=.45, \ \eta^2 = .03\). Gender role of the participants was not a moderator of co-rumination with a male friend (see Figure 4).

We also predicted that increasing femininity would be related to increased emotional self-disclosure on both positive and negative emotions. The participants’ femininity scores were significantly correlated with disclosing positive emotions to a female friend, \(r= .33, \ p= .001\), significantly correlated with disclosing positive emotions to a male friend, \(r= .39, \ p< .001\), and significantly correlated with disclosing negative emotions to a male friend, \(r= .29, \ p= .004\). Disclosure of negative emotions to a female friend was not correlated with participants’ femininity. Thus, this hypothesis was partially supported.

We hypothesized that increasing masculinity would be related to decreased disclosure of negative emotions. However, participants’ masculinity scores were not significantly correlated with the disclosure of negative emotions to a male friend or a female friend. This hypothesis was not confirmed.

**Friend Gender Role**

Next, we hypothesized that the perceived gender role of both the male and female friend would influence co-rumination with each friend. For a female friend, perceived
femininity was related to co-rumination, $r= .24$, $p=.02$. Furthermore, perceived femininity of male friends by both male, $r= .64$, $p< .001$, and female, $r= .34$, $p=.005$, participants was related to increased co-rumination.

We assessed whether the gender role a friend might act as a moderator of co-rumination with a female friend. A 2x4 ANOVA was conducted with gender of the participants (male, female) and gender role classification (masculine, feminine, androgynous, undifferentiated) of the female friend as between-subjects factors. Male ($M=3.05$, $SE=.13$) and female ($M=3.30$, $SE=.08$) participants did not differ on co-rumination when female friend gender role was in the model, $F(1, 91)=2.82$, $p= .10$, $\eta^2= .10$; however, the female friend’s gender role significantly predicted co-rumination, $F(3, 91)= 3.24$, $p= .02$, $\eta^2= .03$ (masculine, $M=2.90$, $SE=.13$; feminine, $M=3.16$, $SE=.12$; androgynous, $M= 3.61$, $SE=.19$; undifferentiated, $M=3.03$, $SE=.14$). Post-hoc tests showed that participants co-ruminated with androgynous female friends more than masculine females, $M_{diff}= .76$, 95% CI [.40, 1.12], $p< .001$, more than with feminine females, $M_{diff}= .49$, 95% CI [.13, .84], $p=.008$, and more than with undifferentiated females, $M_{diff}= .64$, 95% CI [.25, 1.02], $p= .001$ (see Figure 5). Gender role of the friend and gender of the participant did not interact significantly, $F(3, 91)= .12$, $p= .96$, $\eta^2= .004$, which indicated that gender role did not act as a moderator.

Next, we assessed if the perceived gender role of the male friend moderated gender differences in co-rumination with a male friend. Testing for a possible moderation effect of male friend’s gender role on co-rumination, a 2 (participant gender) x 4 (male friend gender role classification) ANOVA. Males ($M=3.04$, $SE=.21$) and females ($M=2.81$, $SE=.08$) did not report significantly different rates of co-rumination, $F(1, 91)= 1.02$,
However, the gender role of the male friend was a significant predictor of co-rumination, $F(3, 91)= 3.99, p=.01, \eta^2= .12$ (masculine, $M=2.54, SE=.12$; feminine, $M=3.29, SE=.25$; androgynous, $M=3.34, SE=.34$; undifferentiated, $M=2.55, SE=.11$). Post hoc tests showed that participants reported more co-rumination with androgynous male friends than with masculine males, $M_{\text{diff}}= .44$, 95% CI [.005, .869], $p=.05$, and with undifferentiated males, $M_{\text{diff}}= .45$, 95% CI [.06, .89], $p=.04$. Participants reported co-ruminating more with feminine males than with masculine males, $M_{\text{diff}}= .53$, 95% CI [.13, .94], $p=.01$, or with undifferentiated males, $M_{\text{diff}}= .5487$, 95% CI [.14, .96], $p=.01$ (see Figure 6).

