Co-Rumination in the Friendships of Girls and Boys

Amanda J. Rose

This research addresses a new construct, co-rumination. Co-rumination refers to extensively discussing and revisiting problems, speculating about problems, and focusing on negative feelings. Friendship research indicates that self-disclosure leads to close relationships; however, coping research indicates that dwelling on negative topics leads to emotional difficulties. Co-rumination is a single construct that integrates both perspectives and is proposed to be related both to positive friendship adjustment and problematic emotional adjustment.

Third-, fifth-, seventh-, and ninth-grade participants (N = 608) responded to questionnaires, including a new measure of co-rumination. Co-rumination was related to high-quality, close friendships and aspects of depression and anxiety. Girls reported co-ruminating more than did boys, which helped to account for girls’ more positive friendship adjustment and greater internalizing symptoms. Other analyses addressed whether co-rumination and the related constructs of self-disclosure and rumination had different relations with friendship and emotional adjustment.

INTRODUCTION

A notable percentage of children and adolescents experience disruptive levels of depressed affect and anxiety (Albano, Chorpita, & Barlow, 1996; Hammen & Rudolph, 1996), and these youth are especially likely to be girls (Nolen-Hoeksema & Girgus, 1994). Given that girls have closer friendships than do boys (e.g., Bukowski, Hoza, & Boivin, 1994; Camarena, Sarigiani, & Peterson, 1990) and that close relationships tend to protect against emotional difficulties (Bukowski, Newcomb, & Hartup, 1996), it is surprising that girls’ friendships are not better buffers against depression and anxiety. A single and newly developed construct, co-rumination, may help to explain these seemingly contradictory patterns.

Co-rumination refers to excessively discussing personal problems within a dyadic relationship and is characterized by frequently discussing problems, discussing the same problem repeatedly, mutual encouragement of discussing problems, speculating about problems, and focusing on negative feelings. To give some concrete examples, co-rumination might involve early adolescents talking at length about whether the ambiguous behavior of a boyfriend or girlfriend is signaling the demise of the relationship or whether a perceived slight by a high-status classmate was intended or not.

As discussed in detail below, previous research indicates that self-disclosure, or sharing personal thoughts and feelings, is linked with having relationships that are high-quality (i.e., involving characteristics such as helping and positive conflict resolution) and close (i.e., involving a strong emotional attachment) and that rumination, or negative dwelling, is related to emotional problems such as depression and anxiety. The construct of co-rumination represents the overlap between the constructs of self-disclosure and rumination but is not identical to either construct. Co-rumination is both social (unlike rumination) and also potentially maladaptive (unlike self-disclosure as typically defined) due to the negative focus. In this research, a new measure of co-rumination in the friendships of children and adolescents was developed to test the hypotheses that co-rumination is related to high-quality and close friendships but is also related to depression and anxiety. Importantly, co-rumination is expected to be more common among girls than boys, especially among adolescents, and to help account for gender differences in friendship quality and closeness as well as depression and anxiety.

Co-Rumination and the Friendship Literature

The friendship literature highlights the importance of self-disclosure. Friends self-disclose to one another more than do nonfriends (Newcomb & Bagwell, 1995), and self-disclosure is linked with other aspects of positive friendship quality, such as helping and companionship (e.g., Parker & Asher, 1993), and feelings of emotional closeness (e.g., Camarena et al., 1990). Notably, claims by friendship researchers that self-disclosure is related to high-quality, close relationships are generally not qualified by whether self-disclosure focuses on positive or negative topics or occurs in moderation or at extreme levels. In fact, the intense emotional conversations that are often the basis of co-rumination may be particularly likely to
be related to feelings of closeness. Accordingly, co-rumination, conceptualized as a specific type of self-disclosure, is expected to be linked with having high-quality, emotionally close friendships.

Co-Rumination and the Coping and Emotional Adjustment Literature

The coping and emotional adjustment literature indicates that focusing on one's own problems is maladaptive. Rumination, defined as dwelling on one's own depressive symptoms, is related to concurrent and future depressed affect among adults (e.g., Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Nolen-Hoeksema, Parker, & Larson, 1994). Although rumination has received far less attention among youth, evidence suggests rumination is linked with depression (Hart & Thompson, 1997; Schwartz & Koenig, 1996) and anxiety (Schwartz & Koenig, 1996) among adolescents. In addition, rumination, defined more broadly as dwelling on problems, was related to problematic emotional adjustment (i.e., lower self-esteem) among children (Broderick, 1998). Extensive discussion of problems is also expected to be related to emotional difficulties. Co-rumination may be related to depressive symptoms due to the consistent negative focus on troubling topics and to anxiety because co-rumination may exacerbate worries about whether problems will be resolved and about potential negative consequences of problems.

Co-Rumination and the Related Constructs of Self-Disclosure and Rumination

Co-rumination is conceptualized as being related to the constructs of self-disclosure and rumination, but thought to be more extreme and negative than self-disclosure as typically defined and as including a social aspect that is lacking in typical assessments of rumination. Accordingly, somewhat different relations are expected between these constructs and friendship and emotional adjustment. Because co-rumination is similar to self-disclosure in that each involves sharing thoughts and feelings, each should be related to friendship quality and closeness. In fact, because the aspects of co-rumination thought to be related to positive friendship adjustment (i.e., sharing thoughts and feelings) are components of self-disclosure, a more typical self-disclosure measure may help account for the relation between co-rumination and friendship adjustment in this research. However, unlike co-rumination, self-disclosure is not expected to be related to emotional problems. As self-disclosure is usually defined, it does not involve the components of co-rumination (e.g., revisiting problems, speculating on problems, dwelling on negative affect) proposed to be related to internalizing symptoms.

