INSIDE THOUGHTS AND OUTSIDE INFLUENCES: COGNITIVE VULNERABILITY MODERATES THE EFFECT OF DECREASES IN PERCEIVED SOCIAL SUPPORT ON DEPRESSIVE SYMPTOMS

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A three time-point longitudinal design was used to investigate the relationship among aversive interpersonal behaviors (self-reported reassurance seeking and negative feedback seeking), cognitive vulnerability, perceived social support, and depressive and anxious symptoms. There were two primary hypotheses: (a) negative interpersonal behaviors would lead to decreases in perceived social support, and (b) a perceived loss of social support would lead to future depressive symptoms for those with high, but not low, levels of cognitive vulnerability. Consistent with hypotheses, results showed that negative feedback seeking predicted decreases in perceived social support. Individuals who experienced a loss of perceived social support were most likely to exhibit an increase in depressive symptoms if they had high levels of cognitive vulnerability. This pattern of results was specific to depressive, but not anxious symptoms. The theoretical and therapeutic implications of the results are discussed.

Interpersonal theories of depression (e.g., Coyne, 1976; Swann, Wenzlaff, Krull, & Pelham, 1992) emphasize the importance of aversive interpersonal behaviors and decreased social support as risk factors for depression. According to these theories, some people are vulnerable to depression because they behave in ways that elicit rejection

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from others. This rejection leads to a loss of social support and, in turn, an increase in depressive symptoms. Interpersonal theories have received solid empirical support (see Joiner & Metalsky, 2001 for review). Consistent with hypotheses, research has demonstrated that aversive interpersonal behaviors lead to decreases in social support (e.g., Joiner & Metalsky, 1995). Moreover, decreases in social support are associated with risk for depressive symptoms (e.g., Barnett & Gotlib, 1988; Haeffel, Voelz, & Joiner, 2007). Within this area, two interpersonal behaviors have emerged as being particularly aversive to others—excessive reassurance seeking and negative feedback seeking.

According to Coyne’s (1976) interpersonal theory, some people are at risk for depression because they excessively seek reassurance as to whether others truly care about them. When others provide reassurance, these individuals doubt its sincerity and seek further reassurance. The pattern repeats and culminates in a loss of social support for the reassurance seekers (and, in turn, increased depressive symptomatology). Many aspects of Coyne’s theory have been supported in the empirical literature (see Joiner, Metalsky, Katz, & Beach, 1999 for a review). For example, research indicates that individuals who exhibit high levels of reassurance seeking are significantly more likely to experience a loss of social support (both perceived loss and actual loss) than individuals with low levels of reassurance seeking (e.g., Joiner, 1999; Joiner, Alfano, & Metalsky, 1993; Joiner & Metalsky, 1995; Katz & Beach, 1997; Prinstein, Borelli, Cheah, Simon, & Atkins, 2005; Starr & Davila, 2008). Moreover, there is evidence that reassurance seeking is positively associated with increases in depressive symptoms (e.g., Joiner & Metalsky, 2001; Katz, Beach, & Joiner, 1998; Prinstein et al., 2005). By and large, these studies have provided support for Coyne’s interpersonal theory of depression (see Joiner, Metalsky, Katz, & Beach, 1999 for a review).

Whereas some people seek affectively positive information through excessive reassurance seeking, others may have a desire to receive information that is consistent on a cognitive level. Self-consistency theory proposes that individuals may seek information that is consistent with their self-concept, even if their self-concept is negative (Swann, Pelham, & Krull, 1989). Thus, for individuals with a negative self-concept, the tendency would be to solicit negatively focused feedback from others (Pettit & Joiner, 2001). Research suggests that negative feedback seeking may also be interpersonally toxic and, in turn, result in a loss of social support (and depression).
Consistent with this hypothesis, preliminary studies have shown that those who actively seek negative feedback from others are significantly more likely to experience a loss of social support than those who do not seek this type of feedback (Joiner & Metalsky, 1995; Swann et al., 1992). In addition, those who seek negative feedback may be at greater risk for developing depression than those who do not exhibit this behavior (Borelli & Prinstein, 2006; Joiner, 1995).

