Socialized to Ruminate? Gender Role Mediates the Sex Difference in Rumination for Interpersonal Events
Abstract

The marked sex difference in depression has been explained in part by the sex difference in rumination. However, we know little about why females are more likely than males to ruminate. One explanation is that greater feminine gender role identification may be associated with a greater tendency to ruminate. In Part 1 of this study, we examined gender role as a mediator of the sex difference in trait rumination for domain-specific stressors among 136 older adolescents (ages 14 to 20; 40% male). Although females were more likely than males to ruminate about all types of stressors, we found that femininity accounted for the sex difference in trait rumination about interpersonal (Coefficient = .09, 95% CI [.01, .21], $R^2 = .16$), but not achievement stressors (Coefficient = .02, 95% CI [-.04, .14], $R^2 = .10$). In Part 2 of the study, we prospectively followed 107 of the initial 136 participants to track state rumination about specific interpersonal and achievement stressors. Using a weekly diary design, participants reported their stressors and rumination about those stressors each week for 8 consecutive weeks. Despite no significant differences in state rumination by sex prospectively, data supported the cross-sectional findings. Femininity continued to form a significant path between biological sex and state rumination for interpersonal (Coefficient = .10, 95% CI = .01, .27, $R^2 = .18$), but not achievement stressors (Coefficient = .08, 95% CI = -.06, .32, $R^2 = .02$) over the 8-week period. Results suggest that the feminine gender role plays an important role in understanding rumination, and may be a better predictor of who ruminates than is biological sex.

Keywords: Rumination, Gender Role, Sex Differences, Interpersonal, Adolescent
Socialized to Ruminate? Gender Role Mediates the Sex Difference in Interpersonal Rumination

Depression is a major mental health concern among adolescents. While rates of depression in childhood are low, an increase occurs throughout adolescence such that nearly 20% of individuals have experienced a depressive episode by age 18 (Kessler et al., 1993). Females are differentially affected by this increase. A sex difference in depression emerges between ages 13 and 15 such that by age 18 females are twice as likely as males to become depressed (Hankin et al., 1998). One possible explanation for the emergent sex difference in depression is a sex difference in rumination, which is the tendency to respond to negative events with perseverative attention on negative stimuli (Nolen-Hoeksema, 1991). Rumination is a well-supported vulnerability factor to depression among adolescents and adults (Nolen-Hoeksema, 2004). Females report greater rumination than males, and this sex difference partially accounts for the sex difference in depression (Broderick, 1998; Mezulis, Abramson, & Hyde, 2002). Relatively few empirical investigations, however, have sought to understand how females come to ruminate more. One hypothesis is that gender role socialization may contribute by reinforcing a feminine gender role in females, which emphasizes emotional expression and an interpersonal orientation (Nolen-Hoeksema, 1987). The goal of this study is to examine whether feminine gender role identification can account for the sex difference in trait rumination, as well as the event-specific or state rumination experienced in response to specific stressful events among adolescents.

**Rumination as a Cognitive Vulnerability to Depression**

Rumination is a well-established cognitive vulnerability for depression. Individuals with a tendency to ruminate respond to negative events and their resultant negative affect with a greater attentional focus on the negative event, their negative mood, and the causes and consequences of the situation (Nolen-Hoeksema, 1991). Rumination predicts both the onset and duration of depressive symptoms (Silk, Steinberg, & Morris, 2003).
Sex differences in rumination may contribute to the emergence and persistence of the sex difference in depression (Nolen-Hoeksema & Girgus, 1994). While male and female children report similar rates of depression, the sex difference in depression emerges around age 13 (Hankin et al., 1998). The demonstrated sex difference in rumination may appear even earlier. A sex difference in rumination has been found as early as age 9, and by early adolescence is consistently observed into adulthood (Broderick, 1998). Adolescent and adult females ruminate more than their male peers, even when depressive symptoms and the overlap in measures of rumination and depression are removed (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). The sex difference in rumination has been demonstrated to partially mediate the sex difference in depression among adolescents and adults (Jose & Brown, 2008).

While the majority of research on rumination has focused on trait, or dispositional rumination, recent investigations have attempted to identify and quantify individual ruminative responses to specific stressors— i.e. state rumination (Puterman, Delongis, & Pomaki, 2010). These studies represent an initial attempt to avoid the conceptual overlap with other trait cognitive and affective self-report measures through a focus on actual cognitive processes. Findings have indicated that unlike trait rumination, state rumination appears to fluctuate daily based on both negative affect (Moberly, & Watkins, 2008) and stressor salience (Lavallee, & Campbell, 1995). It is therefore necessary to consider both trait and state rumination when attempting to identify mechanisms linking biological sex to discrepancies in rates of rumination.