In addition, co-rumination and rumination are similar in that each involves a strong negative focus and may interfere with other activities. Because the aspects of co-rumination thought to be related to emotional problems are largely shared with rumination, a measure of rumination may account for the relation between co-rumination and internalizing symptoms in this study. However, because rumination is an individual, cognitive process, whereas co-rumination is a social process that may be reinforced by the friend offering support, only co-rumination is expected to be related to high-quality, close friendships. Also, whereas rumination is typically defined as focusing on one's own negative affect, co-rumination is defined more broadly as focusing on problems and concerns.

Co-Rumination, Gender, and Adjustment Trade-Offs

Additional hypotheses involve gender differences. Girls are hypothesized to co-ruminate more than boys, which is expected to help account for gender differences in friendship and emotional adjustment. Friends in youth are typically same-sex peers (e.g., Kovacs, Parker, & Hoffman, 1996), and consistent gender differences are present in these relationships. Girls spend more time in dyads than do boys (e.g., Benenson, Apostoleris, & Parnass, 1997; Thorne, 1986) and self-disclose at higher levels (e.g., Buhrmester & Furman, 1987; Camarena et al., 1990; Parker & Asher, 1993). In contrast, boys spend more time in group activities like games and sports than do girls (e.g., Ladd, 1983; Moller, Hymel, & Rubin, 1992). Co-ruminating with friends would emerge more naturally from typical interactions of girls than boys. Also, coping research indicates that women and adolescent girls ruminate more than do men and adolescent boys (e.g., Hart & Thompson, 1997; Nolen-Hoeksema et al., 1994; Schwartz & Koenig, 1996).

The gender difference in co-rumination is also expected to be stronger among adolescents than children. Girls may co-ruminate more at adolescence as their social worlds become increasingly complex and, perhaps, stressful (e.g., when dating begins). Age differences are not expected among boys, though, because their interactions remain activity focused and extensively discussing problems likely remains inconsistent with male norms (Buhrmester, 1996).

Interestingly, the expected gender difference in co-rumination may be related to adjustment trade-offs for girls and boys. Girls have higher quality, closer friendships than do boys (e.g., Bukowski et al., 1994;
Camarena et al., 1990; Rose & Asher, 1999), but also exhibit greater depressive symptoms (e.g., Peterson, Sarigiani, & Kennedy, 1990; Wichstrom, 1999) and anxiety symptoms (e.g., Cole, Martin, Peeke, Seroczynski, & Fier, 1999; Reynolds & Richmond, 1978). Considering co-rumination may contribute to understanding these differences. Higher levels of co-rumination among girls than boys may contribute to or work to maintain high-quality and close friendships among girls through self-disclosure processes but also greater internalizing problems through ruminative processes. In contrast, lower levels of co-rumination among boys may help to buffer boys from emotional problems if they spend less time with friends dwelling on problems and concerns, but could potentially interfere with the development of high-quality, close friendships due to low levels of sharing personal thoughts and feelings.

Summary of Hypotheses

This study involved the development of a new survey measure of co-rumination and tested four hypotheses: (1) girls would report greater co-rumination than would boys, particularly among adolescents; (2) co-rumination would be related to positive friendship adjustment but problematic emotional adjustment; (3) gender differences in co-rumination would help to account for gender differences in friendship and emotional adjustment; and (4) different patterns of relations would emerge between co-rumination, self-disclosure, and rumination with friendship and emotional adjustment.

METHOD

Participants

Participants were third-, fifth-, seventh-, and ninth-grade students from two midwestern school districts. Parents of students in these grades were mailed forms on which they indicated whether or not they gave consent. Consent forms were returned for 660 of 704 eligible students (94%) and consent was granted for 612 students (93% of the 660 forms returned). Four of the 612 students were unable to participate because they had moved away from the district or due to a disability. The resulting sample of 608 students included 144 third-grade (76 girls, 68 boys), 140 fifth-grade (76 girls, 64 boys), 167 seventh-grade (86 girls, 81 boys), and 157 ninth-grade (84 girls, 73 boys) students. The sample was 87% European American, 6% African American, 2% American Indian, 1% Asian American, 1% Hispanic American, and 3% classified as “other” (e.g., biracial).

Third- and fifth-grade students and seventh- and ninth-grade students were grouped together for analyses. Grouping was done for two reasons. First, there were similarities in school social structure for third- and fifth-grade students who were in self-contained classrooms with a single teacher and for seventh- and ninth-grade students who switched classes and teachers throughout the day and could interact with any of their grade-mates. Also, preliminary analyses revealed similarities between third- and fifth-grade students and seventh- and ninth-grade students. Participants in the third- and fifth-grade grade group were referred to as children (M age = 9.9 years), and participants in the seventh- and ninth-grade grade group were referred to as adolescents (M age = 13.8 years).

Data were not available for all participants for all measures. Some students were absent for the initial administration and when researchers returned to collect data with absent students. Also, if students completed fewer than two thirds of the items on a scale, data for that scale were excluded. However, data were available for at least 97% of eligible participants for each measure.

Procedure

Data collection occurred in students’ classrooms in two phases that took place an average of 8.9 days apart. Questionnaires were administered by one of two trained graduate students or three trained advanced undergraduate students. Questionnaires were read aloud to the students.