**Emotional Connections to Co-Rumination**

Finally, we hypothesized that individuals who feel more positive affect after talking to a friend about problems would also report more co-rumination. Correlations showed that positive affect after talking to a female friend was significantly correlated with co-rumination with a female friend, $r= .33, p=.001$, but positive affect after talking to a male friend was not significantly correlated with co-rumination with a male friend, $r=.16, p=.13$. Negative affect with a female friend only significantly correlated with negative affect with a male friend, $r=.63, p=.001$. 
**Discussion**

The purpose of this thesis was to expand the literature concerning co-rumination and understand mechanisms by which individuals co-ruminate with male and female friends. This study focused on the influence of gender role as well as the perceived gender role of male and female friends in co-rumination and emotional self-disclosure. Previous connections between both gender role and self-disclosure and gender role and rumination suggest that gender role would also influence the likelihood that one would co-ruminate with males and females. Our results suggest that both the gender role endorsed by an individual and the gender role an individual perceives from both male and female friends influences co-rumination and self-disclosure.

**Gender**

Our results support previous findings that females co-ruminate more than males (Calmes & Roberts, 2008; Hankin et al., 2010; Rose, 2002; Rose et al., 2007; Tompkins et al., 2011), with the notions that gender differences continue to exist in college-aged individuals (Calmes & Roberts, 2008). As hypothesized, females co-ruminated with female friends significantly more than males did. Previous studies have not focused on mixed-gender dyads, but our findings suggest that females co-ruminated significantly more regardless of gender of the recipient; therefore, it may be necessary to look closer at cross-sex dyads. This suggest cross-sex dyads should be studied if this unique type of friendship affects the formation of internalizing symptoms differently compared to same-sex dyads. Co-rumination research has focused on same-sex friendships and internalizing
symptoms as a result of same-sex pairings (Hankin et al., 2010; Rose et al., 2007; Schwartz-Mette & Rose, 2012; Starr & Davila, 2009; Stone et al., 2010; Tompkins et al., 2011). If females are co-ruminating with both male and female friends, co-rumination with each may contribute to internalizing symptoms in another way.

To begin to assess if emotional outcomes from co-rumination are connected to internalizing symptoms, we asked individuals to think about how they feel after they discuss problems with male and female friends. If individuals feel more positively after they discuss problems with someone, it is likely that they would engage in that behavior again when new problems arise. With co-rumination, it is unclear if those co-ruminating realize they are co-ruminating as opposed to engaging in better coping strategies or problem solving. We aimed to assess connections between the emotions felt after discussing problems and co-rumination.

We predicted that a positive relationship would exist between positive affect and co-rumination. This was confirmed partially: positive affect after talking to a female friend was positively related to co-rumination, positive affect from a male friend was not, showing differences between the recipients of co-rumination. This could mean several things. First, co-ruminating with a female could provide a cathartic release (Rose et al., 2012) leading to more positive affect. The individual would then continually want to feel the positivity of catharsis and would continue to return to the female friend to discuss problems. Secondly, it might be possible that talking to a male friend about problems may either not result in a cathartic feeling, resulting in less positive emotions, or may result in more problem solving leading to a lack of co-rumination. Positive affect was also related to increases in positive and negative self-disclosure with both male and
female friends. Sharing more information, whether positive or negative, may make males 
and females feel better, regardless of whom they are telling.

Interestingly, negative affect from talking about problems was only significantly 
related to itself, meaning negative affect from talking to females was related to negative 
affect from talking to males. It is likely that if an individual did not feel good after 
discussing problems with a female friend, he or she did not feel any better after talking to 
a male friend.

In this study, we examined how gender of participant and recipient may affect 
different valences of emotional self-disclosure. Valence of disclosure may be related to 
varying amounts of co-rumination, and therefore in turn, different possibilities of 
internalizing symptoms (Rose, 2002). Females tended to disclose more than males, both 
negatively and positively, and female friends received significantly more disclosure. This 
supports previous research in both co-rumination and self-disclosure (Dindia & Allen, 
1992; Dolgin et al., 1991; Landoll et al., 2011; Rose, 2002). We posited that males would 
disclose more positively than negatively to male friends, which was confirmed by our 
findings. Surprisingly, no interactions between the participants’ genders, the valence of 
emotions, and the gender of the friends were significant. Marginal significance suggested 
that positive emotions were shared significantly more with male friends than negative 
emotions were; disclosure to female friends did not significantly differ. The lack of 
interaction, as demonstrated in Figure 2, shows that the same pattern of disclosure was 
obtained from male and females, whether they were disclosing to a male or female or the 
emotions were negative or positive. Females consistently disclosed more than males,
positive emotions were shared more than negative emotions, and female friends received more disclosure.