**Gender Role Identification and Depression Vulnerability**

Consistent with social learning theory, some have hypothesized that the tendency to ruminate is a gender-stereotyped coping behavior that is associated with gender role identity and acquired through socialization (Broderick, 1998; Cox, Mezulis, & Hyde, 2010; Nolen-Hoeksema, 1987). Research on gender role identification tends to focus on the concepts of masculinity and femininity, and what distinguishes prototypical male and female behavior in
social and psychological domains. Agentic and instrumental behaviors are considered to be characteristic of the masculine gender role (Spence, 1993). Masculinity is conceptualized to encompass a group of characteristics such as independence, perseverance, confidence and decisiveness (Spence & Buckner, 2000). In contrast, femininity includes expressive traits such as warmth, understanding, sensitivity to others’ needs, and awareness of feelings (Spence & Buckner, 2000). The feminine gender role is therefore associated with emotional expression as well as interpersonal attunement and orientation when compared to masculinity (Spence, 1993).

While masculinity and femininity characterize prototypical male and female behavior respectively, the constructs are conceptually orthogonal. Evidence for the orthogonality of masculinity and femininity is found in the fact that scores tend to be non-significantly correlated on self-report instruments (Helmreich, Spence, & Holahan, 1979). Characteristics of masculinity and femininity are found in individuals of both sexes. Gender role identification is therefore characterized by pairings of masculinity and femininity and is not dependent on biological sex.

Early research on gender role identification often found that males self-reported greater masculinity while females reported greater femininity. In their analysis of data collected in the late 1970’s, Galambos and colleagues (1990) found that adolescent males endorsed higher levels of masculinity compared to females, and females reported more femininity than males. Similar findings have been reported in children and early adolescents (Boldizar, 1991). In contrast, more recent research has failed to demonstrate sex differences in masculine gender role identification (Wichstrom, 1999). Some have argued that historically masculine characteristics are considered higher status and are therefore more acceptable, or even encouraged, in females today (Sirin, McCrery, & Mahalik, 2004). A sex difference persists in femininity, however, as females consistently report higher feminine gender role identity than males (Priess, Lindberg, & Hyde, 2009). This sex difference may endure because of the relative lower status of the feminine gender role and the fact that it is less acceptable for males to violate traditional gender norms.
Greater socialized femininity in females is associated with several important psychosocial behaviors, including greater emotional expression and interpersonal orientation. First, femininity is associated with an emphasis on experiencing and expressing emotions, particularly emotions of distress such as sadness. Emotional expression and “girl talk” is a culturally prescribed and reinforced feminine display rule as explained by Polce-Lynch and colleagues (1998). Over time and repeated exposure, the emotional expression norm becomes internalized and acts as a guide for individual behavior. This includes sensitivity to emotionality in both the self and other. Thus, those who come to identify with the feminine gender role attend more to emotion and emotional responses to stressful events, which is in turn associated with more self-focus and more intense negative affect (Ingram, Cruet, Johnson, & Wisnicki, 1988). Greater expressed emotionality and emotional focus is therefore a learned component of the feminine gender role.

A second component of feminine gender role socialization is a strong interpersonal orientation. This is a likely product of early encouragement of other-focused behavior including sensitivity to others’ needs and emotional attunement (Spence, 1993). Young females are encouraged to value connectedness and relationships (Gilligan, 1982). Research has demonstrated that individuals with stronger feminine gender role identity tend to have higher affiliative needs and closer relational styles when compared to those with lower femininity (Cyranowski, Frank, Young, & Shear, 2000). The result of this interpersonal orientation can be observed in the fact that females report that their same-sex friendships are stronger and more interpersonally rewarding compared to those of their males counterparts; though these friendships are also perceived as more stressful (Thomas & Daubman, 2001). While on the one hand females’ closer friendships provide additional social support, they may also act as a vulnerability to distress when interpersonal relationships are threatened.

