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When Support Seeking Backfires: Co-Rumination, Excessive Reassurance Seeking, and Depressed Mood in the Daily Lives of Young Adults

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Abstract

Research has linked depression to maladaptive variants of support seeking, including co-rumination (CR) and excessive reassurance seeking (ERS), which may contribute to symptom onset and maintenance. Although both CR and ERS are associated with depression, insufficient research has examined how daily behaviors and experiences interact with trait-level CR and ERS to predict daily mood. Fifty-one undergraduates, over-selected for internalizing symptoms, completed baseline assessments, followed by a 14-day daily diary assessing behaviors, stressors, and mood. Daily problem-related talk was associated with elevations in depressed mood for participants with high (but not low) trait CR, particularly for those with major depression. Trait ERS similarly moderated the association between daily reassurance seeking and depressed mood. CR, ERS, and daily reassurance seeking each predicted greater affective reactivity to daily stressors. Results align with daily processes hypothesized by CR and ERS models, and suggest that both constructs may be best understood within a diathesis-stress framework.

Keywords

co-rumination; excessive reassurance seeking; daily diary; depression; interpersonal

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Co-rumination (CR) is defined as excessive discussion of problems, including rehashing details, over-speculating about causes and consequences, and dwelling on emotions (Rose, 2002). Excessive reassurance seeking (ERS) refers to the tendency to repeatedly request assurance about one's self-worth, often to the point of exasperating others (Coyne, 1976a, 1976b; Joiner, Alfano, & Metalsky, 1992). Although these constructs emerged in separate literatures, they share important features. Both are essentially problematic forms of social support seeking and provision, and both are linked to depression (Rose, 2002; Rose, Carlson, & Waller, 2007; Starr & Davila, 2008). Both represent a potentially adaptive interpersonal behavior (discussing problems, seeking comfort from others about perceived shortcomings) that may have deleterious effects depending on the person's interpersonal style. Finally, both involve processes that unfold (and presumably influence mood) on a day-to-day basis. The current study examines how these depressogenic support-seeking styles influence daily experiences linked to depressed mood.

Co-Rumination

The construct of CR emerged from Rose's (2002) observation that many of the features of rumination (e.g., repetitive, non-productive qualities and emotion focus; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) can also occur within dyadic conversations. Cross-sectional and prospective research has linked CR to depression at both the symptom and disorder level (e.g., Rose, 2002; Rose et al., 2007; Starr & Davila, 2009; Stone, Hankin, Gibb, & Abela, 2011; Stone, Uhrlass, & Gibb, 2010). Although initial work focused on children and adolescents, subsequent studies have tied CR to negative outcomes in other age groups, including young adults (e.g., Calmes & Roberts, 2008; Ciesla, Dickson, Anderson, & Neal, 2011; White & Shih, 2012).

Co-rumination research has primarily focused on between-subjects effects; however, the underlying model (Rose, 2002) implies within-subjects effects, such as the influence of daily co-ruminative processes on fluctuations in mood. Daily diary research can powerfully evaluate how fluctuations in mood correspond to behaviors within individuals, and how individual differences in turn moderate these effects. Despite the clear applicability of diary methods, only one published study to date has used them to examine CR. White and Shih (2012) assessed baseline and daily CR in a seven-day diary and found that between-persons differences (marginally) and within-persons fluctuations (significantly) predicted daily depressed mood, and that baseline CR moderated the effect of daily hassles on depressed mood. The current study seeks to replicate and expand upon this study by addressing several core model assumptions.

For example, Rose (2002) explicitly differentiates between CR and normative self-disclosure. While discussing stressors in a rehashing, emotion-focused style predicts depressive symptoms, disclosing problems with others in a non-co-ruminative manner is less likely to be associated with negative emotions, as it could help generate solutions, elicit social support, and enrich relationships (Collins & Miller, 1994; Fritz, Nagurney, & Helgeson, 2003). This implies that talking about problems would have different implications for mood depending on trait CR levels, with problem-related conversations more closely linked to depressed mood among habitual co-ruminators. Surprisingly, this basic assumption has never been tested.

The CR construct is rooted in rumination, but insufficient work has examined whether findings from the rumination literature also extend to CR. For example, dozens of experimental studies suggest that induced rumination increases depressed mood for dysphoric but not non-dysphoric individuals (reviewed by Nolen-Hoeksema et al., 2008), presumably because its repetitive, inward focus is more painful for those who view their lives and the world more negatively. Diary and experience sampling studies similarly show that momentary ruminative self-focus is more closely tied to negative mood for those with depression (Moberly & Watkins, 2008; Mor et al., 2010). Although research has never examined whether this pattern applies to CR, there is reason to suspect it would. Co-ruminative dwelling on causes and consequences of problems may repeatedly activate negative attributions associated with depression (Robinson & Alloy, 2003). Further, as

depression is associated with higher chronic and acute stress (Hammen, 2005), the problems of depressed co-ruminators may be more severe and distressing to discuss.