Taken together, research investigating the interpersonal theories of depression has supported the hypothesis that excessive reassurance seeking and negative feedback may lead to decreases in social support. However, a critical theoretical question still needs to be addressed. Under what circumstances does a loss of social support lead to an increase in depressive symptoms? Currently, interpersonal theorists have only specified behaviors that contribute to decreases in social support; however, they have not specified a mechanism to explain when decreases in social support lead to increases in depression. Not everyone who experiences a loss of social support will develop depression. Thus, it is important to understand when a loss of support will or will not lead to depressive symptoms. Delineating this relationship also has clinical implications. Understanding the connection between social support and depression may lead to new strategies for increasing resilience among those who lose social support. We contend that this theoretical gap can be addressed by integrating work from the cognitive theories of depression. According to one prominent cognitive theory, the hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989), some individuals have a cognitive vulnerability that interacts with stress to produce depression (e.g., Haefelf, Abramson, et al., 2007). Specifically, people are vulnerable to depression because they tend to generate interpretations of stressful life events that have negative implications for their future and for their self-worth.

Recent research has provided strong support for hopelessness theory’s cognitive vulnerability hypothesis (see Abramson et al., 2002 for review). Consistent with this hypothesis, prospective studies (Gibb, Beevers, Andover, & Holleran, 2006; Haefelf, Abramson, et al., 2007; Hankin, Abramson, Miller, & Haefelf, 2004; Metalsky & Joiner, 1992) have consistently found that cognitive vulnerability interacts with negative events to predict the development of depressive symptoms (even after statistically controlling for participants’ baseline level of depressive symptoms). Moreover, research has
demonstrated that cognitive vulnerability is associated with the onset of clinically significant depression as measured by structured diagnostic interview. For example, results from the Temple-Wisconsin Cognitive Vulnerability to Depression (CVD) Project (Abramson et al., 1999; Alloy et al., 2006) found that participants with high levels of cognitive vulnerability were approximately 7 times more likely than participants with low levels of cognitive vulnerability to experience an episode of major depressive disorder during the 2.5-year prospective follow-up.

Within the context of hopelessness theory, it is possible to determine when a loss of social support will lead to an increase in depression. According to hopelessness theory, a loss of social support represents a specific instance of a negative stressor. If an individual believes that a loss of social support has negative implications for his or her future or self-worth, then he or she should develop depression. In other words, a loss of social support should be most likely to trigger an increase in depressive symptoms for those with high levels of cognitive vulnerability.

We propose an integrated theory of depression that combines interpersonal and cognitive theories of depression. The integrated theory allows us to more fully capture the multiple factors involved in depression, both the social (when a loss of social support will occur) and cognitive influences (when a loss will lead to depression). We conducted a three time-point longitudinal study to test two hypotheses. First, we predicted that negative interpersonal behaviors (self-reported excessive reassurance-seeking and negative feedback seeking) would lead to decreases in perceived social support. Second, we predicted that a perceived loss of social support would lead to future depressive symptoms for those with high, but not low, levels of cognitive vulnerability. Finally, to establish discriminant validity for our results, we tested the specificity hypothesis. According to cognitive theories of depression, negative cognitions about stressful life events are a specific risk factor for depression. Thus, we examined whether the results were specific to depressive symptoms, or also generalized to the prediction of anxious symptoms.
METHOD

PARTICIPANTS

Participants were 155 unselected undergraduates (ages 17-22) from the psychology participant pool at mid-sized private university in the Midwest. Specific data regarding ethnicity was not collected, however, the sample is likely representative of the diversity of the university more generally (76% Caucasian, 11% Hispanic, 8% Asian, 5% African American). Participants were recruited through a volunteer sign-up procedure and were given extra credit points for their participation. There were no selection criteria for participants (i.e., no inclusion or exclusion criteria in recruiting participants). Participants completed three assessments over the course of five weeks. Following completion of all assessment materials at Time 1 (T1), participants were asked to return three weeks later for the second assessment (T2). At Time 2, participants were asked to return two weeks later for a final assessment (T3). Seven participants were not included in the final sample because they did not complete all relevant measures at each time point \((n = 5)\) or because they did not complete the follow-up sessions within an appropriate time frame \((n = 2)\). Thus, a total of 148 participants (93 women, 55 men) were included in the analyses.