**Gender Role**

Both categorical classification of gender role and continuous masculinity and femininity dimensions of individuals and their male and female friends contributed to distinctive patterns of co-rumination. We hypothesized that gender role would moderate gender differences in co-rumination. For co-rumination with a female friend, this hypothesis was supported. Females of all gender roles co-ruminated more with female friends than males, with the exception of androgynous males. Femininity of the individual may play a role in this difference, given that androgynous individuals are high in both femininity and masculinity (Bowman, 2008; Broderick & Korteland, 2004; Lavine & Lombardo, 1984; Stokes et al., 1981). The lack of feminine males may have contributed to a lack of significant differences found between feminine males and the other gender role types. Femininity of both males and females was related positively to co-rumination with a female friend.

We also expected that gender role would moderate the relationship between gender and co-rumination with male friends. This was not supported; gender differences did not depend on gender role. Additionally, neither gender nor participant gender role predicted co-rumination with male friends. Males are less often the recipients of self-disclosure compared to females (Dolgin et al., 1991; Foubert & Sholley, 1996), which may explain the lack of co-rumination with a male friend. However, we did expect levels of co-rumination to vary because of gender role. Neither masculinity nor femininity of participants was related to co-rumination with a male friend. In fact, co-rumination with a
male friend was only related to disclosing negative emotions to a male friend, in addition to the perceived gender role of the male friend. For both male and female friends, perceived characteristics of each friend seemed to better influence co-rumination than the characteristics of the individual.

In terms of self-disclosure, femininity of participants was consistently associated with more self-disclosure, with the exception of disclosing negative emotions to a female friend. As a whole, increasing femininity was related to more self-disclosure of positive and negative emotions to a male friend, and positive emotions to a female friend. This confirms findings that femininity is related to more self-disclosure (Bowman, 2008; Foubert & Sholley, 1996). Femininity of females was more strongly related to self-disclosure with male friends than to female friends, while femininity of males was more strongly related to disclosure to female friends than male friends. Masculinity of participants was not significantly related to any type of self-disclosure, with either friend. This is puzzling considering previous research has suggested that masculinity should at least be negatively related to negative self-disclosure (Bowman, 2008). Femininity appears to be a key part how much one self-discloses, in addition to what types of emotions one chooses to share.

**Perceived Gender Role**

We predicted that for both male and female friends, gender differences in co-rumination would depend on the perceived gender role of each friend, which was not supported in either case. Furthermore, for both male and female friends, gender of the participant did not predict co-rumination when perceived gender role of the friend was in the model, suggesting that female friend’s gender role mediated the effect of gender on
co-rumination. However, the corresponding co-rumination was predicted by the male friend’s gender role and the female friend’s gender role. Both males and females may identify certain characteristics within each friend that increases the likelihood of co-rumination, possibly regardless of their own ascribed gender roles and gender.

Femininity of a male friend was positively related to co-rumination, in addition to both positive and negative self-disclosure. Feminine male friends evoked significantly more co-rumination than undifferentiated male friends did. Only masculinity of a friend was related negatively to co-rumination in the case of female participant to male friend co-rumination (see Table 6). In the case of male friends, it seems that femininity evoked more co-rumination than masculinity. Masculinity and femininity of male friends also influenced self-disclosure. For males, perceiving masculinity in male friends was related to increased disclosure of positive and negative emotions; femininity of male friends was not related to increases in disclosure. Males were not afraid to disclose positive or negative emotions to a masculine friend. Females disclosed negative emotions to male friends that they perceived as more masculine. Sultan and Chaudry (2008) suggested that females disclosed negative emotions of fear, anger, and anxiety to male friends because male friends were capable of handling such emotion. In this case, females may be disclosing negative emotions to more masculine men because of a similar reasoning, given that perceiving femininity of a male friend was more related to disclosing positive emotions.

For co-rumination and emotional self-disclosure with a female friend, perceived gender role also mattered. Androgynous females significantly co-ruminated more than other gender role types, with the smallest difference being found between androgynous
and feminine women. Wright and Scanlon (1991) did find that women tended to find androgynous female friends more rewarding. The fact that androgynous females report the most co-rumination with both male and female friends may come from being high in both masculinity and femininity, though masculinity was not related to co-rumination, positively or negatively. This is an interesting finding, given that androgynous females reported the most co-rumination. Perceived femininity of a female friend was related to increased co-rumination for only females, not males. Perceiving masculinity in a female friend by both males and females did not have any relationship to emotional disclosure with the female friend. Perceiving femininity of a female friend was related to both valences of disclosure for females, but only related to disclosure of negative emotions for males. Femininity of a female friend was important to both males and females regarding disclosure and co-rumination; masculinity was not.