Evidence suggests that while some patterns of gender role identification may be a vulnerability factor for psychosocial problems such as depression, others may be protective.
Several studies have found that greater feminine gender role identification is associated with more depressive symptoms. Wichstrom (1999), for example, found that the emergence of the sex difference in depressive symptoms in a large sample of adolescents was in part accounted for by the increasing importance of feminine gender role identification over that period. In contrast, masculinity has demonstrated a negative relationship with depression (Wupperman & Neumann, 2006). Li and colleagues (2006) examined masculinity and its relationship with a variety of coping styles and depression in a large sample of adolescents. Findings from their study indicate that masculinity was positively associated with problem-solving and distracting coping styles and therefore negatively associated with depression. Thus, both femininity and masculinity appear to be related to the development of depressive symptoms, though in opposite directions.

**Gender Roles and Rumination**

While past research has consistently linked gender role identity to depression, only recently have researchers begun to look at mechanisms of this relationship. Some have hypothesized that femininity may be related to depression because of the focus on emotionality and interpersonal orientation components of the construct. Rather than divert their attention away from emotionally and interpersonally salient events, females are encouraged to be emotionally sensitive and attuned to their own and others’ responses to such situations (Nolen-Hoeksema, 1987; Wupperman & Neumann, 2006). Femininity has been linked to greater affiliation orientation in females (Lengua & Stormshak, 2000), which may make females more likely to experience distress in response to disruptions in the interpersonal domain. Charbonneau, Mezulis, and Hyde (2009) provide preliminary support for this hypothesis in their study of adolescent females and males. Adolescent females not only reported experiencing more interpersonal stressors than adolescent males, but they also reported experiencing more subjective distress when faced with those stressors. These sex differences in stressors and associated distress partially accounted for the sex difference in depressive symptoms, suggesting
that being female contributes to the tendency to be interpersonally and emotionally focused, which may contribute to greater distress in response to interpersonal stressors.

By contrast, the assertive, action-oriented features of masculinity may prevent excessive focus on emotions and instead encourage problem-solving coping styles. Nolen-Hoeksema (1994) hypothesized that protective effects of masculinity on depression may be related to the associated tendency to approach problems directly. Consistent with this hypothesis, active coping has been shown to account for the negative relationship between masculinity and depression (Lengua & Stormshak, 2000).

Overall, gender role appears to be linked to depression through cognitive processes, many of which are implicated in the process of rumination. Rumination has, in fact, been a primary area of investigation in understanding the link between gender role and depression. Greater femininity is consistently associated with a greater tendency to ruminate. Broderick and Korteland (2004) found that highly feminine-identified 4th – 6th graders had the highest levels of trait rumination, despite there being no significant sex difference in rumination or depression among these youth. In addition, Cox and colleagues (2010) found that femininity, along with maternal encouragement of emotional expression, mediated the sex difference in trait rumination among early adolescents. By contrast, masculinity has been shown to negatively predict trait rumination and depressive symptoms beyond biological sex (Wupperman & Neumann; 2006).

A limitation to the extant literature on gender role and rumination is that the majority of prior studies have examined trait rumination as a unitary construct, and no studies to our knowledge have investigated the relationship between gender role and state rumination. By contrast, recent research has suggested that there may be multiple subtypes of both trait and state rumination, and that these subtypes may be differentially related to both gender role identification and biological sex. Because trait and state rumination describe cognitive strategies for coping with stressful events, individuals may employ different coping strategies for stressful
events occurring in different domains. Consequently, the tendency to ruminate in response to stressful events may vary by the domain of the stressor (Abramson, Metalsky, & Alloy, 1989).

While some people may be likely to ruminate in response to achievement events, such as failure on an exam, others may tend to ruminate more about interpersonal stressors, such as the loss of a relationship. Mezulis and colleagues (2002) reported that although female college students were more likely than males to ruminate about all types of stressful events, the sex difference in trait rumination was significantly greater for interpersonal events than for achievement events. This is consistent with role constraint theory (Folkman & Lazarus, 1980), which states that sex differences in coping behaviors are products of the differences in social roles and the domains of stressors to which females are exposed (Rosario, Shinn, Morch, & Huckabee, 1988). That is, females may be prone to interpersonal trait and state rumination because they are channeled into more emotionally- and interpersonally-oriented social roles as characterized by the feminine gender role, and experience higher rates of interpersonal stressors.