MATERIALS

_Cognitive Style Questionnaire (CSQ; Haefel et al., 2008)._ The CSQ assesses the cognitive vulnerability factor featured in the hopelessness theory of depression. The CSQ assesses participants’ causal attributions for the 12 hypothetical negative events. For each hypothetical event, participants are first instructed to vividly imagine themselves in that situation, as if the situation were happening in real time (example event: You take an exam and receive a low grade on it). Next, they are instructed to write down what they believe to be the one major cause of the event. Participants then use a 7-point Likert-type scale to rate the cause that they have specified on dimensions of stability and globality. Finally, participants are asked to think about what the occurrence of the hypothetical situation would mean to them, and to use a 7-point Likert-type scale to rate the consequences and self-worth implications of the hypothetical event. An individual’s CSQ score is their average rating across the scales rel-
relevant to the vulnerability factor featured in the hopelessness theory (stability, globality, consequences, and self-worth characteristics) for the 12 hypothetical negative life events. This composite score (total score divided by the number of items) can range from 1 to 7, with higher scores reflecting greater levels of cognitive vulnerability to depression. The CSQ has good internal consistency, reliability, and validity (see Haeffel, Abramson, et al., 2008 for review). Prospective studies have consistently found that the CSQ interacts with measures of negative events to predict the development of depressive symptoms (e.g., Haeffel, Abramson, et al., 2007; Metalsky & Joiner, 1992) and depressive disorders (e.g., Alloy et al., 2006; Hankin et al., 2004). The CSQ was administered at Time 1. Coefficient alpha for the CSQ in the current sample was .91.

*Excessive Reassurance-Seeking Scale* (RSS; Joiner & Metalsky, 2001). The RSS is a 4-item self-report scale that measures reassurance-seeking, defined as a tendency to excessively seek reassurance from others as to whether they truly care. The four items are: (1) In general, do you find yourself often asking the people you feel close to how they *truly* feel about you? (2) In general, do you frequently seek reassurance from the people you feel close to as to whether they *really* care about you? (3) In general, do the people you feel close to sometimes become irritated with you for seeking reassurance from them about whether they *really* care about you? (4) In general, do the people you feel close to sometimes get fed up with you for seeking reassurance from them about whether they *really* care about you?). Each of the 4 items is rated on a 7-point scale (from 0 to 6). Total scores range from 0 to 24, with higher scores corresponding to increasing reassurance-seeking. The RSS has demonstrated good reliability and validity in previous research (see Joiner & Metalsky, 2001 for review); the RSS predicts observer-rated reassurance seeking behavior and is associated with increases in future depressive symptoms (Joiner & Metalsky, 2001). The RSS was administered at Time 1. Coefficient alpha for the RSS in the present study was .80.

*Feedback Seeking Questionnaire* (FSQ; Swann, Wenzlaff, Krull, & Pelham, 1992). The FSQ assesses participants’ interest in feedback from others within five self-relevant domains: intellectual, social, musical/artistic, athletic abilities, and physical attractiveness. Within each domain, participants are asked to choose two of six questions they would like another person to answer about them. Of the
six items in each domain, three are framed negatively (e.g., What is some evidence you have seen that ___ doesn’t have very good social skills?). In scoring, a point is added for each positively framed question chosen and a point is subtracted for each negatively framed question chosen. Thus, lower scores indicate higher levels of negative feedback seeking behavior. The FSQ has demonstrated good reliability and predictive validity in previous research (e.g., Borelli & Prinstein, 2006; Bosson, Swann, 2000; Swann et al., 1992). The FSQ was administered at Time 1. Coefficient alpha for the FSQ in the present sample was .74.