**Limitations and Future Directions**

This study does have several limitations. First, the sample of males was smaller than the sample of females. This may have limited the power to detect significance between genders as well as between gender role types. Because of the small sample of males, the gender role types did not have even subsample sizes, for example, only two males were classified as feminine. Secondly, participants were asked to complete gender role inventories about how they perceived male and female friends, which is not necessarily an accurate representation of that person’s gender role type. Though it seems that the perceived characteristics did play a role in terms of co-rumination, exact gender role of the friends would have been preferred. Future studies may look into comparing perceived gender role versus ascribed gender role in order to determine which matters.
more in predicting co-rumination. Ideally, studies should seek to include both individuals in the dyad to form a better picture of influences on co-rumination. In addition, all measures were self-report, thus potentially inflating shared method variance. Lastly, we asked participants think retrospectively about how they feel after talking about problems with a friend. Thus, the reports are self-report and based on recall; they may not accurately reflect what was felt.

This study lacked measures of internalizing symptoms, such as depression and anxiety. This would have assisted in determining if any gender role types exhibit more internalizing symptoms resulting from co-rumination. Future research should include such measures, in addition to comparing perceived gender role to actual gender role, which would provide a well-rounded picture of co-rumination.

Conclusions

This study aimed to assess how and why men and women co-ruminate differently with male and female friends by examining the influence of gender role. Additionally, we looked at the relationship between co-rumination and emotional experiences after discussing problems with male and female friends. Our research supports previous research in that gender differences were found in co-rumination and emotional self-disclosure with male and female friends, and that female friends were more often the recipients of both co-rumination and self-disclosure. This study was one of the first studies to look at non-romantic mixed-gender dyads, and our findings show women do co-ruminate with men, exposing more gender differences. Breaking down the gender differences, we found that both men and women endorsing more feminine characteristics tended to co-ruminate more with female friends. Additionally, it seems that the perceived
gender role of male or female friends better predicted co-rumination within the dyad than the gender role of the individual. Specifically, femininity of a male friend and femininity of a female friend were related to more co-rumination within the dyad. Because of this, we conclude that individuals high in the dimension of femininity participate in more co-rumination. However, the pattern found in co-rumination did not translate to emotional self-disclosure: men and women responded differently to the masculinity and femininity of male and female friends. Whereas masculinity did not promote co-rumination with a male friend, it did encourage men to disclose more, and women to disclose more negative emotions. Thus, observed gender role characteristics differentially affect whether men and women co-ruminated, disclosed negative emotions, or disclosed positive emotions to that friend.

Furthermore, we found that both men and women tended to feel more positive affect after discussing problems with both male and female friends, though positive affect related more to co-rumination with a female friend as opposed to a male friend. This positive affect may encourage co-rumination by giving the false sense that an individual has accomplished something by talking to a female friend, which may begin to explain gender differences found in co-rumination, in addition to understanding differences in the development of internalizing symptoms. Initially feeling better about a problem but not problem solving would not make a problem go away; constant co-rumination may promote depression or anxiety if the problem is not solved. As a next step, connections between the perceived characteristics of male and female friends, positive and negative affect after co-rumination, internalizing symptoms, and co-rumination should be examined.
References


Table 1

Distribution of gender role types among male and female participants

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<th>Masculine</th>
<th>Feminine</th>
<th>Androgynous</th>
<th>Undifferentiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>15 (21.4%)</td>
<td>24 (34.3%)</td>
<td>14 (20.0%)</td>
<td>17 (24.3%)</td>
</tr>
<tr>
<td>Males</td>
<td>12 (37.5%)</td>
<td>2 (6.3%)</td>
<td>7 (21.9%)</td>
<td>11 (34.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>26</td>
<td>21</td>
<td>28</td>
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</table>

*Note:* Distribution of gender role types for male and female participants. Percentages represent percentage of total for that gender; males, N= 32; females, N= 70.
Table 2
Distribution of gender role types of male and female friends by participant gender