In addition, the relationship between interpersonal stressors and depression may be stronger for females than for males, perhaps because females are more likely to have depressogenic cognitive responses for interpersonal stressors (see Hyde, Mezulis, & Abramson, 2008). Greater femininity may account for the increased strength of this relationship in females because of the emotional and interpersonal orientation of the feminine gender role. In addition, this relationship may be particularly strong in the presence of lower masculinity, as problem-solving orientations are negatively related to depression (Wupperman & Neumann, 2006). Thus, the examination of the relationship between sex, gender role, and interpersonal and achievement rumination is necessary to further our understanding of the gender difference in depression.

The Current Study

The existing literature suggests that trait rumination may be a primary path through which gender role identification and depression are related. While several studies have
examined the relationship between femininity, masculinity, and rumination, none to our knowledge have investigated the possible differential relationships gender role may have with the interpersonal and achievement domains of trait rumination. In addition, no studies have examined the influence of gender role orientation on state rumination for specific interpersonal and achievement stressors prospectively. We therefore sought to address each of these shortcomings of the extant literature in the current study. We do so by including both trait (Part 1) and prospective state (Part 2) analyses of the relationships between biological sex, gender role, and interpersonal and achievement domains of rumination. Given previous research we hypothesized that in Part 1:

1) Females would report greater feminine gender role orientation and there would be no sex difference in masculine gender role identification.
2) Females would report more trait interpersonal and achievement rumination than males.
3) Femininity would account for the sex difference in trait interpersonal, but not achievement domains of rumination.

In Part 2, we hypothesized that:

4) Prospectively, females would report more state rumination for specific interpersonal and achievement events compared to males.
5) Prospectively, femininity would account for the sex difference in state interpersonal, but not achievement rumination.

Method

Participants

In Part 1, participants were 136 older adolescents (40% male) recruited from four private schools located in an urban area of the Northwest. Participants ranged in age from 14.71 to
20.83 years old ($M = 17.71$, $SD = 1.59$). Approximately 74% of the sample identified as Caucasian, 15% Asian, 7% African American, and 4% as other. For Part 2, participants from three of the original four schools were followed over a period of eight weeks. The prospective portion of the study therefore included 107 older adolescents (27% male) ranging in age from 13.31 to 19.42 years old ($M = 16.01$, $SD = 1.62$) with similar racial and ethnic diversity. Part 2 participants were slightly younger ($t[133] = 10.06, p < .001$) and more likely to be female ($t[134] = 16.84, p < .001$) than those in Part 1, but did not differ in terms of trait interpersonal rumination ($t[134] = .42, p = .67$), trait achievement rumination ($t[134] = 1.89, p = .06$), femininity ($t[134] = .19, p = .85$), or masculinity ($t[134] = -.08, p = .94$). Participation in the study was voluntary. An incentive of five dollars was offered for participation in Part 1, with smaller incentives offered weekly for Part 2 (valuing approximately $3 per week).

**Procedure**

Part 1 data was collected during the initial questionnaire session of a prospective study of stress and coping. Participants completed either a paper and pencil or online version of the questionnaire set. Arrangements were made with each participating school to minimize disruption to students’ schedules. Part 2 was conducted in a weekly-diary method. Participants were administered weekly questionnaires for eight consecutive weeks assessing the occurrence of stressors and rumination about those stressors. Participants wrote down, in their own words, the two most stressful events that happened during the week. Of the 107 Part 2 participants, all completed at least one weekly questionnaire, with the average number of weekly questionnaires being 6.6 out of a possible 8. All questionnaires were administered at school in small groups.

**Measures**

**Gender role identification.** Participant’s gender role identification was assessed with the Personal Attributes Questionnaire (PAQ; Spence, Helmreich, & Stapp, 1973), a 24-item self-report measure designed to assess an individual’s level of socially desirable sex-typed
characteristics. The PAQ includes 8-items to assess trait masculinity (instrumentality) and 8-items to assess trait femininity (expressiveness). Each item is presented as a five-point Likert type scale with polar anchors. For example, a masculinity item is “Very passive” to “Very active.” An example of a femininity item is “Not at all helpful to others” to “Very helpful to others.” Scales are computed averaging items to compute a mean for masculinity and femininity separately, with higher scores indicating greater identification. Masculinity and femininity are conceptually orthogonal but were, in fact, significantly correlated in the current study ($r = -.18, p < .05$). Reliability in the current sample was $\alpha = .77$ for femininity, and $\alpha = .71$ for masculinity.