Measures

Co-rumination. The 27-item Co-Rumination Questionnaire was developed for this research and assesses the extent to which participants typically co-ruminate with close same-sex friends. Three items assess each of nine content areas: (1) frequency of discussing problems, (2) discussing problems instead of engaging in other activities, (3) encouragement by the focal child of the friend’s discussing problems, (4) encouragement by the friend of the focal child’s discussing problems, (5) discussing the same problem repeatedly, (6) speculation about causes of problems, (7) speculation about consequences of problems, (8) speculation about parts of the problem that are not understood, and (9) focusing on negative feelings. Items were designed to assess more extreme levels of self-disclosure than items typically used to assess self-disclosure. For example, items include “When we talk about a problem that one of us has, we usually talk about that problem every day even if nothing new has
happened” and “When we talk about a problem that one of us has, we try to figure out everything about the problem, even if there are parts that we may never understand.” Also, items were chosen from a larger item pool based partly on the results of two pilot studies conducted with older adolescent (undergraduate) samples (N = 194 and 272). An example item for each content area is presented in the Appendix. Participants rated each item on a 5-point Likert scale ranging from “Not at all true” (1) to “Really true” (5) in terms of the degree to which the item described them. An exploratory factor analysis (maximum likelihood method) was performed to examine whether the data were best represented by one factor or multiple factors representing the content areas. Examination of the eigenvalues suggested one strong factor (all loadings > .45). Cronbach’s α computed with all 27 items indicated that the new measure had excellent internal reliability (α = .96). Co-rumination scores were the mean ratings of the 27 items.

Self-disclosure. Participants also responded to a five-item measure assessing the extent to which they typically self-disclose within same-sex friendships. For this measure, five items from the Intimate Exchange subscale of the Friendship Quality Questionnaire (Parker & Asher, 1993) were slightly revised so that the format was comparable with that of the co-rumination measure. These items represent a more normative level of self-disclosure than do the co-rumination items. An example item is, “We talk about the things that make us sad.” Participants rated a 5-point Likert scale ranging from “Not at all true” (1) to “Really true” (5) the degree to which each item described them. Cronbach’s α computed across items was high (α = .85), and participants’ self-disclosure scores were the mean ratings given across the five items.

Rumination. Participants responded to a version of the Responses to Depression Questionnaire (Nolen-Hoeksema & Morrow, 1991) revised for this research for use with youth. The measure assesses the extent to which individuals ruminate (i.e., dwell on their negative affect) and the extent to which they distract themselves when they feel depressed. Participants responded to 21 items assessing rumination and 10 items assessing distraction; however, only the rumination scale was relevant for the present study. For each item, participants rated a 4-point Likert scale ranging from “Almost never” (1) to “Almost always” (4) the frequency with which they engaged in the behavior described when they felt down, sad, or depressed. Wording changes were made to 15 of the 21 rumination items so that the items would be appropriate for youth. In a pilot study with an older adolescent (undergraduate) sample (N = 194), participants responded to both the original and revised items. All correlations computed between original and revised rumination items were significant with an average correlation of .69. Cronbach’s α computed across the 21 rumination items was high (α = .91). Because this measure was designed for adult use, Cronbach’s α were computed by grade and found to range from .89 to .92, indicating that rumination can be reliably assessed with children as young as third grade. Rumination scores were the mean ratings given to the 21 rumination items.

Friendship nominations. As in past research (e.g., Hoza, Molina, Bukowski, & Sippola, 1995; Parker & Asher, 1993; Rose & Asher, 1999), a friendship nominations measure was used to identify reciprocal friendships. As has been done with other elementary school samples (e.g., Parker & Asher, 1993), third- and fifth-grade students were given their class roster and asked to circle the names of their three best friends and to put a star by the name of their “very, very best friend.” Because seventh- and ninth-grade students were not in self-contained classrooms, they were given a roster of their grade-mates. Participants were considered to have a reciprocal friend when a classmate, whose name they circled, circled their name. The percentage of students with at least one reciprocal friend did not vary systematically according to the method used for younger versus older students. The percentage of students with a reciprocal friend was 77% across grades, which is similar to other findings using this methodology (e.g., Parker & Asher, 1993).

Self-reported friendship quality and closeness. Self-reported data on friendship quality and closeness were provided by 417 participants with a reciprocal best friend. Participants responded to a revised version of Parker and Asher’s (1993) Friendship Quality Questionnaire (FQQ) with the addition of items from two other measures assessing emotional closeness (Bukowski et al., 1994; Camarena et al., 1990). As in past research (Parker & Asher, 1993; Rose & Asher, 1999), a questionnaire was customized for each participant with the friend’s name inserted in each item. Each item was rated on a 5-point Likert scale ranging from “Not at all true” (0) to “Really true” (4).

The original FQQ (Parker & Asher, 1993) included 40 items assessing six features: validation and caring, conflict resolution, conflict and betrayal, help and guidance, companionship and recreation, and intimate exchange. Each feature was represented by three to nine items. In this revision, each feature was represented by three items. The three items that were retained generally had the highest factor loadings for
the feature in the original report (Parker & Asher, 1993); however, four items were discarded because they were less appropriate for adolescents or exhibited conceptual overlap with the co-rumination construct. In these cases, the items with the next highest loadings were retained. Also, one companionship and recreation item was revised to be more appropriate for adolescents and five items were revised so that all items assessed dyadic interaction (e.g., asking one another for advice) rather than the focal child’s or friend’s behavior (e.g., asking the friend for advice). An example item is “[Friend’s name] and I often help each other with things so we can get done quicker.”

Seven additional items from the affective bond subscale of Bukowski et al.’s (1994) Friendship Qualities Scale and Camarena et al.’s (1990) Emotional Closeness Scale assessed the degree to which participants felt an emotional attachment to the friend and were revised so that the friend’s name could be inserted in each item (e.g., “[Friend’s name] is important to me”).

Participants’ responses to the friendship nominations questionnaire were used to identify the reciprocal friend for each participant. If the friend whom a participant “starred” also “starred” the participant, the participant reported on that relationship. If a participant did not have that type of friendship, next highest priority was given to a “starred” friend who included the participant as a top-three choice (but did not “star” the participant). Third priority was given to a “starred” friend who included the participant as a top-three choice (but did not “star” the participant). Third priority was given to a “starred” friend who included the participant as a top-three choice (but did not “star” the participant). Third priority was given to a “starred” friend who included the participant as a top-three choice (but did not “star” the participant). Lowest priority was given to a “starred” friend who asked the participant to “star” the participant. An example item is “[Friend’s name] and I often help each other with things so we can get done quicker.”