Finally, White and Shih (2012) previously found daily diary support for a diathesis-stress model of co-rumination, where trait CR predicted greater affective reactivity to daily hassles, illustrating the rarely addressed role of environmental stress within the CR model. However, rumination is highly correlated with CR (Bastin, Mezulis, Ahles, Raes, & Bijttebier, 2014; Rose, 2002) and has also been linked to stress reactivity in daily diary and longer-term longitudinal research (Abela et al., 2005; Driscoll, Lopez, & Kistner, 2009; Genet & Siemer, 2012; c.f., Brinker & Dozois, 2009), so it remains unclear whether rumination better accounts for the reactivity to daily hassles associated with co-rumination. A recent study of early adolescents suggested that stress reactivity related to CR may go beyond the effects of rumination (Bastin et al., 2014), but this hypothesis has not yet been applied to daily behaviors. Thus, an additional goal of this study was to replicate White and Shih's (2012) finding that daily hassles are more predictive of concurrent depressed mood among those with high trait CR and to ensure that rumination does not better explain this effect.

Excessive Reassurance Seeking

According to the original ERS model proposed by Coyne (1976a, 1976b), mildly depressed individuals repeatedly seek assurance from others of their self-worth. Eventually, this behavior provokes rejecting behaviors, which then feed into the reassurance seeker's depressive symptoms and propagate the cycle. Joiner and colleagues (e.g., Joiner et al., 1999) point to the stable tendency to excessively seek reassurance as the key element in this model. Several major aspects of this model have attracted significant support, including associations between ERS and both depression and interpersonal rejection (see Joiner, Metalsky, Katz, & Beach, 1999; Starr & Davila, 2008). However, although the ERS model is fundamentally predicated on within-subjects assumptions (e.g., that variations in daily behaviors influence mood), the vast majority of studies examining ERS have focused on between-subjects effects, with very few applying diary methods (Eberhart & Hammen, 2010; Shaver, Schachner, & Mikulincer, 2005). As between-subjects findings do not always generalize to within-subjects effects (Bolger & Laurenceau, 2013), the micro-level processes assumed in the ERS model remain insufficiently tested.

For example, does daily reassurance seeking (RS) predict concurrent depressed mood? One study supports this notion (Eberhart & Hammen, 2010), but given its centrality to the ERS model, replication is needed. Second, is daily RS especially tied to negative mood among habitual reassurance seekers? RS that is not "excessive" may not be detrimental, and may even confer support-seeking benefits (Shaver et al., 2005). For those with high trait-level ERS, in contrast, daily RS may trigger the vicious cycle described in the ERS model, and thus may be more strongly linked to depressed mood.

Another key question is whether ERS interacts with daily hassles to predict depressed mood, consistent with the diathesis-stress model. Joiner and Metalsky (2001) described ERS as a "general diathesis, activated by an array of stressors" (p. 378), suggesting that stressful occurrences trigger the RS cycle among vulnerable individuals, increasing depression risk.

Between-subjects research has generally supported the application of the diathesis-stress model, showing that ERS interacts with a broad range of stressors (e.g., roommate rejection, midterm failure, military basic training, partner devaluation) to predict depressive outcomes (Joiner & Metalsky, 2001; Joiner & Schmidt, 1998; Katz, Beach, & Joiner, 1998), but within-subjects analyses of momentary data have been much more limited and less consistent (Abela, Morrison, & Starrs, 2007; Eberhart & Hammen, 2010). The current study tested whether RS (habitual and daily) interacts with daily hassle occurrence to predict increased depressed mood.

The Current Study

I examined the influence of depressogenic support-seeking behaviors on daily depressed mood in a two-week daily diary study of young adults. By capturing behaviors and emotional states in real time and within their natural contexts, diary methods offer reduced retrospection-related biases, increased ecological validity, and the ability to reveal patterns that between-subjects designs cannot discern (Bolger, Davis, & Rafaeli, 2003; Reis, 2012). To increase variability on constructs of interest and generalizability to clinically significant depression, the sample included an over-representation of participants with elevated internalizing symptoms.

This study addressed the following hypotheses related to depression-related support seeking behaviors: a) problem-related discussions would more strongly relate to depressed mood among those with high trait CR, particularly among those with current depression, b) baseline CR would interact with daily hassles to predict depressed mood, even controlling for rumination, c) daily RS would predict depressed mood, especially among those with high trait-level ERS, and d) both trait ERS and daily RS would interact with daily hassles to predict depressed mood.

Method

Participants

Fifty-one undergraduates, enrolled in introductory psychology classes, participated in this study. Participants with elevated internalizing symptom scores on a screening measure (Depression Anxiety Stress Scales-21 [DASS-21]; Lovibond & Lovibond, 1995) were preferentially recruited, leading to an overrepresentation of depressive symptoms (51% scored within the clinical range (5+) on the DASS-21 depression subscale at baseline, and 22% met current diagnostic criteria for major depressive disorder [MDE]). Participants were 74.5% female and endorsed diverse racial/ethnic backgrounds, including 35% Non-Hispanic Caucasian, 35% Asian, 20% Hispanic, and 6% multiracial, with 4% reporting other backgrounds.