Mood and Anxiety Symptom Questionnaire (MASQ; Watson et al., 1995). The MASQ is a self-report questionnaire that assesses symptoms specific to depression and anxiety based on the tripartite theory of anxiety and depression (Clark & Watson, 1991). The anhedonic subscale contains 22 items that assess symptoms hypothesized to be specific to depression such as low positive affect (example items: Felt like nothing was very enjoyable, Felt like there wasn’t anything interesting or fun to do, Felt really happy). The anxious arousal subscale has 17 items that assess symptoms hypothesized to be relatively specific to anxiety such as somatic tension and hyperarousal (example items: Felt numbness or tingling in my body, Felt like I was choking, Hands were cold or sweaty). The MASQ has demonstrated good reliability and validity (e.g., Watson et al., 1995). The MASQ was administered at Times 1, 2, and 3. Participants were instructed to think about how the extent to which they felt or experienced the items today. Coefficient alpha for the anhedonic and arousal subscales in the current sample was: .90 and .87 at Time 1, .92 and .85 at Time 2, and .93 and .87 at Time 3. To our knowledge, the MASQ does not have established cut-offs or norms. Thus, the means found in the current study were compared to the means found in other data sets to ensure the sample’s representativeness. In the current study, the samples’ mean score on the MASQ anhedonic subscale ranged from 55 to 59 over the three time points. These mean scores are representative of scores found in previous research using nonclinical college samples. For example, Nitschke, Heller, Imig, McDonald, and Miller (2001) reported a mean anhedonic subscale score of 57 in a sample of 783 undergraduates. Similarly, Beavers and Meyer (2004) reported an average score of 62 in sample of 161 undergraduates.
Social Support Questionnaire (SSQ; Sarason, Levine, Basham, & Sarason, 1983). The SSQ contains 27 items. Each item asks participants to think about their current social environment and: (a) list the people to whom they can turn and on whom they can rely in any given sets of circumstances, and (b) indicate their level of satisfaction with these social supports. The SSQ used in the present study was abbreviated to limit the amount of time for participants to complete questionnaires. It should be noted that the abbreviated SSQ performed similarly to its parent questionnaire in previous research (Joiner, 1997) and has demonstrated strong reliability and validity; scores on the SSQ are associated with measures of depressive symptoms, positive and negative affect, and loneliness (Joiner, 1997). The instructions and scoring procedure were identical to those recommended by Sarason et al. (1983). Consistent with prior research (e.g., Joiner, 1997), we used participants’ list of supporters (the first facet), as opposed to perceived satisfaction, because it may represent a more objective measure of an individual’s level of social support. Scores on the SSQ measure were summed across items. Thus, an individual’s score represents the average number of individuals who support him or her. The SSQ was administered at Times 1 and 2. Participants were instructed to make their ratings of social support as they perceived them currently. Coefficient alpha for the SSQ in the current sample was .93 at T1 and .95 at T2.

A loss of social support was operationalized as the percentage of perceived social support maintained from Time 1 to Time 2 (i.e., Time 2 level of social support divided by Time 1 level of social support). Thus, a percentage score equal to 100 would indicate no change in perceived social support whereas a score less than one hundred would be considered a loss of perceived social support. A percentage score was used instead of a simple change score (or residual change score) because it better accounts for individual differences in baseline social context. For example, imagine the following two participants: one participant has 5 supportive individuals in their social network whereas the other participant has 20 supportive individuals. During the prospective interval, both participants lose 4 supportive individuals from their network. If a change score were used, then each participant would have lost the same amount of social support (both lost 4 individuals). However, a percentage score more accurately shows that one participant lost almost all of their social support (80%) whereas the other only lost 20% of it.
PROCEDURE