**Trait rumination.** Trait rumination for the interpersonal and achievement domains was measured with the Perseverative Attention to Negative Events scale (PANE; Mezulis et al., 2002). This self-report measure asked how they would think and feel in three standardized hypothetical scenarios in each domain (e.g., “Imagine that your boyfriend/girlfriend ends an important relationship with you, although you want the relationship to continue” [interpersonal]; “Imagine that you receive a low score on a project or paper you did for school” [achievement]). Each scenario is followed by five items describing typical ruminative responses (e.g., “I’d keep thinking about how down I felt”) rated on a 5-point Likert scale (1 = very unlike me, to 5 = very like me). The PANE correlates highly with other measures of rumination and has good reliability within college students (Mezulis et al., 2002). In our study, reliability was $\alpha = .92$ for the interpersonal and $\alpha = .84$ for the achievement subscales of the PANE.

**State rumination.** In addition to the trait rumination measured in Part 1 of the study, we wanted to assess state rumination, or rumination about specific events, to further support the cross-sectional analyses. We, therefore, first took participant’s self-generated weekly worst events and coded for interpersonal and achievement content by two independent raters (see Cambron, Acitelli, & Steinberg, 2009). An event was considered interpersonal if it involved
others. For example “I broke up with my girlfriend/boyfriend” would be coded as an interpersonal stressful event. Achievement events, on the other hand, are those that involve accomplishment. An example achievement stressful event is “I failed my exam.” Some events were neither interpersonal nor achievement (e.g., “I came down with the flu”), and were not used in subsequent analyses. Raters had to demonstrate reliability, with a criterion set at .80 for categorical agreement. During coding, percentage agreement between raters was computed. Kappa was used to calculate categorical agreement with inter-rater reliability at .80.

Rumination for worst weekly events was measured with an adaption of the PANE. Participants were asked each of the five items in response to each of their self-generated worst events separately. Weekly interpersonal and achievement rumination scale scores were generated by first summing the ratings of the items for events coded as interpersonal and achievement separately, followed by averaging these scores over the eight weeks. The resulting state interpersonal and achievement rumination scores reflect the average rumination participants reported in response to interpersonal and achievement stressors over the eight-week period.

**Results**

**Part 1 Analyses**

**Descriptive.** The correlations, means, and standard deviations for all study variables are presented in Table 1. Consistent with our first hypothesis, females reported significantly greater femininity than males ($t[128] = 2.69, p < .01$) and there was no sex difference in masculinity ($t[128] = -.80, p = .43$). Our second hypothesis was also supported, as females reported more rumination in both the interpersonal ($t[128] = 2.25, p = .03$) and achievement domains ($t[128] = 3.65, p < .01$). Because we found a sex difference in femininity, as well as in both domains of rumination, we proceeded to test our hypothesis that femininity would account for, or mediate, the sex difference in interpersonal but not achievement rumination. We controlled for
masculinity in all subsequent analyses after first testing for potential moderating effects of masculinity on the proposed mediated model, none of which reached significance.

**Mediation analyses.** We assessed our mediation hypotheses with the script version of the INDIRECT macro for SPSS 18.0 developed by Preacher & Hayes (2008). This macro tests mediation through the product of coefficients test which, when used in conjunction with bootstrapping, provides a reliable measure of the strength of the indirect (mediated) pathway (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). We had the macro generate 5000 bootstrapped resamples from our data in order avoid the problems with skewness produced by the multiplication of path coefficients. An asymmetrical 95% confidence interval for the effect of the indirect path is then constructed. Confidence intervals that do not include “0” indicate a significant effect of the indirect path whereas confidence intervals that include “0” are considered non-significant.

First, we tested whether femininity mediated the relationship between sex and interpersonal rumination. Our hypothesis was that the interpersonal orientation associated with the feminine gender role would account for females’ greater rumination in the interpersonal domain. Consistent with our hypothesis, femininity formed a significant indirect pathway between sex and interpersonal rumination (Coefficient = .09, 95% CI = .01, .21, $R^2 = .16$). Thus, femininity partially accounts for the sex difference in interpersonal rumination (see Figure 1).

Next, we tested whether femininity mediated the relationship between sex and achievement rumination. While females endorsed more achievement rumination than boys, we did not believe that this difference would be mediated by femininity. The confidence interval for the indirect path included “0” (Coefficient = .02, 95% CI = -.04, .14, $R^2 = .10$). Femininity, therefore, was not a significant mediator of the sex difference in achievement rumination.