<table>
<thead>
<tr>
<th>Gender Role Types</th>
<th>Masculine</th>
<th>Feminine</th>
<th>Androgynous</th>
<th>Undifferentiated</th>
</tr>
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<tbody>
<tr>
<td><strong>Female Participants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Male Friends</td>
<td>28</td>
<td>12</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Female Friends</td>
<td>22</td>
<td>19</td>
<td>16</td>
<td>12</td>
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<tr>
<td><strong>Male Participants</strong></td>
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<td></td>
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<tr>
<td>Male Friends</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>16</td>
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<tr>
<td>Female Friends</td>
<td>7</td>
<td>11</td>
<td>4</td>
<td>9</td>
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<tr>
<td><strong>Total Male Friends</strong></td>
<td>38</td>
<td>14</td>
<td>12</td>
<td>35</td>
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<tr>
<td><strong>Total Female Friends</strong></td>
<td>29</td>
<td>30</td>
<td>20</td>
<td>21</td>
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</table>

*Note:* Distribution of gender role types of male and female friends by participant gender.
Table 3
Descriptive statistics of all variables for male and female participants

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<tr>
<th>Variable</th>
<th>Total Range</th>
<th>Total Mean (SD)</th>
<th>Female Range</th>
<th>Female Mean (SD)</th>
<th>Male Range</th>
<th>Male Mean (SD)</th>
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<tbody>
<tr>
<td>Masculine</td>
<td>3.25-6.10</td>
<td>4.62 (.65)</td>
<td>3.35-6.00</td>
<td>4.59 (.65)</td>
<td>3.25-6.10</td>
<td>4.70 (.66)</td>
</tr>
<tr>
<td>Feminine</td>
<td>3.35-6.70</td>
<td>4.91 (.57)</td>
<td>3.85-6.70</td>
<td><strong>4.99 (.56)</strong></td>
<td>3.35-5.60</td>
<td><strong>4.73 (.57)</strong></td>
</tr>
<tr>
<td><strong>FF</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculine</td>
<td>2.20-6.50</td>
<td>4.54 (.79)</td>
<td>2.20-6.50</td>
<td>4.65 (.77)</td>
<td>3.25-6.3</td>
<td>4.31 (.81)</td>
</tr>
<tr>
<td>Feminine</td>
<td>3.45-6.25</td>
<td>4.92 (.62)</td>
<td>3.90-6.25</td>
<td>4.91 (.60)</td>
<td>3.45-6.2</td>
<td>4.95 (.68)</td>
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<tr>
<td>FF CRQ</td>
<td>1.52-4.67</td>
<td>3.19 (.65)</td>
<td>1.52-4.67</td>
<td><strong>3.27 (.65)</strong></td>
<td>1.70-4.19</td>
<td><strong>2.99 (.64)</strong></td>
</tr>
<tr>
<td><strong>FF ESDS</strong></td>
<td></td>
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<tr>
<td>Positive</td>
<td>1.40-5.00</td>
<td>3.26 (.93)</td>
<td>1.60-5.00</td>
<td><strong>3.39 (.93)</strong></td>
<td>1.40-4.60</td>
<td><strong>2.99 (.88)</strong></td>
</tr>
<tr>
<td>Negative</td>
<td>1.30-5.00</td>
<td>3.18 (.84)</td>
<td>1.30-5.00</td>
<td><strong>3.39 (.78)</strong></td>
<td>1.43-4.37</td>
<td><strong>2.73 (.79)</strong></td>
</tr>
<tr>
<td><strong>FF PA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.30-4.90</td>
<td>3.35 (.74)</td>
<td>1.50-4.90</td>
<td>3.41 (.75)</td>
<td>1.30-4.30</td>
<td>3.21 (.71)</td>
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<tr>
<td><strong>FF NA</strong></td>
<td>1.00-3.70</td>
<td>1.81 (.68)</td>
<td>1.85 (.71)</td>
<td>1.00-3.30</td>
<td>1.70 (.60)</td>
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<tr>
<td>Masculine</td>
<td>2.70-6.75</td>
<td>4.94 (.77)</td>
<td>4.97 (.84)</td>
<td>3.68-6.20</td>
<td>4.86 (.57)</td>
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<tr>
<td>Feminine</td>
<td>2.50-5.75</td>
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<td>3.30-5.75</td>
<td><strong>4.55 (.63)</strong></td>
<td>2.50-5.35</td>
<td><strong>4.13 (.74)</strong></td>
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<tr>
<td><strong>MF CRQ</strong></td>
<td>1.48-4.78</td>
<td>2.69 (.68)</td>
<td>1.48-4.78</td>
<td>2.75 (.71)</td>
<td>1.67-3.74</td>
<td>2.57 (.59)</td>
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<tr>
<td><strong>MF ESDS</strong></td>
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<tr>
<td>Positive</td>
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<td>3.16 (.95)</td>
<td>3.27 (.90)</td>
<td>1.00-5.00</td>
<td>2.92 (1.03)</td>
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<tr>
<td>Negative</td>
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<td>1.47-4.67</td>
<td><strong>3.04 (.76)</strong></td>
<td>1.37-4.27</td>
<td><strong>2.62 (.71)</strong></td>
</tr>
<tr>
<td><strong>MF PA</strong></td>
<td>1.10-5.00</td>
<td>3.19 (.79)</td>
<td>1.50-5.00</td>
<td>3.25 (.79)</td>
<td>1.10-4.70</td>
<td>3.05 (.78)</td>
</tr>
<tr>
<td><strong>MF NA</strong></td>
<td>1.00-3.70</td>
<td>1.69 (.61)</td>
<td>1.73 (.64)</td>
<td>1.00-3.00</td>
<td>1.63 (.53)</td>
<td></td>
</tr>
</tbody>
</table>