Friend-reported friendship quality and closeness. In addition to self-reports of friendship quality and closeness, reports of friendship quality and closeness from a focal participant’s best friend were used. Friend reports were used in addition to self-reports only when a focal participant was reporting on a relationship with a friend who was also assigned to report on that focal participant. This criteria was used so that a participant’s self-reported data and friend-reported data each focused on the quality and closeness of the same reciprocal friendship. Of the 417 participants who reported on a reciprocal best friendship, 284 (68%) had friend-reported data from the friend about whom they provided self-reported data. Cronbach’s α computed across the 12 positive friendship quality items from the FQQ and the seven emotional closeness items from the Friendship Qualities Scale and the Emotional Closeness Scale for this subset of participants was high (α = .92). Of note, as with the self-reports, these data included reports from each member of a friendship dyad regarding the same friendship, potentially raising concerns about redundancy in the data. Preliminary analyses revealed that similar results emerged regardless of whether both friends’ reports or only one friend’s report were used.

Of the 133 participants who provided self-reported friendship quality and closeness data but were excluded from analyses involving friend-reported data, 13 were excluded because the friends whom they reported on provided no friendship quality and closeness data (e.g., due to absence). The other 120
participants were excluded because the reciprocal friends whom they reported on were assigned to report on higher priority reciprocal friendships. Consider, for example, a focal child reporting on a reciprocal friend whose name the focal child had “starred” to indicate a “very, very best friendship.” If that reciprocal friend only included the focal child as a top-three choice and “starred” a different classmate who reciprocated the nomination, then the focal child’s friend would be assigned to report on the friendship with the different classmate and friend-reported data would not be available for the focal participant.

Internalizing symptoms. Both depressive and anxiety symptoms were assessed in this research. Depression was assessed with the Children’s Depression Inventory (CDI), a widely used scale valid for use with youth ranging from 7 to 17 years old (Kovacs, 1992). For each item, participants chose the one sentence out of three that best described them. The sentences varied in the degree of symptoms represented and were scored as 0, 1, or 2, with higher numbers indicating more severe symptoms. As in some previous studies (e.g., Cole, Martin, & Powers, 1997; Oldenburg & Kerns, 1997; Panak & Garber, 1992), the suicidal ideation item was dropped.

Participants also responded to the 28 items of the Revised Children’s Manifest Anxiety Scale (Reynolds & Richmond, 1978). This measure is commonly used to assess anxiety symptoms with participants ranging from early elementary school age through older adolescence (e.g., LaGreca, Dandes, Wick, Shaw, & Stone, 1988; Rudolph & Hammen, 1999). In this research, participants rated each item on a 5-point Likert scale ranging from “Not at all true” (1) to “Really true” (5) in terms of how true the item was of them.

Analyses addressed whether depression and anxiety symptoms could be represented with a single internalizing symptoms score. Previous research suggests the CDI may be assessed with a single score or subscale scores, but factor analyses performed on the CDI in previous studies have not revealed a single, replicable factor structure (e.g., Cole, Hoffman, Tram, & Maxwell, 2000; Craighead, Smucker, Craighead, & Hardi, 1998; Kovacs, 1992; Rudolph, Lambert, Clark, & Kurlakowsky, 2001). Items characterized by emotional distress and items characterized by conduct problems, however, typically load on different factors. In the present study, an exploratory factor analysis (maximum likelihood method, promax rotation) performed on the CDI items suggested a two-factor solution. The 18 items that loaded on the first factor (M loading = .46, M absolute value cross-loading = .10) were characterized by emotional distress and somatic symptoms (e.g., “I am sad all the time” and “I am tired all the time”). The eight items that loaded on the second factor (M loading = .47, M absolute value cross-loading = .17) were characterized by conduct and school-related problems. Because co-rumination was not expected to be related to conduct problems, only the items that loaded on the first factor were retained. Also, one item that loaded on the first factor dealt with friendship participation and was dropped due to conceptual overlap with the assessment of friendship adjustment.

Preliminary analyses revealed a similar pattern of relations between scores assessing emotional and somatic depressive symptoms and scores assessing anxiety with gender, grade group, and the other constructs. Also, scores based on emotional and somatic depressive symptoms and on anxiety symptoms were highly correlated, r = .71, p < .001. Therefore, composite internalizing symptoms scores were computed. Because depressive symptoms and anxiety symptoms were assessed on different Likert scales, each relevant depression and anxiety item was standardized. Cronbach’s α computed across the 17 retained CDI items and the 28 anxiety items was high (α = .95), and participants were given scores that were the mean of their standardized scores across the retained depression items and the anxiety items.

RESULTS

Before conducting analyses, the variable distributions were examined. Some distributions were positively or negatively skewed, but the skewness and kurtosis values were all between −1 and 1 (or very near –1 or 1) with 0 representing a normal distribution.

Gender and Grade Differences

For each construct, a 2 (gender) × 2 (grade group) ANOVA was performed. The results are summarized and means by gender and grade group are presented in Table 1.

Co-rumination. The main effect for gender was significant as was the Gender × Grade Group interaction. Examination of the means indicated that girls reported co-ruminating more than did boys, and this difference was larger among adolescents than children. Separate t tests performed by grade group indicated that girls’ co-rumination scores were significantly higher than boys’ scores for both children, t(276) = 3.86, p < .001, and adolescents, t(316) = 10.16, p < .001. Additional t tests performed separately by gender indicated that the co-rumination scores of adolescent girls were significantly higher than those of girl children, t(314) = 2.82, p < .01,
whereas co-rumination scores of adolescent boys and boy children did not differ, $t(278) = 1.19, p = .23$.