**Part 2 Analyses**
**Descriptive.** Of the 107 participants in Part 2, 89 reported at least one interpersonal stressor and 88 reported at least one achievement stressor over the eight-week period. We found no sex difference in reported interpersonal ($t [105] = 1.08, p = .28$) or achievement stressors ($t [105] = .53, p = .60$). We measured state rumination for each of the reported interpersonal and achievement stressors over the period of eight weeks and created average weekly rumination scores. These scores represent state rumination about actual stressful events participants experienced. While our fourth hypothesis stated that we expected females to report greater state rumination about interpersonal and achievement stressors over the eight-week period, we found no sex differences in either state interpersonal ($t [87] = -.21, p = .84$) or achievement ($t [86] = .70, p = .49$) rumination (see Table 1).

**Mediation analyses.** A strength of the joint significance method of testing for mediation is that it enables the investigator to test for significant indirect pathways in the absence of a direct effect between independent and dependent variables. Thus, despite no significant sex differences in state rumination, we proceeded with the mediation analyses to determine if sex exerts an indirect effect on state rumination via femininity. First, we tested whether femininity mediated the relationship between sex and state interpersonal rumination. We found that femininity formed a significant indirect pathway between sex and state interpersonal rumination (Coefficient = .10, 95% CI = .01, .27, $R^2 = .18$). The model accounted for a full 18% of the variance in state interpersonal rumination scores.

Next, we tested whether femininity mediated the relationship between sex and achievement rumination. The confidence interval for the indirect path included “0” (Coefficient = .08, 95% CI = -.06, .32, $R^2 = .02$). Femininity, therefore, did not form a significant path between biological sex and state achievement rumination.

**Discussion**
The goal of the current study was to examine how gender role identification may contribute to the sex difference in domain-specific trait and state rumination. In Part 1, we found that females reported a greater feminine gender role identification compared to men, as well as more trait rumination about both interpersonal and achievement events. As hypothesized, we found that femininity partially accounted for the sex difference in trait interpersonal, but not achievement rumination. In Part 2, we followed participants over an eight-week period to measure rumination for specific interpersonal and achievement stressful events. We found that although there was no difference in rumination by sex, femininity continued to form a significant indirect path between sex and state interpersonal, but not achievement rumination. We attribute these findings to the emphasis on emotion-focus and interpersonal orientation in the feminine gender role. This study deepens our understanding of gender role identification and its association with subtypes of rumination, an area of study useful for explaining the sex difference in depression. Below we summarize our findings and their implications in light of previous research and future directions.

Rumination has been characterized as a sex-linked coping behavior and a contributor to the sex difference in depression (Cox et al., 2010; Nolen-Hoeksema, 1987). Consistent with a large body of literature, our results indicate that adolescent females are more likely than adolescent males to report trait rumination, though we found no sex difference in state rumination, or rumination for actual events. More recently, sex differences in subtypes of rumination have been an area of inquiry (e.g., Treynor et al., 2003). Only one study to our knowledge has previously examined sex differences in interpersonal and achievement trait rumination (Mezulis et al., 2002). Our results provide further evidence of the sex difference in trait interpersonal and achievement rumination. Although previous research has demonstrated sex differences in state rumination (Puterman et al., 2010), our results indicate no sex difference in state rumination about specific interpersonal or achievement stressors. We speculate that our
failure to find a sex difference in state rumination by domain may be related to the small number of males and resulting low power in our prospective sample.

Greater feminine gender role identity in females is a consistent finding in the literature (Wichstrom, 1999). Our data provides further support for the persistence of a sex difference in femininity. In contrast, masculinity did not differ by sex. While this finding is in line with recent research on gender roles (Priess et al., 2009), earlier research reported higher levels of masculinity in males compared to females (Boldizar, 1991; Galambos et al., 1990). Our interpretation of this result is that masculinity has transitioned from a sex-linked identity to a normally distributed pattern of traits found across the population. This transition may be a product of the generally higher status of the masculine gender role and the greater cultural acceptability of females to take on traditionally masculine traits (Sirin et al., 2004).