*Note:* Masculine= Masculine Bem Sex Role Inventory; Feminine= Feminine Bem Sex Role Inventory; FF= female friend; CRQ= Co-Rumination Questionnaire; ESDS= Emotional Self-Disclosure Scale; PA= Positive Affect of Positive Affect Negative Affect Schedule; NA= Negative Affect of Positive Affect Negative Affect Schedule; MF= male friend.

*a* Significant gender difference, *p* < .05. *b* Significant gender difference, *p* < .01.
Table 4

*Means and standard deviations for all variables by participants’ gender role types*

<table>
<thead>
<tr>
<th></th>
<th>Masculine</th>
<th>Feminine</th>
<th>Androgynous</th>
<th>Undifferentiated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Masculine</strong></td>
<td>5.19 (.39)</td>
<td>4.15 (.35)</td>
<td>5.15 (.42)</td>
<td>4.11 (.39)</td>
</tr>
<tr>
<td><strong>Feminine</strong></td>
<td>4.54 (.38)</td>
<td>5.36 (.35)</td>
<td>5.44 (.30)</td>
<td>4.44 (.38)</td>
</tr>
<tr>
<td>FF Masculine</td>
<td>4.50 (.94)</td>
<td>4.58 (.60)</td>
<td>4.72 (.70)</td>
<td>4.42 (.88)</td>
</tr>
<tr>
<td>FF Feminine</td>
<td>4.91 (.62)</td>
<td>4.94 (.51)</td>
<td>5.30 (.71)</td>
<td>4.62 (.49)</td>
</tr>
<tr>
<td>FF CRQ</td>
<td>3.15 (.61)</td>
<td>3.37 (.68)</td>
<td>3.24 (.65)</td>
<td>3.00 (.65)</td>
</tr>
<tr>
<td>FF ESDS Positive</td>
<td>3.08 (.91)</td>
<td>3.41 (.68)</td>
<td>3.94 (.88)</td>
<td>3.41 (.79)</td>
</tr>
<tr>
<td>Positive</td>
<td>3.10 (.76)</td>
<td>3.19 (.82)</td>
<td>3.68 (.96)</td>
<td>3.19 (.82)</td>
</tr>
<tr>
<td>FF ESDS Negative</td>
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<td>3.19 (.68)</td>
<td>3.78 (.70)</td>
<td>3.19 (.68)</td>
</tr>
<tr>
<td>FF PA</td>
<td>1.87 (.64)</td>
<td>1.79 (.60)</td>
<td>1.71 (.63)</td>
<td>1.79 (.60)</td>
</tr>
<tr>
<td>MF Masculine</td>
<td>5.14 (.74)</td>
<td>4.84 (.75)</td>
<td>5.20 (.86)</td>
<td>4.66 (.70)</td>
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<tr>
<td>MF Feminine</td>
<td>4.29 (.68)</td>
<td>4.63 (.49)</td>
<td>4.81 (.74)</td>
<td>4.09 (.64)</td>
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<tr>
<td>MF CRQ</td>
<td>2.59 (.56)</td>
<td>2.81 (.64)</td>
<td>2.82 (.70)</td>
<td>2.59 (.78)</td>
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<tr>
<td>MF ESDS Positive</td>
<td>2.83 (.78)</td>
<td>3.39 (.65)</td>
<td>3.85 (.98)</td>
<td>3.39 (.65)</td>
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<tr>
<td>Negative</td>
<td>2.68 (.64)</td>
<td>3.02 (.84)</td>
<td>3.34 (.85)</td>
<td>3.02 (.84)</td>
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<tr>
<td>MF ESDS Negative</td>
<td>3.06 (.58)</td>
<td>3.03 (.70)</td>
<td>3.73 (.72)</td>
<td>3.03 (.70)</td>
</tr>
<tr>
<td>MF PA</td>
<td>1.71 (.57)</td>
<td>1.78 (.75)</td>
<td>1.70 (.58)</td>
<td>1.78 (.75)</td>
</tr>
<tr>
<td>MF NA</td>
<td></td>
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</tr>
</tbody>
</table>