Procedure

At an initial laboratory visit, participants provided informed consent and completed baseline questionnaires and interviews. Participants were then asked to complete daily diary surveys nightly for 14 days beginning the night of the baseline interview. Participants chose a target time, around their typical bedtime, and were instructed to complete their diary as close to

that time as possible to provide consistency. Nightly surveys were completed via a secure online survey collection website. Electronic time-stamps allowed compliance monitoring. Participants received a nightly reminder email with a survey link at their designated time. Diary compliance was good, with 88% of all surveys completed (mean per participant = 12.33). Participants received course credit, and were entered into gift card raffles based on compliance. The [BLINDED] Institutional Review Board approved all procedures.

Measures

Baseline measures—*Depression Diagnosis* was assessed using the current MDE section of the Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 1998), a brief, structured diagnostic interview. To capture subthreshold symptoms and diagnoses, a dimensional coding system was devised where 0=no symptoms, 1=significant subthreshold symptoms, and 2= DSM-IV criteria (American Psychiatric Association, 1994). Audiotaped interviews were conducted by a doctoral-level researcher and a trained, bachelors-level research assistant, and 20% were reviewed by a second coder, with 100% reliability for MDE. In full, 22% met full criteria for current MDE, and 10% reported subthreshold symptoms.

Co-Rumination was assessed using the Co-Rumination Questionnaire (Rose, 2002), a 27-item self-report measure covering multiple content areas related to CR (problem discussion frequency, distraction from other activities, mutual encouragement of problem talk, repeated re-visitation of problems, and speculation about causes and consequences of problems). Previous research supports the psychometric properties of the Co-Rumination Questionnaire (including reliability and discriminant and convergent validity; Rose, 2002); here, Cronbach's alpha was .95.

Rumination was assessed using the Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991), a widely-used 22-item measure assessing tendencies toward ruminative thoughts or behaviors during sad or depressed mood. The RRS has shown excellent psychometric properties (Nolen-Hoeksema & Morrow, 1991); here, Cronbach's alpha= .97.

Excessive Reassurance Seeking was assessed using the Depressive Interpersonal Relationships Inventory-Reassurance Seeking subscale (DIRI-RS; see Joiner & Metalsky, 2001), a four-item measure assessing tendency to excessively seek assurance about self-worth from close others. Previous studies have supported the criterion and construct validity and internal reliability of the DIRI-RS (e.g., Joiner et al., 1992); here, Cronbach's alpha was .90.

Diary Items—Excessive diary length can substantially diminish compliance (Morren, Dulmen, Ouwerkerk, & Bensing, 2009), so items were selected on the basis of their ability to effectively assess constructs of interests as efficiently as possible. Note that the use of single-item measures is relatively common in diary research, and is psychometrically justifiable when constructs are relatively intuitive (Burisch, 1997; Laurenceau, Barrett, & Rovine, 2005; Pasipanodya et al., 2012; Starr & Davila, 2012).

Depressed mood was assessed using a single, face valid item, asking the participant to rate how depressed they have felt over the course of the day that day on a ten-point Likert-type scale. Supporting this item's convergent validity, both baseline major depression diagnosis and the DASS-21 depression subscale robustly predicted depressed mood (both *p*s < .000001). Supporting discriminant validity, depressed mood was predicted by MDE diagnosis, but not by social phobia, panic disorder, generalized anxiety disorder, or obsessive-compulsive disorder (controlling for variance shared between disorders). Likewise, when depression, anxiety, and stress subscales from the DASS-21 were entered simultaneously into a model predicting daily depressed mood, only the depression subscale emerged as significant.

Daily problem-related discussions (hereafter "problem talk") and ***daily reassurance seeking*** (RS) were respectively assessed using the items "*Over the course of the day today, I talked to someone about my problems*," and "*Over the course of the day today, I sought reassurance from someone I feel close to about whether they really care about me."* The latter item's language was adapted from the DIRI-RS. Items were rated on a 4-point scale ranging from "*not at all*" to "*a whole lot*."

Daily hassles were measured using a 16-item self-report inventory listing stressors across multiple domains that commonly occur in the daily lives of college students. Conway, Slavich, and Hammen (2014) developed this inventory explicitly for diary applications within undergraduate populations, using items from previously existing measures (Seidlitz & Diener, 1993; Shahar, Henrich, Reiner, & Little, 2003). Sample items include "*Did poorly on, or failed, an important exam or major project,"* and "*Had an argument/problem with a friend*." To ensure that overlapping events were not double counted, daily occurrence of hassles was coded dichotomously (0= no hassles, 1= one or more hassles reported).