**Self-disclosure.** The gender and grade group main effects and the interaction were significant. Similar to co-rumination, girls reported self-disclosing more than did boys, and this gender difference was larger among adolescents than children. Separate $t$ tests performed by grade group indicated significantly higher scores for girls than boys for children, $t(279) = 6.38, p < .001$, and adolescents, $t(313) = 12.05, p < .001$. Additional $t$ tests performed by gender indicated that self-disclosure scores of adolescent girls were significantly higher than those of girl children, $t(312) = 4.09, p < .001$, whereas scores of adolescent boys and boy children did not differ, $t(280) = .13, p = .90$.

**Rumination.** The main effects for gender and grade group were significant, with girls reporting more rumination than boys (girls, $M = 2.21, SD = .60$; boys, $M = 2.00, SD = .56$) and children reporting more rumination than adolescents (children, $M = 2.17, SD = .63$; adolescents, $M = 2.06, SD = .55$). The interaction term was not significant.

**Self-reported friendship quality and closeness.** The main effects for gender and grade group were significant as was the interaction. Girls reported higher positive friendship quality and closeness than did boys, and the difference was larger among adolescents than children. $T$ tests performed by grade group indicated that girls’ scores were higher than boys’ scores for children, $t(211) = 2.94, p < .01$, and adolescents, $t(202) = 7.65, p < .001$. $T$ tests performed by gender indicated that adolescent boys’ scores were significantly lower than those of boy children, $t(189) = 3.06, p < .01$. Scores of adolescent girls and girl children did not differ, $t(224) = .71, p = .48$.

**Friend-reported friendship quality and closeness.** The gender, grade group, and interaction effects were also significant for the subset of friend reports. Girls received higher positive friendship quality and closeness scores than did boys, and the difference was largest among adolescents than children. $T$ tests performed by grade group indicated that girls scored higher than did boys among children, $t(146) = 2.63, p < .01$, and adolescents, $t(134) = 6.65, p < .001$. $T$ tests conducted by gender indicated that adolescent boys’ scores were significantly lower than those of boy children, $t(126) = 3.50, p < .001$. Scores of adolescent girls and girl children did not differ, $t(154) = .66, p = .51$.

**Internalizing symptoms.** A main effect was found for

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**Table 1  Co-Rumination, Self-Disclosure, Rumination, Friendship Quality and Closeness, and Internalizing Symptoms Scores by Gender and Grade Group**

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<th>$F$ for Gender</th>
<th>$F$ for Grade Group</th>
<th>$F$ for Gender x Grade Group Interaction</th>
<th>$M$ (SD) Girls</th>
<th>$M$ (SD) Boys</th>
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<tr>
<td>Co-rumination (df = 3, 592)</td>
<td>84.63***</td>
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<td>2.32 (.71)</td>
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<td>Self-disclosure (df = 3, 592)</td>
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<td>6.59*</td>
<td>7.67**</td>
<td>3.73 (.91)</td>
<td>2.99 (1.02)</td>
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<td>2.98 (.88)</td>
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<td>Self-reported friendship (df = 3, 413)</td>
<td>53.56***</td>
<td>4.85*</td>
<td>9.06**</td>
<td>3.24 (.63)</td>
<td>2.97 (.72)</td>
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<td>3.29 (.44)</td>
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<td>Friend-reported friendship (df = 3, 280)</td>
<td>41.23***</td>
<td>11.36***</td>
<td>6.83**</td>
<td>3.30 (.62)</td>
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<td>Internalizing symptoms (df = 3, 590)</td>
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<td>-.15 (.48)</td>
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<tr>
<td>Adolescents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$; ** $p < .01$; *** $p < .001$. 

---

The main effects for gender and grade group were significant as was the interaction. Girls reported higher positive friendship quality and closeness than did boys, and the difference was larger among adolescents than children. $T$ tests performed by grade group indicated that girls’ scores were higher than boys’ scores for children, $t(211) = 2.94, p < .01$, and adolescents, $t(202) = 7.65, p < .001$. $T$ tests performed by gender indicated that adolescent boys’ scores were significantly lower than those of boy children, $t(189) = 3.06, p < .01$. Scores of adolescent girls and girl children did not differ, $t(224) = .71, p = .48$.

**Friend-reported friendship quality and closeness.** The gender, grade group, and interaction effects were also significant for the subset of friend reports. Girls received higher positive friendship quality and closeness scores than did boys, and the difference was largest among adolescents than children. $T$ tests performed by grade group indicated that girls scored higher than did boys among children, $t(146) = 2.63, p < .01$, and adolescents, $t(134) = 6.65, p < .001$. $T$ tests conducted by gender indicated that adolescent boys’ scores were significantly lower than those of boy children, $t(126) = 3.50, p < .001$. Scores of adolescent girls and girl children did not differ, $t(154) = .66, p = .51$.

**Internalizing symptoms.** A main effect was found for
Relations between Co-Rumination and Friendship and Emotional Adjustment

Correlations computed between co-rumination and the adjustment indexes are presented in Table 2 (along with correlations among all other variables). Co-rumination was significantly and positively correlated with self-reported positive friendship quality and closeness and with internalizing symptoms. Co-rumination was not significantly correlated with friend-reported positive friendship quality and closeness when considering the entire sample. Two regression analyses were also performed for each adjustment index to assess whether relations between co-rumination and adjustment differed by gender or grade group. In one analysis, adjustment was predicted by co-rumination, gender, and the Co-Rumination × Gender interaction. In the second analysis, adjustment was predicted by co-rumination, grade group, and the Co-Rumination × Grade Group interaction. The Co-Rumination × Gender interaction in predicting self-reported friendship quality and closeness, \( F(1, 408) = 7.09, p < .01 \), and the Co-Rumination × Grade Group interaction in predicting friend-reported friendship quality and closeness, \( F(1, 277) = 12.42, p < .001 \), were significant. Correlations computed separately by gender indicated that co-rumination was significantly related to self-reported positive friendship quality and closeness for both boys, \( r = .43, p < .001 \), and girls, \( r = .30, p < .001 \), but the relation was stronger for boys. Also, correlations computed separately by grade group indicated that co-rumination was significantly related to friend-reported positive friendship quality and closeness for adolescents, \( r = .33, p < .001 \), but not children, \( r = -.06, p = .47 \).