Gender role identification is a hypothesized contributor to the development of the sex difference in rumination (Nolen-Hoeksema, 1987), and both femininity and masculinity have demonstrated significant effects on individual differences in trait rumination. Our study builds on prior research by testing the relationship between sex, gender role, and trait and state rumination by interpersonal and achievement subtypes. As hypothesized, femininity accounted for the sex difference in interpersonal but not achievement trait rumination. Despite a non-significant sex difference in state interpersonal and achievement rumination, femininity continued to form a significant indirect path between the two constructs. Although we examined masculinity as a moderator of all models, we found no significant interactions between sex and masculinity, or femininity and masculinity. The correlation between femininity and masculinity in our results appear to indicate that the constructs are not as orthogonal as conceptually posited, a finding which has been previously reported among females (Ozer, 1981), and which makes interactions difficult to discover. These findings do suggest, however, that the emotionality and
interpersonal orientation of femininity may confer vulnerability specifically to both trait and state rumination in the interpersonal domain.

Our findings are consistent with a body of recent research highlighting the particular salience of the interpersonal domain in understanding the sex difference in depression (Hyde et al., 2008). Previous research has demonstrated that interpersonal stressors partially account for higher rates of depression in females (Charbonneau et al., 2009). While females tend to ruminate more than males overall, this is especially the case in the interpersonal domain (Mezulis et al., 2002). Our finding that femininity forms a significant indirect path between sex and both trait and state interpersonal rumination furthers our understanding of sex differences in depression.

While we found that the feminine gender role identity conveyed risk for interpersonal trait and state rumination, it is important to note that there are many positive psychosocial benefits of greater feminine gender role identification. The emotional expression component of femininity has been linked with positive relationship factors such as improved social functioning and increased interaction (Gross & John, 2003). The close relationships that develop in response to emotional expression can also act as protective factors through their provision of social support factors (Puterman et al., 2010). The emotionality component of the feminine gender role, therefore, may also function as a protective factor to depression through its association with friendships. There are, however, both costs and benefits to these interpersonal processes.

Although close, emotionally expressive relationships have historically been considered protective, recent research has identified both protective and vulnerability factors associated with these relationships. The sharing of emotionality can, in some cases, become a focus of the relationship and convey risk for depression (Zahn-Waxler, 2000). This emotional focus in relationships has been referred to as co-rumination, and is linked to positive friendship quality over time, but also depression (Rose, Carlson, & Waller, 2007). In addition, co-rumination is linked to higher levels of stress hormone (Byrd-Craven, Geary, Rose, & Ponzi, 2008). Thus,
expression of emotionality is linked with varied outcomes. In contrast, the interpersonal orientation of the feminine gender role appears to function mainly as a vulnerability.

The interpersonal orientation of the feminine gender role does not appear to convey the same benefits the emotional expressiveness component of the construct, as it has not been linked to greater same- or cross-sex friendship closeness (Reeder, 2003). Interpersonal orientation in females appears to be a vulnerability to depressive symptoms over time (Little & Garber, 2000). In addition, interpersonal orientation has been shown to interact with social stressors to predict depressive symptoms over time in males. That is, stress in the domain of vulnerability appears to predict depressive symptoms above and beyond stress and interpersonal orientation alone.

Interactions between vulnerabilities and stressors in the domain of the vulnerability have long been identified as a risk factor for depression. Sociotropy, Beck’s personality dimension characterized by the dependence on social support and gratification, has been shown to predict depression in the presence of negative interpersonal events (Clark, Beck, & Alford, 1999). Abramson and colleagues (1989) more clearly articulated this interaction as the “match hypothesis.” They stated that individuals who experience a domain match in stressor and cognitive vulnerability may be at increased risk for the development of depressive symptoms (Abramson et al., 1989). Given the match hypothesis, the interpersonal orientation of femininity may be particularly useful for understanding the sex difference in depression.

Implications & Future Directions

The current study demonstrated that the feminine gender role identification accounted for the greater trait interpersonal rumination in females, and continued to form an indirect pathway between sex and state interpersonal rumination prospectively. As females tend to report more interpersonal stressors (Hammen, 2006), they may be more likely to experience vulnerability-stressor match than males. This may account for females’ tendency to perceive interpersonal stressors as more stressful than males (Rudolph, 2009). The greater likeliness for females to
experience vulnerability-stressor match over time is a potential contributor to the sex difference in depression. Future research on the process by which gender role socialization increases females’ likeliness to experience vulnerability-stressor match is needed.

**Limitations**

Several limitations in the current study design should be noted. Additional longitudinal data is needed to replicate the current findings, particularly over earlier adolescent periods when gender role identification and cognitive vulnerabilities are developing. In addition to self-report measures, a variety of techniques for the measurement of gender role identification and rumination should be employed. Finally, equal numbers of male and female participants would strengthen the ability to detect differences in gender role and rumination by sex. Although these limitations restrict our ability to make developmental inferences about the processes by which the sex difference in rumination occurs, our results provide preliminary evidence to suggest that the feminine gender role is associated with rumination about interpersonal events.