Daily brooding was assessed using the five brooding items from the RRS (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Studies suggest that the brooding substrate of rumination (representing passive focus on distress) is more strongly linked to depression and momentary negative affect than reflective rumination, and support the psychometric properties of the brooding subscale (Miranda & Nolen-Hoeksema, 2007; Moberly & Watkins, 2008; Treynor et al., 2003). Daily surveys asked participants to endorse, on a four-point scale, the degree to which they experienced brooding thoughts over the course of that day.

Data Analysis Approach

Analyses were conducted using multilevel modeling (MLM) using IBM SPSS 22.0 MIXED. MLM allows for the non-independence inherent in repeated-measures time-series data. In this two-level dataset, repeated measures (level one) were nested within participants (level two). MLM also offers other advantages compared to traditional techniques, including coping well with missing data and allowing greater statistical power.

Model Construction

Following Bolger and Laurenceau's (2013) recommendations, level-one predictors were partitioned into orthogonal between- and within-subjects components. The between-subjects component was represented by the mean of the person's grand-mean-centered scores across all observations ($\check{X}_{.j}$), and the within-subjects component by the person-mean-centered score ($\check{X}_{ij}$–$\check{X}_{.j}$). This relatively conservative approach ensures that within-subjects results are not artifacts of between-subjects differences in average levels of time-varying variables over the course of the diary period. For all level-one main predictor variables, both *within* and *between* effects were included as main effects and in separate interaction terms where applicable. Although their inclusion in models improves interpretability of *within* effects, *between* effects themselves are not considered interpretable (Bolger & Laurenceau, 2013), and all effect sizes presented below reflect *within* effects only. Baseline predictor variables were mean centered. Time was included in all models. All within-subjects effects of interest were initially entered as fixed and random effects, but as it can be difficult to reliably model small random effects (Nezlek, 2012), non-significant ($p > .10$) random effects were dropped (but retained as fixed effects). An unstructured covariance type was specified for random effects, and a first-order auto-regressive (AR[1]) covariance type was used to correct for auto-correlation of residuals. For example, a standard model with one level-one predictor (X) and one level-two predictor (W) that includes main effects plus a cross-level interaction can be represented with this equation:

$$Y_{\mathrm{ij}}=\gamma_{00}+\gamma_{01}W_j+\gamma_{02}\check{X}_{.j}+\gamma_{03}W_j\check{X}_{.j}+\gamma_{10}(\check{X}_{\mathrm{ij}}-\check{X}_{.j})+\gamma_{11}W_j(\check{X}_{\mathrm{ij}}-\check{X}_{.j})+\gamma_{20}(\mathrm{Time})+u_{0j}+u_{1j}(\check{X}_{ij}-\check{X}_{.j})+\varepsilon_{ij}$$

where the first seven terms represent fixed effects and the last three indicate random effects (Bolger & Laurenceau, 2013).

Missing Data

MLM handles data well when it is missing at random (Fitzmaurice, Laird, & Ware, 2004); in this dataset, missing a daily survey was not predicted by key daily variables such as previous-day depressed mood, problem talk, daily RS, or hassles, providing reasonable evidence that missing data are ignorable (Fitzmaurice et al., 2004; Howell, 2009).

Results

Preliminary Between-Subjects Analyses

Table 1 presents descriptive data and bivariate correlations among baseline measures and aggregated within-subjects variables (mean scores taken across all observation points for each participant). As shown in Table 1, baseline CR and ERS were significantly correlated, and both baseline variables predicted higher average daily problem talk and daily RS. Surprisingly, neither CR nor ERS at baseline was associated with baseline MDE or average daily depressed mood.

Tests of Co-Rumination Hypotheses

I first tested whether CR moderates the association between fluctuations in problem talk and depressed mood. Following procedures outlined in the Data Analysis Approach section, I entered baseline CR, problem talk, and their interaction, along with time. The interaction term was significant, $b = .01$, $S.E. = .00$, $p = .025$. I decomposed the interaction using a simple slope test (Aiken & West, 1991; Preacher, Curran, & Bauer, 2006). As shown in Figure 1, problem discussions were significantly related to same-day depressed mood at high levels of CR ($M + 1$ SD; $b = .46$, $SE = .12$, $p < .001$), but not low CR levels ($M - 1$ SD; $b = .04$, $SD = .13$, $p = .759$).

I subsequently examined whether this interaction was further modified by MDE. Main effects of problem talk, CR, and MDE were entered first, followed by constituent two-way interactions (problem talk × CR, problem talk × MDE, CR × MDE), and then by their three-way interaction (MDE × CR × problem talk). The three-way interaction was significant ($b = .02$, $SE = .01$, $p = .001$). Decomposition revealed that the two-way CR × problem talk interaction was significant for participants meeting criteria for MDE ($p < .001$), but not for participants with no depression ($p = .785$). Among depressed participants with high CR, increases in problem talk were associated with higher depressed mood ($b = 1.60$, $SE = .43$, $p < .001$), whereas among depressed participants with low CR, high problem talk predicted *lower* depressed mood ($b = -1.07$, $SE = .44$, $p = .015$). For non-depressed individuals, problem talk did not predict depressed mood at any level of co-rumination.