Co-Rumination as a Mediator of Gender Differences in Friendship and Emotional Adjustment

Analyses also tested whether co-rumination mediated gender differences in friendship and emotional adjustment using procedures outlined by Baron and Kenny (1986). In order to test for mediation, three significant relations needed to emerge in regression analyses: gender needed to significantly predict adjustment, gender needed to significantly predict co-rumination, and co-rumination needed to significantly predict adjustment while controlling for gender. Whether the effect of gender on adjustment was reduced after controlling for co-rumination was then considered in a fourth regression analysis. The mediational models for the adjustment indexes for which the three required relations emerged and mediation was tested are presented in Figure 1.

In terms of self-reported positive friendship quality and closeness, gender significantly predicted positive friendship quality and closeness, \( F(1, 410) = 50.85, p < .001 \), and co-rumination, \( F(1, 410) = 69.16, p < .001 \); and co-rumination significantly predicted positive friendship quality and closeness while controlling for gender, \( F(1, 409) = 64.13, p < .001 \). In the fourth analysis, the effect of gender on self-reported friendship quality and closeness while controlling for co-rumination remained significant, \( F(1, 409) = 16.35, p < .001 \), but was reduced compared with when

Table 2 Correlations among Co-Rumination, Self-Disclosure, Rumination, Friendship Quality and Closeness, and Internalizing Symptoms Scores

<table>
<thead>
<tr>
<th></th>
<th>( N )</th>
<th>Co-Rumination</th>
<th>Self-Disclosure</th>
<th>Rumination</th>
<th>Self-Reported Friendship Quality and Closeness</th>
<th>Friend-Reported Friendship Quality and Closeness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-rumination</td>
<td>596</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-disclosure</td>
<td>596</td>
<td>.61***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ruminination</td>
<td>591</td>
<td>.46***</td>
<td>.31***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported friendship quality and closeness</td>
<td>417</td>
<td>.45***</td>
<td>.58***</td>
<td>.24***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friend-reported friendship quality and closeness</td>
<td>284</td>
<td>.10</td>
<td>.16**</td>
<td>.05</td>
<td>.27***</td>
<td></td>
</tr>
<tr>
<td>Internalizing symptoms</td>
<td>594</td>
<td>.20***</td>
<td>.14***</td>
<td>.59***</td>
<td>.03</td>
<td>-.04</td>
</tr>
</tbody>
</table>

\*\* \( p < .01 \); *** \( p < .001 \).
In terms of internalizing symptoms, gender significantly predicted internalizing symptoms, $F(1, 582) = 4.39, p < .05$, and co-rumination, $F(1, 582) = 88.35, p < .001$; and co-rumination significantly predicted internalizing symptoms while controlling for gender, $F(1, 581) = 20.09, p < .001$. In the fourth analysis, the effect of gender on internalizing symptoms became nonsignificant while controlling for co-rumination, $F(1, 581) = .13, p = .72$ ($\beta$ was reduced from .09 to .02).

Relations between Co-Rumination, Self-Disclosure, and Rumination with Adjustment

Although significant and positive correlations emerged between co-rumination and self-disclosure and between co-rumination and rumination (see Table 2), co-rumination and self-disclosure were expected to have somewhat different relations with adjustment as were co-rumination and rumination. Correlational and regression analyses were performed to address relations between co-rumination, self-disclosure, and rumination with adjustment. First, multiple regression analyses were conducted in which either co-rumination and self-disclosure or co-rumination and rumination were simultaneous predictors of each adjustment index. Then, regression analyses in which co-rumination, self-disclosure, and rumination were simultaneous predictors of adjustment were performed. Analyses involving friend-reported positive friendship quality and closeness included only adolescents because the bivariate relation between co-rumination and friend reports was significant for adolescents only. Results of the correlational analyses are summarized in Table 2 (except those involving only adolescents, which are presented in the text). Results of the regression analyses are summarized in Table 3.

Relations between co-rumination and self-disclosure with adjustment. Co-rumination and self-disclosure were each significantly and positively correlated with self-reported positive friendship quality and closeness. However, because co-rumination is thought to contribute to friendship adjustment through self-disclosure processes, self-disclosure was expected to be a stronger predictor when self-disclosure and co-rumination were simultaneous predictors. Both co-rumination and self-disclosure were significant predictors in the regression analysis, but the effect of self-disclosure was stronger. Likewise, for adolescents, although significant positive correlations were found between co-rumination and friend-reported positive friendship quality and closeness, $r = .33, p < .001$, and between self-disclosure and the friend reports, $r = .42, p < .001$, in the multiple regression
Table 3  Relations between Co-Ruminatin, Self-Disclosure, and Rumination with Adjustment

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Self-Reported Positive Friendship Quality and Closeness</th>
<th>Friend-Reported Positive Friendship Quality and Closeness</th>
<th>Internalizing Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$F$</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Co-rumination</td>
<td>.11</td>
<td>4.71*</td>
<td>.10</td>
</tr>
<tr>
<td>Self-disclosure</td>
<td>.51</td>
<td>93.73***</td>
<td>.36</td>
</tr>
<tr>
<td>Co-rumination</td>
<td>.41</td>
<td>70.89***</td>
<td>.35</td>
</tr>
<tr>
<td>Ruminination</td>
<td>.07</td>
<td>1.99</td>
<td>-.06</td>
</tr>
</tbody>
</table>