The study consisted of three time points over a 5-week interval. The five-week time frame was chosen because it has been used in a number of previous longitudinal studies testing cognitive and interpersonal theories of depression (e.g., Haefel, Abramson, et al., 2007; Metalsky & Joiner, 1992; Potthoff, Holahan, & Joiner, 1995). At Time 1, participants were administered self-report measures of depressive and anxious symptoms (MASQ), cognitive vulnerability (CSQ), reassurance-seeking (RSS), negative feedback-seeking (FSQ), and social support (SSQ). Three weeks later at Time 2 (T2) participants completed the MASQ and SSQ. At Time 3 (T3), which was two weeks after Time 2, participants again completed the MASQ. Participants were run in groups of 10-20 in a medium size classroom in the psychology building. The study was conducted between the months of September and December.

RESULTS

Data analyses tested two hypotheses. First, we hypothesized that negative interpersonal behaviors (self-reported excessive reassurance-seeking and negative feedback seeking) would lead to decreases in perceived social support. Second, we hypothesized that a loss of perceived social support would culminate in future depressive symptoms for those with high levels of cognitive vulnerability. Hierarchical multiple regression was used to analyze the data. Consistent with the recommendations of Cohen, Cohen, West, and Aiken (2003), all continuous independent variables were centered and individual variables within a given set were not interpreted unless the set as a whole was significant, thereby reducing Type I errors. Descriptive statistics and correlations for the measures are listed in Table 1.

In the first regression equation, we tested whether self-reported excessive reassurance seeking (RSS) and negative feedback seeking (FSQ) at T1 predicted a loss of perceived social support (SSQ) at T2. Loss of social support was operationalized as the percentage of social support lost from Time 1 to Time 2 (i.e., Time 2 level of social support divided by Time 1 level of social support). Time 1 MASQ anhedonic subscale score was entered into the first step of the regression equation to control for individual differences in ini-
tial level of depressive symptoms. In the second step, the main effect of excessive reassurance seeking (RSS T1) or negative feedback seeking (FSQ T1) was entered. Consistent with hypotheses, negative feedback seeking was a significant predictor of perceived changes in social support, $b = .01$, $t = 2.03$, $p = .04$ (see Table 2). Those with high levels of self-reported negative feedback seeking experienced the largest percentage of loss in social support from T1 to T2, even after controlling for initial depressive symptoms. The main effect of self-reported reassurance seeking was not significant, $pr = .02$, $b = .001$, $t = 0.22$, $p = .83$. It is important to note that these results (as well as the results to follow) do not change if level of anxious symptoms (MASQ anxious arousal) is also added as a covariate to the model.

In the second regression equation (see Table 2), we tested the novel prediction that a perceived loss of social support from Time 1 to Time 2 would lead to future depressive symptoms (T3 MASQ anhedonic subscale) for those with high, but not low, levels of cognitive vulnerability (CSQ). The T2 depression measure (T2 MASQ anhedonic subscale) was entered in the first step of the regression equation to create a residual change score for the same T3 measure (T3 MASQ anhedonic subscale). In the second step, the main ef-
The effect of cognitive vulnerability (CSQ) and changes in social support (T2 SSQ/T1 SSQ) were entered. Last, the Vulnerability X Change in Social Support interaction term was entered. Results showed a significant main effect of cognitive vulnerability that was qualified by a significant interaction. Consistent with hypotheses, cognitive vulnerability interacted with perceived changes in social support to predict prospective changes in depressive symptoms, $b = 6.36$, $t = 2.01$, $p = .04$. As shown in Figure 1, participants who experienced a loss of social support were significantly more likely to exhibit an increase in depressive symptoms if they had a high level of cognitive vulnerability.