Finally, to examine whether CR contributes to stress reactivity, following the same procedures, I tested the interaction between baseline CR and daily hassles, predicting depressed mood. The interaction was significant ($b = .02$, $SE = .01$, $p = .017$). Daily hassles significantly predicted depressed mood at CR high levels ($p < .001$), but not at low levels ($p = .134$). To determine whether this interaction is better explained by rumination, in an additional model I simultaneously entered interaction terms for baseline CR × hassles and baseline RRS × hassles (plus main effects for all predictor variables). The interaction between CR and hassles remained significant ($p = .022$), but the interaction between the RRS and hassles was non-significant ($p = .765$). As an additional test, I examined whether the CR × hassles interaction was better accounted for by an interaction between hassles and within-subjects variations in daily brooding in a model including a) main effects for CR, daily brooding, and daily hassles, b) interactions terms for CR × hassles and brooding × hassles, and c) time. As in prior research (Genet & Siemer, 2012), daily brooding significantly interacted with hassles to predict depressed mood ($b = .74$, $SE = .29$, $p = .012$), but CR maintained its significance as a moderator of the daily association between stress and depressed mood ($p = .038$). Taken together, these results strongly suggest that the interaction between CR and daily hassles is not better explained by co-occurring rumination.

Tests of ERS Hypotheses

Consistent with hypotheses, elevations in daily RS predicted same-day depressed mood ($b = .47$, $SE = .19$, $p = .018$). To examine whether this effect was moderated by trait-level ERS, I tested a cross-level interaction between baseline ERS and daily RS. Supporting predictions, the interaction was significant ($b = .32$, $SE = .09$, $p < .001$), with a robust association between

daily RS and depressed mood for those with high trait ERS (b= .69, SE= .12, p< .001), but no association for those low on ERS (b= −.05, SE= .18, p= .776). Figure 2 illustrates this pattern.

Next, I examined both trait-level ERS and daily RS as moderators of the association between daily hassle occurrence and concurrent depressed mood. Baseline ERS significantly interacted with daily hassles (b= .38, SE= .12, p= .002), with stronger effects for those with high baseline ERS (b= 1.30, SE= .19, p< .001) compared to low ERS (b= .42, SE= .20, p= .041). Likewise, daily RS interacted with daily hassles (b= .78, SE= .27, p= .004), with hassle fluctuations predicting depressed mood more strongly on days when participants reported elevated RS (b= 1.06, SE= .22, p< .001), compared to low RS days (b= .52, SE= .20, p= .011).

As a final, exploratory analysis, because co-rumination and ERS were correlated and both predicted reactivity to daily hassles in this dataset, I simultaneously entered both interactions (plus all relevant main effects) into a single multilevel model to determine whether one variable better accounts for both moderation effects. Both interaction terms remained significant (ps< .05), suggesting that both ERS and CR uniquely contribute to daily stress reactivity.

All analyses were repeated controlling for gender, with no changes in significance.

Discussion

The CR and ERS models imply a sad irony: while quality social support protects against depression (Monroe, Bromet, Connell, & Steiner, 1986), depression-related interpersonal traits increase likelihood of pursuing social support in a maladaptive manner, such as by discussing problems in a perseverative, emotion-focused style or repeatedly seeking reassurance to the point of provoking rejection (Coyne, 1976a, 1976b; Rose, 2002). In line with these models, current findings suggest that CR and ERS may lead social support attempts to backfire, contributing to (rather than protecting against) depressed mood and stress reactivity among young adults.

For example, individuals high on CR showed elevated depressed mood on days when they spent more time discussing problems with others, whereas for those low in CR, problem talk was unrelated to depressed mood. Although we did not directly assess the qualitative aspects of daily problem talk, it stands to reason that trait co-ruminators would be more likely to use a perseverative, unproductive, emotion-focused manner, which may in turn be linked to depressed mood. In contrast, low trait co-ruminators may discuss problems in a variety of styles, including using adaptive problem solving and support seeking. This finding provides basic within-subjects support for Rose's (2002) differentiation between CR and normative self-disclosure. Note that although co-ruminative processes may directly trigger depressed mood, only contemporaneous associations were tested, so results may also reflect a tendency of co-ruminators to discuss problems when depressed. Indeed, one previous study suggested reciprocal associations between depressive symptoms and CR (Hankin, Stone, & Wright,

2010). Further research should clarify the causal directions of associations between daily co-ruminative processes and mood.