Notes: The $\beta$s represent standardized regression coefficients from regression analyses in which either co-rumination and self-disclosure or co-rumination and rumination were simultaneous predictors. Analyses involving friend reports were conducted with adolescents only. When co-rumination and self-disclosure were predictors, $df = 2, 404$ for self-reported positive friendship quality and closeness, $df = 2, 129$ for friend-reported positive friendship quality and closeness, and $df = 2, 575$ for internalizing symptoms. When co-rumination and rumination were predictors, $df = 2, 406$ for self-reported positive friendship quality and closeness, $df = 2, 131$ for friend-reported positive friendship quality and closeness, and $df = 2, 575$ for internalizing symptoms. 

* $p < .05$; *** $p < .001$. 

analysis, only the effect for self-disclosure was significant. These findings suggest that the relation between co-rumination and friendship adjustment is partially due to shared variance between co-rumination and self-disclosure.

In contrast, although co-rumination and self-disclosure were each significantly and positively correlated with internalizing symptoms, only the effect of co-rumination was significant when co-rumination and self-disclosure were simultaneous predictors in a regression analysis. These results suggest that the bivariate relation between self-disclosure and internalizing symptoms was due to self-disclosure's shared variance with co-rumination.

Relations between co-rumination and rumination with adjustment. Co-rumination and rumination were each significantly positively correlated with internalizing symptoms. However, rumination was expected to be a stronger predictor in the regression analysis because co-rumination is proposed to contribute to internalizing problems through rumination processes. In the regression analysis, rumination was a significant positive predictor of internalizing symptoms. Interestingly, co-rumination was a significant negative predictor, indicating that the positive relation between co-rumination and internalizing symptoms was accounted for by shared variance with rumination. In fact, when rumination was controlled, co-rumination was related to fewer internalizing symptoms, perhaps due to the support-seeking aspects of co-rumination.

Although co-rumination and rumination were also each significantly and positively correlated with self-reported positive friendship quality and closeness, co-rumination was expected to be a stronger predictor in the regression analysis. In fact, only the effect of co-rumination was significant, suggesting that the bivariate relation between rumination and self-reported positive friendship quality and closeness was due to shared variance between rumination and co-rumination. Also, co-rumination was significantly positively correlated with friend-reported positive friendship quality and closeness, $r = .33, p < .001$, and rumination was not, $r = .04, p = .67$. In the multiple regression analysis, only co-rumination was a significant predictor.

Co-rumination, self-disclosure, and rumination as simultaneous predictors. Because only self-disclosure or rumination was controlled in previous analyses, three regression analyses were conducted in which co-rumination, self-disclosure, and rumination simultaneously predicted each adjustment index. The results are summarized rather than presented in detail because they were consistent with previous findings. Similar to the findings from analyses in which only co-rumination and self-disclosure were simultaneous predictors, when all three constructs were simultaneous predictors, only self-disclosure significantly predicted self- and friend-reported friendship quality and closeness. Likewise, consistent with results from analyses in which only co-rumination and rumination were simultaneous predictors, when all three constructs were simultaneous predictors, only rumination significantly predicted internalizing symptoms.
Summary of relations. Results indicating that relations between co-rumination and friendship adjustment were reduced when controlling for self-disclosure and relations between co-rumination and internalizing symptoms were reduced when controlling for rumination suggest that self-disclosure and ruminative processes may explain relations between co-rumination with friendship and emotional adjustment. Nevertheless, other findings suggest that co-rumination represents a negative extreme of self-disclosure and involves a social component lacking in rumination. Specifically, when co-rumination and self-disclosure were simultaneous predictors, only co-rumination predicted internalizing symptoms, and when co-rumination and rumination were simultaneous predictors, only co-rumination predicted positive friendship adjustment.

DISCUSSION

This research potentially contributes to the understanding of the mechanisms by which close friendships and internalizing problems develop by bridging literatures that evolved largely independently. The friendship literature indicates that extensive self-disclosure is a positive process that leads to close relationships (Asher, Parker, & Walker, 1996). The coping literature indicates that a consistent negative focus is predictive of emotional difficulties (Nolen-Hoeksema, 1994). Co-rumination is a single construct integrating both theoretical perspectives.

The construct of co-rumination is unique because it is related to adjustment trade-offs. In the social development literature, constructs studied tend to be either “positive” or “negative” (e.g., peer acceptance versus rejection, secure versus insecure attachments) and, thus, to have generally positive or negative antecedents and outcomes. Co-rumination is particularly complex in that some aspects may be adaptive and other aspects maladaptive. This sort of complexity likely reflects that of real-world social interactions and relationships.

The findings of this research also suggest that the construct of co-rumination lies at the intersection of the related constructs of self-disclosure and rumination. Co-rumination is conceptualized as an extreme and negatively focused form of self-disclosure and as a social manifestation of rumination. Consistent with this view, only co-rumination and not self-disclosure was related to internalizing symptoms while controlling for the other, and only co-rumination and not rumination was related to positive friendship quality and closeness while controlling for the other. Moreover, findings indicated that relations between co-rumination and positive friendship adjustment may be due to self-disclosure processes and relations between co-rumination and emotional adjustment problems may be due to ruminative processes.