### TABLE 2. Regression Analyses Predicting Loss of Perceived Social Support (from Time 1 to Time 2) and Depressive Symptoms (Time 3)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$p$</th>
<th>$t$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predicting Changes in Social Support (SSQ2/SSQ1)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Step 1</td>
<td>0.01</td>
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<td></td>
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<tr>
<td>T1 Anhedonia (MASQ)</td>
<td>-0.01</td>
<td>-0.13</td>
<td>-0.13</td>
<td>-1.58</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.03*</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>T1 Negative Feedback (FSQ)</td>
<td>0.01</td>
<td>0.17</td>
<td>0.17</td>
<td>2.03*</td>
<td></td>
</tr>
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Model $R^2 = .05$, $F(2, 147) = 3.32$, $p = .03$

| **Predicting Depressive Symptoms (T3)** |
| Step 1 | .42*** | | | | |
| T2 Anhedonia (MASQ) | 0.71 | 0.65 | 0.65 | 10.26*** | |
| Step 2 | .05** | | | | |
| Changes in Support (SSQ2/SSQ1) | -0.60 | -0.01 | -0.02 | -0.17 | |
| Cognitive Vulnerability (CSQ) | 4.56 | 0.22 | 0.28 | 3.469*** | |
| Step 3 | .02* | | | | |
| Social Support X Cog Vul | 6.36 | 0.13 | 0.17 | 2.01* | |

Model $R^2 = .48$, $F(4, 246) = 33.28$, $p < .001$

| **Predicting Depressive Symptoms (T3) for Those Who Lost Social Support** |
| Step 1 | .51*** | | | | |
| T2 Anhedonia (MASQ) | 0.70 | 0.71 | 0.71 | 7.68*** | |
| Step 2 | .07** | | | | |
| Cognitive Vulnerability (CSQ) | 6.04 | 0.27 | 0.38 | 3.07*** | |

Model $R^2 = .58$, $F(2, 58) = 38.56$, $p < .001$

Note. BDI = T1 Anhedonia = Anhedonic subscale of the MASQ at Time 1. T1 Negative Feedback = FSQ at Time 1. T2 Anhedonia = Anhedonic subscale of the MASQ at Time 2. Changes in Support = Percentage of social support lost from Time 1 to Time 2 as indicated by the SSQ. Cognitive Vulnerability = CSQ score at Time 1. *$p < .05$; **$p < .01$; ***$p < .001$. 

The effect of cognitive vulnerability (CSQ) and changes in social support (T2 SSQ/T1 SSQ) were entered. Last, the Vulnerability X Change in Social Support interaction term was entered. Results showed a significant main effect of cognitive vulnerability that was qualified by a significant interaction. Consistent with hypotheses, cognitive vulnerability interacted with perceived changes in social support to predict prospective changes in depressive symptoms, $b = 6.36$, $t = 2.01$, $p = .04$. As shown in Figure 1, participants who experienced a loss of social support were significantly more likely to exhibit an increase in depressive symptoms if they had a high level of cognitive vulnerability.
To further clarify our results and more specifically test our main hypothesis, we examined those participants who experienced a loss of perceived social support ($n = 59$). It is important to examine this group because our primary goal was to determine when a loss of support would culminate in future depressive symptoms. A loss of social support should lead to depression for those with, but not without a cognitive vulnerability. The T2 depression measure (T2 MASQ anhedonic subscale) was entered in the first step of the regression equation to create a residual change score for the same T3 measure (T3 MASQ anhedonic subscale). In the second step, the main effect of cognitive vulnerability (CSQ) was entered. Consistent with hypothesis, cognitive vulnerability was a significant predictor of depressive symptoms in the sample of participants which experienced a loss of perceived social support, $b = 6.04$, $t = 3.07$, $p = .003$ (see Table 2). For participants who perceived a loss of social support, those with a high level of cognitive vulnerability exhibited significantly greater levels of depressive symptoms than those with low levels of cognitive vulnerability (see Figure 2, top panel).

It is also important to examine the proportion of high and low vulnerable participants exhibiting an increase in depressive symptoms after experiencing a loss of social support. Consistent with hypotheses, participants with high levels of cognitive vulnerability were approximately twice as likely as low vulnerable participants (~50%
versus ~25%) to experience an increase in depressive symptoms following a loss of social support (see Figure 2, bottom panel).