In an intriguing finding, the two-way interaction between baseline CR and daily problem talk was further modified by depression. Problem talk was positively linked to depressed mood only among high trait co-ruminators with current depression, and not among non-depressed participants regardless of CR levels. This implies that CR may be most detrimental within the context of a depressive episode, aligning with research on rumination, which has shown that experimentally induced rumination triggers negative mood in dysphoric but not non-dysphoric individuals (see Nolen-Hoeksema et al., 2008), and that naturalistic rumination is more closely tied to negative mood among depressed people (Moberly & Watkins, 2008; Mor et al., 2010). Depression is associated with the tendency to view problems as having stable, global causes, harmful consequences, and negative implications for self-worth (Abramson, Metalsky, & Alloy, 1989). These negative inferences may transform co-ruminative processes, including repeated speculation about causes and consequences of problems, from a relatively innocuous activity into a painful, self-defeating exercise. Future research should examine whether negative attributions interact with CR to predict depression risk (consistent with similar findings on rumination; Robinson & Alloy, 2003). Further, as depression is associated with higher levels of acute and chronic stress (e.g., Hammen, 2005), the problems that depressed co-ruminators discuss may be more stressful and consequential, and therefore more distressing to analyze. Depression is also associated with poorer problem-solving skills and less supportive relationships (Nezu, 1987; Wade & Kendler, 2000), perhaps meaning that depressed individuals receive fewer of the potential benefits of CR. Finally, as friends of depressed individuals are statistically more likely to be depressed themselves (Hogue & Steinberg, 1995; Segrin, 2004), they may have a greater tendency to reinforce negative thought patterns through CR.

The current study also supported the idea, central to the ERS model (Coyne, 1976a, 1976b), that fluctuations in daily RS co-occur with depressed mood, and that this is particularly true among habitual reassurance seekers. Individuals with a repeated pattern of ERS may be more likely to provoke rejection with their daily RS behaviors, compared to those for whom RS is a relative rarity. Again, as we examined concurrent associations, we cannot be sure of the direction of effect. Indeed, the ERS model suggests both that people prone to ERS seek reassurance when feeling mildly depressed and that the reassurance seeking will spur a cycle culminating in elevated depressed mood. Long-term prospective designs have suggested that ERS predicts depressive symptoms (Davila, 2001; Joiner & Metalsky, 2001; see Starr & Davila, 2008 for a review), but at least one study suggests that depression also predicts increases in ERS over time (Prinstein, Borelli, Cheah, Simon, & Aikins, 2005). Future research should clarify temporal associations (including possible reciprocal effects) between daily RS and mood. Regardless, results add daily diary support to an important component of the ERS model: that daily RS covaries with concurrent depressed mood, especially for those who use it excessively.

Both CR and ERS emerged as significant moderators of the association between daily hassles and depressed mood. In fact, each remained significant predictors of stress reactivity after controlling for the other's effects, providing new evidence that CR and ERS are

correlated but non-redundant constructs. CR remained a predictor of mood reactivity to daily stressors when controlling for baseline rumination and daily brooding, replicating and expanding upon previous findings (Bastin et al., 2014; White & Shih, 2012), bolstering evidence that CR should be conceptualized within a diathesis-stress framework as a maladaptive coping strategy that exacerbates the effects of negative environmental events. CR may often focus on stressful events that have just occurred, and co-ruminative processes may make these daily hassles seem less fixable and more problematic, impeding generation of effective solutions. ERS has long been conceptualized within the diathesis-stress model (Joiner & Metalsky, 2001), but within-subjects research on ERS as a predictor of stress reactivity has been limited and inconsistent (Abela et al., 2007; Eberhart & Hammen, 2010). The current study showed that trait-level ERS predicted greater associations between stress and depressed mood (consistent with prior work; Abela et al., 2007; Joiner & Metalsky, 2001), and further, on a more microscopic level, daily hassles were linked to depressed mood specifically on days when individuals engaged in increased RS, perhaps because it introduces a cycle of negative interpersonal experiences that exacerbate mood. Taken together, findings suggest that depressogenic support-seeking tendencies compound rather than alleviate emotional consequences of stress.

A few study limitations merit note. First, as previously mentioned, I only tested contemporaneous associations between behaviors and mood, and thus cannot draw conclusions about directions of effect. Although lagged analyses would have provided superior causal inference, next-day spillover of negative mood following interpersonal events is not typical (Bolger, DeLongis, Kessler, & Schilling, 1989), at least in non-clinical populations (Gunthert, Cohen, Butler, & Beck, 2007). Effects of CR or RS on mood may be relatively immediate, dissipating too quickly to be captured by a one-day lag. Future research may consider applying experience sampling methods with multiple assessments per day to capture more immediate lagged effects. In addition, as noted above, qualitative aspects of daily problem discussions were not assessed, and doing so would have allowed for stronger inferences about daily CR.

More diary-based research should test additional elements of the CR and ERS models. For example, as both CR and ERS are fundamentally interpersonal processes, more research should collect dyadic diary data assessing perceptions of relationship partners (see Shaver et al., 2005). In addition to supplying another source of information on CR and ERS occurrence, this would allow for examination of partner reception and reciprocation of CR and RS behaviors. Dyadic diary data would also allow for a more refined exploration of the roles of CR and ERS in mood contagion effects (previously supported in between-subjects analyses; Joiner, 1994; Katz, Beach, & Joiner, 1999; Schwartz-Mette & Rose, 2012). Event-contingent recording methods, in which participants are instructed to complete surveys immediately after engaging in target behaviors, such as problem talk or RS (Moskowitz & Sadikaj, 2012) may help elucidate the immediate consequences of these behaviors for mood, relationships, and other key variables. These methods could advance understanding of depression through revealing how daily interpersonal processes interact with other forces to predict symptoms.