*Note:* Masculine= Masculine Bem Sex Role Inventory; Feminine= Feminine Bem Sex Role Inventory; FF= female friend; CRQ= Co-Rumination Questionnaire; ESDS= Emotional Self-Disclosure Scale; PA= Positive Affect of Positive Affect Negative Affect Schedule; NA= Negative Affect of Positive Affect Negative Affect Schedule; MF= male friend.
Table 5

*First order correlations of all variables*

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</thead>
<tbody>
<tr>
<td>1.</td>
<td>1</td>
<td>.08</td>
<td>.14</td>
<td>.23&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>.15</td>
<td>.13</td>
<td>.10</td>
<td>-.14</td>
<td>.27&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>.15</td>
<td>.08</td>
<td>-5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.05</td>
</tr>
</tbody>
</table>
| 2.     | .08          | 1           | .13   | -.22<sup>b</sup> | .21<sup>b</sup> | .05           | .35<sup>a</sup> | .41<sup>a</sup> | .24<sup>b</sup> | .04     | .21<sup>a</sup> | .17    | .33<sup>a</sup> | .30<sup>a</sup> | .33<sup>a</sup> | .01<sup>a</sup> | -22<sup>b</sup> | 1
| 3.     | .14          | .13         | 1     | -.32<sup>a</sup> | .07        | .41            | .35<sup>a</sup> | .61<sup>a</sup> | 1       | .06     | .34<sup>a</sup> | .12    | .18    | .12<sup>a</sup> | -.08     | 1
|        |              |             |       |                |            |                |                |         |         |        |        |              |       |        |           |          |

Note: Masculine = Masculine Bem Sex Role Inventory; Feminine = Feminine Bem Sex Role Inventory; FF = female friend; CRQ = Co-Rumination Questionnaire; ESDS = Emotional Self-Disclosure Scale; PA = Positive Affect of Positive Affect Negative Affect Schedule; NA = Negative Affect of Positive Affect Negative Affect Schedule; MF = male friend.

a-p<.01, b-p<.05

46
Table 6
First order correlations by gender

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<th>13</th>
<th>14</th>
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<tbody>
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<td>.23</td>
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<td>-.08</td>
<td>.08</td>
<td>-.09</td>
<td>.05</td>
<td>-.27</td>
<td>-.19</td>
<td>.01</td>
<td>.66a</td>
<td>-.06</td>
<td>.12</td>
<td>-.12</td>
<td>.02</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Left diagonal represents correlations for female participants, right diagonal represents male participants. Masculine= Masculine Bem Sex Role Inventory; Feminine= Feminine Bem Sex Role Inventory; FF= female friend; CRQ= Co-Rumination Questionnaire; ESDS= Emotional Self-Disclosure Scale; PA= Positive Affect of Positive Affect Negative Affect Schedule; NA= Negative Affect of Positive Affect Negative Affect Schedule; MF= male friend.
a-p<.01, b-p<.05.
**Figures**