Although co-rumination may represent the overlap between the constructs of self-disclosure and rumination, the study of the new co-rumination construct is warranted. As discussed, the conceptualization of co-rumination is different from either ruminating or self-disclosure in that co-rumination is both social and potentially maladaptive. Documenting previously unidentified social processes, such as co-rumination, extends the growing discipline of relationship science (Berscheid, 1999). Considering co-rumination may also clarify results of other research. For example, one study found that support seeking among children of divorce predicted later internalizing symptoms (Sandler, Tein, & West, 1994), which may seem unexpected given generally positive correlates of social support. However, it may be that children of divorce are particularly at risk for co-rumination due to the challenges they experience, and a positive relation emerged because these children’s support-seeking efforts included co-rumination.

The co-rumination construct also has the potential to increase understanding of the seemingly contradictory findings that girls have higher quality, closer friendships (e.g., Camarena et al., 1990; Rose & Asher, 1999) but also more internalizing problems (e.g., Cole et al., 1999; Wichstrom, 1999) than do boys. Co-rumination may contribute to gender differences in positive friendship adjustment through self-disclosure processes but also may contribute to internalizing problems through ruminative processes. Interestingly, although girls reported greater co-rumination than did boys, the positive relation between co-rumination and self-reported friendship quality and closeness was stronger for boys than for girls. Perhaps co-rumination has an especially significant impact on boys’ evaluations of their friendships because it is more nonnormative among boys than girls. Further, it should be noted that despite these significant gender differences, there was a large degree of variability within gender; therefore, identifying other individual difference characteristics related to co-rumination will be important.

In addition, potential implications of co-rumination for adjustment may be particularly pronounced among adolescents. The gender difference for co-rumination was stronger among adolescents than children, due to higher levels of co-rumination among adolescent girls compared with younger girls. These findings are particularly relevant given that research indicates that gender differences in various aspects of friendship and emotional adjustment become stronger with age (e.g., Buhmester & Furman, 1987; Wichstrom, 1994).
correlation found when self-reports were used, and friend-reported friendship quality and closeness, cents. That is, the correlation between co-rumination and friendship adjustment was provided by friend reports for adolescents. Longitudinal research will be important for testing the temporal ordering of the relation between co-rumination and adjustment. Research on rumination indicates that having a ruminative style is related to increased depression over time (e.g., Nolen-Hoeksema et al., 1994; Schwartz & Koenig, 1996). Likewise, co-rumination is proposed to lead to more positive friendship adjustment and more problematic emotional adjustment over time through self-disclosure and ruminative processes. However, it is also possible that having close friendships and/or emotional adjustment problems could lead to increased co-rumination. Further, co-ruminating may contribute to close friendships in the short-term, but have a more negative impact on relationships over a long period of time.

Also, this study relied primarily on self-reports. Assessing emotional adjustment with clinical interviews or adult reports will be vital for ensuring that relations with internalizing symptoms were not due to shared method variance. External validation of the relation between co-rumination and friendship adjustment was provided by friend reports for adolescents. That is, the correlation between co-rumination and friend-reported friendship quality and closeness, \( r = .33, p < .001 \), was only somewhat smaller than the correlation found when self-reports were used, \( r = .47, p < .001 \). However, the relation between co-rumination and friend-reported friendship quality and closeness was not significant for children. Young friends may be more likely to interpret joint interactions differently and, therefore, to have different perceptions of quality and closeness. In fact, secondary analyses revealed significant positive relations between reciprocal friends’ reports of co-rumination and between reciprocal friends’ reports of positive friendship quality and closeness among adolescents but not among children. Perhaps, among children, if talking about problems is particularly salient to one friend, he or she strongly attends to times in which worries are shared and perceives high quality and closeness as a result. The other friend, however, may not perceive the friendship as involving co-rumination nor associated perceptions of quality and closeness. Observational assessments in addition to self-reports could be used to assess whether friends’ perceptions of their interactions become more similar with age, perhaps due to increased perspective taking skills. Observations would also provide a more objective assessment of co-rumination and elucidate co-ruminative processes, such as whether particular problems are especially likely to be topics of co-rumination.

As a final point, the applied value of this work should be noted. It may be important to consider co-rumination for targeting at-risk youth who otherwise may be missed. Co-rumination may represent a surprising correlate of emotional adjustment problems. That is, because co-rumination may appear similar to normative self-disclosure to adults, co-ruminators may be considerably less likely than isolated ruminators to be the focus of concern. However, if research continues to support the association between co-rumination and internalizing problems, incorporating this information in prevention and treatment programs could be crucial, particularly for programs aimed at promoting emotional well-being among girls.

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ADDRESS AND AFFILIATION

Corresponding author: Amanda J. Rose, 210 McAlester Hall, Department of Psychological Sciences, University of Missouri–Columbia, Columbia, MO 65211; e-mail: RoseA@missouri.edu.

APPENDIX

CONTENT AREAS AND ILLUSTRATIVE ITEMS FROM THE CO-RUMINATION QUESTIONNAIRE

Frequency of discussing problems. We talk about problems that my friend or I are having almost every time we see each other.
Discussing problems instead of engaging in other activities. When we see each other, if one of us has a problem, we will talk about the problem even if we had planned to do something else together.

Encouragement of the friend’s discussing problems by the focal child. When my friend has a problem, I always try really hard to keep my friend talking about it.

Encouragement of the focal child’s discussing problems by the friend. When I have a problem, my friend always tries to get me to tell every detail about what happened.

Discussing the same problem repeatedly. When we talk about a problem that one of us has, we’ll talk about every part of the problem over and over.

Speculation about causes of problems. When we talk about a problem that one of us has, we talk about all of the reasons why the problem might have happened.

Speculation about consequences of problems. When we talk about a problem that one of us has, we try to figure out every one of the bad things that might happen because of the problem.

Speculation about parts of the problem that are not understood. When we talk about a problem that one of us has, we spend a lot of time trying to figure out parts of the problem that we can’t understand.

Focusing on negative feelings. When we talk about a problem that one of us has, we talk a lot about how bad the person with the problem feels.

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