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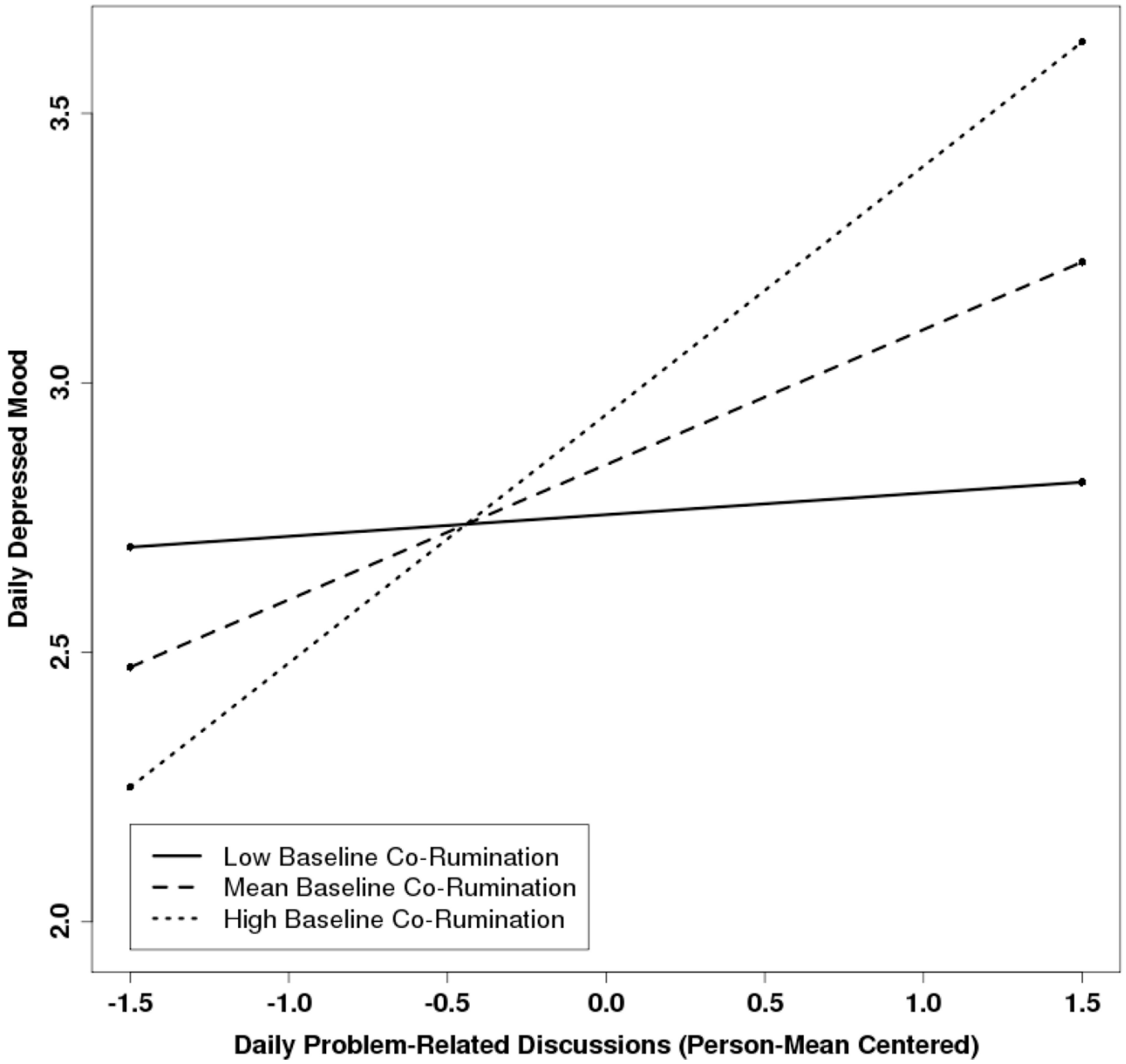

Figure 1.

Moderation of association between within-person fluctuations in daily problem-related discussion and same-day depressed mood by baseline co-rumination levels. Low and high co-rumination levels are defined as one standard deviation below and above the mean, respectively. Model also controls for between-person levels of problem-related talk and time.