**Summary**

In conclusion, the results from this study provide further insight into the factors linking biological sex to trait and state rumination. Results indicated that feminine gender role identity partially accounted for the sex difference in trait interpersonal, but not achievement rumination, and that femininity continued to form a significant indirect path between sex and state interpersonal rumination. As gender role identity is observable prior to the development of crystallized cognitive vulnerabilities to depression, we hypothesize that the emotionality and interpersonal orientation components of the feminine gender role contributed to females’ greater trait and state interpersonal rumination. Future research is needed to confirm the hypothesized developmental relationship between biological sex, gender role, and rumination in order to understand the process by which socialization may account for sex differences in depression.
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Table I: *Correlations between all Variables, Means, Standard Deviations, and Differences by Sex*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>M (SD)</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Males</td>
<td>Females</td>
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<tr>
<td><strong>Part 1</strong></td>
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<tr>
<td>1. Femininity</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.77 (.60)</td>
<td>4.02 (.45)</td>
<td>2.69**</td>
</tr>
<tr>
<td>2. Masculinity</td>
<td>-.18*</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.56 (.64)</td>
<td>3.47 (.57)</td>
<td>.80</td>
</tr>
<tr>
<td>3. Rumination</td>
<td>.23**</td>
<td>-.19*</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
<td>2.87 (.85)</td>
<td>3.35 (.77)</td>
<td>3.33**</td>
</tr>
<tr>
<td>4. Trait-IP</td>
<td>.30**</td>
<td>-.27**</td>
<td>.89**</td>
<td>----</td>
<td></td>
<td></td>
<td>3.08 (.90)</td>
<td>3.42 (.81)</td>
<td>2.25*</td>
</tr>
<tr>
<td>5. Trait-ACH</td>
<td>.12</td>
<td>-.08</td>
<td>.92**</td>
<td>.63**</td>
<td>----</td>
<td></td>
<td>2.66 (.92)</td>
<td>3.28 (.96)</td>
<td>3.65**</td>
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<tr>
<td><strong>Part 2</strong></td>
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<tr>
<td>6. State-IP</td>
<td>.27**</td>
<td>-.37**</td>
<td>.50**</td>
<td>.46**</td>
<td>.45**</td>
<td>----</td>
<td>2.13 (.78)</td>
<td>2.10 (.68)</td>
<td>-.21</td>
</tr>
<tr>
<td>7. State-ACH</td>
<td>.14</td>
<td>-.07</td>
<td>.34**</td>
<td>.25*</td>
<td>.35**</td>
<td>.68**</td>
<td>2.03 (.82)</td>
<td>2.17 (.78)</td>
<td>.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interpersonal Stressors</td>
<td>4.03 (3.70)</td>
<td>4.77 (2.88)</td>
<td>1.08</td>
<td>.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achievement Stressors</td>
<td>4.00 (3.35)</td>
<td>4.35 (2.84)</td>
<td>.53</td>
<td>.11</td>
<td></td>
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</tr>
</tbody>
</table>

*Note.* Part 1 N = 136, Part 2 N = 107. Significance values as follows: *p < .05, **p < .01. Trait-IP = Trait interpersonal rumination, Trait-ACH = Trait achievement rumination, State-IP = State interpersonal rumination, State-ACH = State achievement rumination, Interpersonal Stressors = number of interpersonal stressors over the eight-week period, Achievement Stressors = number of achievement stressors over the eight-week period.
Figure 1. Mediated models of the relationship between sex, femininity, and trait interpersonal and achievement rumination.

![Diagram showing mediated models of the relationship between sex, femininity, and trait interpersonal and achievement rumination.](image)

**Note.** $N = 130$, * $< .05$, ** $< .01$, Unstandardized coefficients reported. 95% bias corrected and accelerated confidence intervals (CI) based on 5000 bootstrapped resamples. All analyses controlled for masculinity.
Figure 2. Mediated models of the relationship between sex, femininity, and state interpersonal and achievement rumination.

Note. N = 89 (Interpersonal), N = 88 (Achievement), * < .05, ** < .01, Unstandardized coefficients reported. 95% bias corrected and accelerated confidence intervals (CI) based on 5000 bootstrapped resamples. All analyses controlled for masculinity.