To establish discriminant validity for our results, we tested the specificity hypothesis. According to cognitive theories of depression, negative cognitions about stressful life events are a specific risk factor for depression. Thus, we examined whether a loss of perceived social support from Time 1 to Time 2 would lead to future anxious symptoms (MASQ arousal subscale) for those with high,

1. A post-hoc analysis of a mediation model was also tested. Specifically, we tested whether the change in social support by cognitive vulnerability interaction variable mediated the association between negative feedback seeking and depressive symptoms. Negative feedback seeking was only a predictor of changes in depressive symptoms at T3 at the level of a statistical trend ($p = .10$). Thus, mediation was not possible.
but not low, levels of cognitive vulnerability (CSQ). The same regression equation was used as above except that anxious symptoms at T3 served as the dependent variable (anxious symptoms at T2 was the control variable). Consistent with hypotheses, cognitive vulnerability did not interact with a loss of perceived social support to predict changes in anxious symptoms, $pr = -.02, b = -.26, t = 0.22, p = .83$.

**DISCUSSION**

The study tested an integrated theory of depression that incorporates both interpersonal and cognitive perspectives. Consistent with past research, self-reported aversive interpersonal behaviors (specifically negative feedback seeking) predicted decreases in perceived social support. Importantly, a loss of perceived social support was most likely to lead to an increase in future depressive symptoms for those with high, but not low, levels of cognitive vulnerability. This pattern of results was specific to depressive, but not anxious symptoms. This is the first study to demonstrate that a loss of perceived social support is most likely to culminate in depression for individuals with a cognitive vulnerability.

These data suggest that cognitive vulnerability may play a prominent role in determining depressive reactions to interpersonal loss. This raises the question as to whether adding an interpersonal perspective to this existing cognitive framework is even needed. According to the cognitive theories, a loss of social support simply falls under the category of a negative life event. When negative events occur (regardless of whether they are interpersonal in nature), then individuals with a cognitive vulnerability are at heightened risk for depression. Given the broad reach of the theory, it is important to make clear why integrating an interpersonal perspective within the cognitive framework creates a more compelling and complete theory. We contend that the interpersonal perspective provides critical information for understanding the stress component of the vulnerability-stress hypothesis. Although the cognitive theories help explain individual differences in depressive reactions to negative life events, these theories do not explain when these events are most likely to occur. Interpersonal theories, on the other hand, provide some explanatory power in identifying individuals who may be at heightened risk for experiencing interpersonal negative events.
Thus by integrating the theories it is possible to identify which people are most likely to experience an interpersonal negative life event (e.g., negative feedback seekers) as well as who is most likely to get depressed as a result of it (those with a cognitive vulnerability).

In addition to theoretical advancements, the current study also has potential treatment implications. Interpersonal therapy (IPT) and cognitive-behavioral therapy (CBT) are among the most effective treatments for depression (Hollon, Thase, & Markowitz, 2002). However, the results of the current study suggest that combining elements of these two treatments could be beneficial. For example, interpersonal therapy often focuses on teaching social skills that can improve interpersonal functioning. However, even those with the best social skills are still susceptible to rejection and troubled relationships. Thus, it may be important to teach individuals how to interpret a loss of social support in an adaptive fashion (e.g., realistic cognitions about one’s future and self-worth). Similarly, in cognitive therapy, it may be beneficial to pay particularly close attention to patients’ interpersonal behaviors as they may contribute to stress generation (e.g., Hammen, 1991).