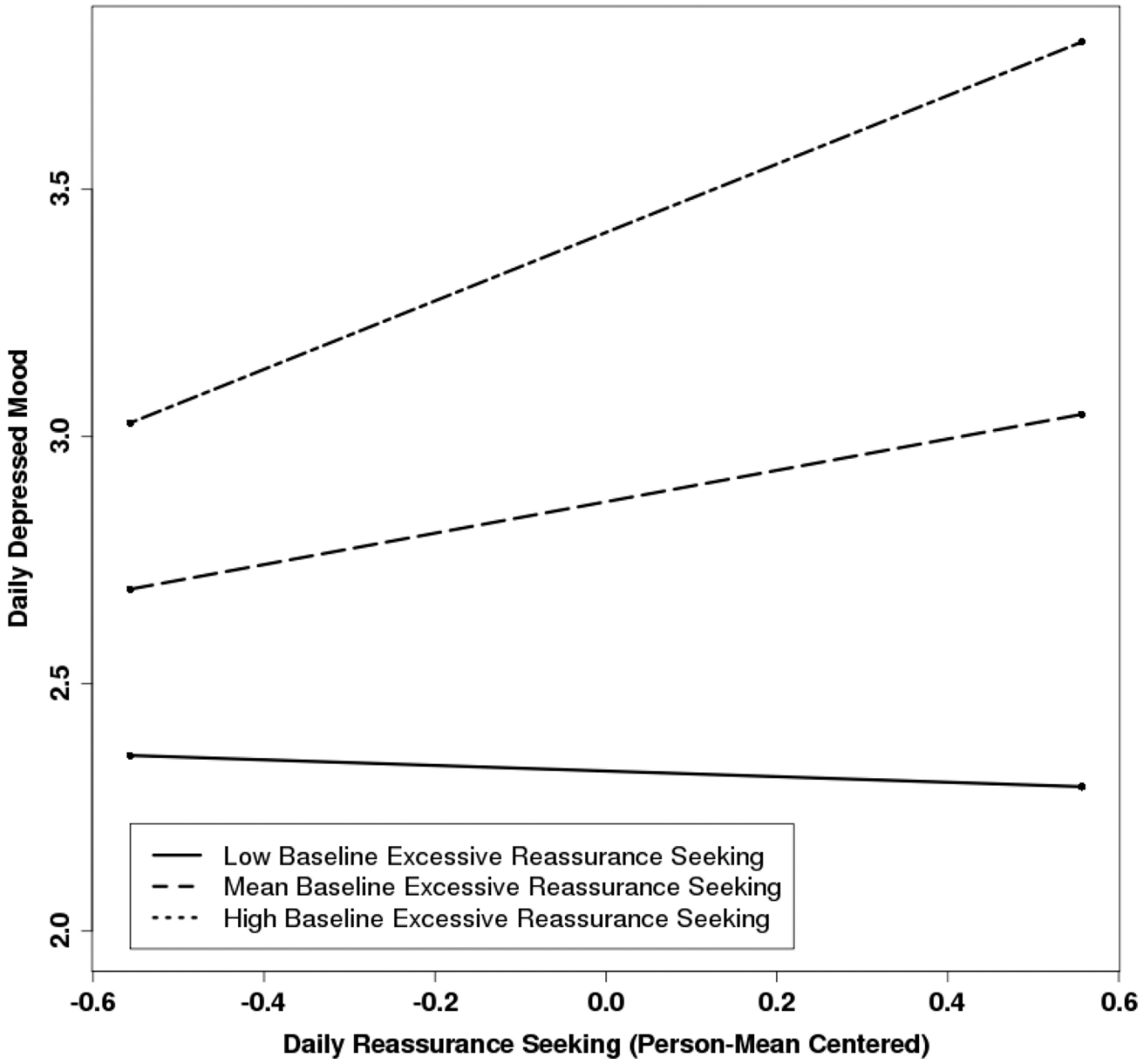

Figure 2.

Moderation of association between within-person fluctuations in daily reassurance seeking and same-day depressed mood by baseline excessive reassurance seeking levels. Low and high ERS are defined as one standard deviation below and above the mean, respectively. Model also controls for between-person levels of reassurance seeking and time.

Table 1

Bivariate Correlations among Baseline Variables and Aggregated Daily Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Baseline Co-rumination	--								
2. Baseline Ruminative	.38**	--							
3. Baseline Excessive Reassurance Seeking	.44**	.45**	--						
4. Major Depression	.11	.34*	.15	--					
5. Daily Depressed Mood	.05	.48***	.24	.64***	--				
6. Daily Problem Talk	.23*	.27	.32*	.04	−.02	--			
7. Daily Reassurance Seeking	.28*	.12	.55***	.08	.01	.65***	--		
8. Daily Hassles	.06	.25	−.03	.29*	.27	−.07	−.02	--	
9. Daily Brooding	.44**	.60***	.50***	.36**	.57***	.37**	.34*	.18	--
M	80.82	54.43	2.10	0.53	2.65	0.81	0.41	0.49	1.75
SD	20.88	16.24	1.18	0.83	1.55	0.58	0.56	0.26	0.73

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$.

Notes. Major depression was scored using dimensional scale: 0 = no symptoms, 1 = subthreshold symptoms, 2 = DSM-IV diagnosis. For daily variables, scores were aggregated across observations for each individual.

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