**Figure 1:** Differences in co-rumination with female and male friends, by gender of the participant.

Figure 1. Females (M = 3.01, SE = 0.06) reported co-ruminating more than males (M = 2.78, SE = 0.09) reported, F(1, 99) = 4.33, p = .04, η² = .07. Similarly, all participants, regardless of gender, reported more co-rumination with female friend (M = 3.19, SE = .65) than with male friends (M = 2.69, SE = .68), F(1, 99) = 28.06, p < .001, η² = .22. The interaction between participant gender and friend gender was not significant.
Female participants reported more self-disclosure, negative and positive, than male participants, $F(1, 100) = 10.24, p = .002, \eta^2 = .09$ (males, $M = 2.18, SE = .12$; females, $M = 3.27, SE = .08$). Positive emotions were shared significantly more than negative emotions, $F(1, 100) = 6.17, p = .02, \eta^2 = .06$ (negative, $M = 2.95, SE = .07$; positive, $M = 3.14, SE = .09$). Additionally, female friends received more disclosure than male friends, $F(1, 100) = 5.57, p = .02, \eta^2 = .05$ (males, $M = 2.96, SE = .08$; females, $M = 3.12, SE = .08$). Only the interaction between gender of the friend and valence of the emotion approached significance, $F(1, 100) = 3.75, p = .056, \eta^2 = .04$. 
Figure 3. Moderation model of the association between the participant’s gender role and co-rumination with a female friend. Gender role of the participants moderated the gender differences in co-rumination with a female friend, F(3, 93)= 3.165, p= .03, η²=.09. Significant differences were found between masculine men and masculine women, Mdiff = .575, 95% CI [.096, 1.05], p= .02. The effect of participant gender, F(1, 93)= 2.77, p=.09, η²=.03 (males, M=2.99, SE=.14; females, M=3.26, SE=.08), and participant gender role, F(3, 93)= 1.18, p=.32, η²=.04 (masculine, M=3.12, SE=.12; feminine, M=3.08, SE=.23; androgynous, M= 3.32, SE=.14; undifferentiated, M=2.97, SE=.12), were not significant. The large 95% CI error bar seen for feminine males may be caused by the small sample size.
Figure 4: Relationship between gender, gender role, and co-rumination with a male friend.

Figure 4. Results showed no significant effects of gender, F(1, 94) = .05, p = .83, η² = .00 (males, M=2.71, SE= .15; females, M=2.74, SE= .08), gender role of the participant, F(3, 94) = 1.22, p = .31, η² = .04 (masculine, M=2.58, SE= .13; feminine, M=2.93, SE= .25; androgynous, M= 2.45, SE= .16; undifferentiated, M= 2.55, SE= .13). The interaction term was not significant, F(3, 94) = .89, p = .45, η² = .03. Gender role of the participants was not a moderator of co-rumination with a male friend. The large 95% CI error bar seen for feminine males may be caused by the small sample size.
Figure 5. Male (M=3.05, SE=.13) and female (M=3.30, SE=.08) participants did not differ on co-rumination with a female friend, F(1, 91)=2.82, p=.10, η²=.10; however, the female friend’s gender role significantly predicted co-rumination, F(3, 91)=3.24, p=.02, η²=.03 (masculine, M=2.90, SE=.13; feminine, M=3.16, SE=.12; androgynous, M=3.61, SE=.19; undifferentiated, M=3.03, SE=.14). Androgynous female friends co-ruminated more than masculine females, Mdiff=.76, 95% CI [.40, 1.12], p<.001, more than feminine females, Mdiff=.49, 95% CI [.13, .84], p=.008, and more than undifferentiated females, Mdiff=.64, 95% CI [.25, 1.02], p=.001. Gender role of the friend and gender of the participant did not interact significantly, F(3, 91)=.12, p>.1, η²=.004.
Figure 6. The gender role of the male friend was a significant predictor of co-rumination, $F(3, 91)= 3.99$, $p = .01$, $\eta^2 = .12$ (masculine, $M=2.54$, $SE=.12$; feminine, $M=3.29$, $SE=.25$; androgynous, $M=3.34$, $SE=.34$; undifferentiated, $M=2.65$, $SE=.11$). Androgynous male friends had significantly higher co-rumination levels than masculine males, $M_{diff} = .44$, 95% CI [.005, .869], $p = .05$, and undifferentiated males, $M_{diff} = .45$, 95% CI [.06, .89], $p = .04$. Feminine males had significantly higher co-rumination levels than masculine males, $M_{diff} = .53$, 95% CI [.13, .94], $p = .01$, and undifferentiated males, $M_{diff} = .5487$, 95% CI [.14, .96], $p = .01$. There was no significant interaction between gender and gender role of the male friend, $F(3, 91)= 1.098$, $p = .35$, $\eta^2 = .04$. 
Appendix A

Demographic Questionnaire

Please answer the following questions. Do not write your name on any part of the following questionnaires.

Age: ____________

Gender: ____________

Race (check one):

- Caucasian
- American Indian/Native Alaskan
- Asian
- African American
- Hispanic/Latino
- Pacific Islander
- Other
Appendix B

Modified Instructions of the PANAS (Watson, Clark, & Tellegen 1988)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word.

Throughout this study, you have been asked to think about when you talk to different friends about problems. Talking with friends often leaves us with certain feelings afterwards. Indicate to what extent you feel this way after you discuss problems with your female/male close friend. Use the following scale to record your answers.