It is notable that those with high levels of cognitive vulnerability exhibited high levels of depressive symptoms regardless of whether or not they perceived a loss of social support (see Figure 1). At first blush, this result appears to contradict the cognitive theories of depression. However, it is important to keep in mind that a wide array of negative life events can confer risk for depression for those with a cognitive vulnerability. Although a loss of social support may be sufficient to create an increase in depressive symptoms, it is not necessary. Cognitively vulnerable individuals who did not perceive a loss of social support, still exhibited high levels of depressive symptoms because they were likely experiencing other negative life events. Indeed, the absence of changes in social support does not preclude the occurrence of other negative life situations. However, when a loss of social support does occur, cognitive vulnerability appears to play a key role in determining whether the loss results in depressive symptoms.

It is also notable that self-reported negative feedback seeking, but not reassurance seeking, predicted decreases in perceived social support. A majority of the research on aversive interpersonal behaviors has focused on reassurance seeking; thus, the current study is novel because it provides some of the first empirical support for negative feedback seeking as a predictor of decreased social
support. It is unclear why reassurance seeking did not predict decreases in perceived social support in the current sample. However, our results are consistent with recent studies (e.g., Haeffel, Voelz, & Joiner, 2007) indicating that reassurance seeking may not exert a main effect on social support or depressive symptoms. Thus, the reassurance-seeking construct might best be conceptualized as a moderator that enhances the potency of other risk factors (e.g., self-esteem) for depression.

It is important to note strengths and weaknesses of the current study. A significant strength of this study was the use of a longitudinal design with three time points. In contrast to the typical longitudinal study that uses two time points, the current study was able to clearly distinguish the temporal relationship among the self-reported interpersonal behavior, cognitive vulnerability, perceived social support, and depressive symptoms (e.g., decreases in perceived social support were assessed two weeks prior to the depressive outcome variable). This design ensured that our cognitive and interpersonal predictors were not confounded by current mood. An additional strength of the current study was the sample size and the low attrition rate. Indeed, 95% of the original sample completed all measures at all three assessments points. A final strength of this study was the use of a highly specific measure of depressive symptoms (MASQ). Previous studies have been limited by symptom measures (e.g., the Beck Depression Inventory) that lack specificity and are saturated with high levels of negative affect (Clark & Watson, 1991). Using the MASQ enabled us to examine the specificity of our results to the onset of depressive symptoms.

There were also limitations to the current study. For example, the study used a college sample so it is possible that the results may not generalize to community and clinical samples. However, it is important to note that college samples are often used to test the cognitive and interpersonal theories of depression because participants are at the peak age for developing depression (Hankin et al., 1998), and they are likely to experience sufficient levels of social stress adjusting to college. Moreover, research suggests that the college sophomore problem is often overstated. The results of studies using college samples often do generalize to community and clinical samples, particularly when basic processes (e.g., cognition) are being studied (e.g., Anderson, Lindsay, & Bushman, 1999). Another potential limitation of the current study is that it examined depressive symptoms, but not clinical diagnoses. Thus, we cannot make conclusions about
clinically significant forms of depression. However, given research suggesting that depressive symptoms and depressive syndromes lie on a continuum (e.g., Flett, Vredenburg, & Krames, 1997; Halberstadt et al., 2008; Hankin, Fraley, Lahey, & Waldman, 2005; Ruscio & Ruscio, 2000), we expect that future research will provide evidence that our pattern of results also extends to depressive disorders. Finally, it is important to consider the measurement approach used in the current study. All of the measures used were self-report; thus, it is possible that associations between measures could be due to common method variance. However, the results for the specificity test indicate that a common method bias cannot fully account for the results. If the results for depressive symptoms were due solely to a common method bias, then the results should also hold for anxiety symptoms (which were also assessed via self-report); this was not the case. That said, it remains important for future research in this area to use a constructive replication approach (i.e., testing the same theory using different designs and measures, Lykken, 1968) in order to corroborate the current findings.

In conclusion, the current study tested an integrated theory of depression that combines interpersonal and cognitive models. This integrated theory specifies the factors that contribute to a perceived loss of social support, and importantly, the conditions under which this perceived loss will lead to depressive symptoms. Results indicate that cognition plays a critical role in determining risk for future depressive symptoms after a perceived loss of social support.

REFERENCES


