Research Article

Depression and Empathic Accuracy in Couples: An Interpersonal Model of Gender Differences in Depression

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Abstract

We examine the link between depression and empathic accuracy, the ability to infer other people's thoughts and feelings, as a possible mechanism underlying gender differences in the association between depression and interpersonal difficulties within intimate relationships. Fifty-one heterosexual couples completed questionnaires assessing depressive symptoms and participated in both a lab and a daily diary procedure assessing empathic accuracy. In the lab measures, women's (but not men's) higher levels of depressive symptoms were associated with lower empathic accuracy regarding partners' thoughts and feelings. In the daily diary data, women's depressive symptoms were specifically associated with lower levels of empathic accuracy for negative feelings but not for positive feelings, and with lower levels of their partners' empathic accuracy for the women's negative feelings. Men's depressive symptoms were again unrelated to levels of empathic accuracy. Our findings suggest that depressive symptoms may have a stronger impact on interpersonal perception in intimate relationships among women than among men.

Depressed individuals' interpersonal difficulties have garnered considerable research attention in the past four decades (e.g., van Beek & Dubas, 2008). Compared with nondepressed individuals, depressed individuals have fewer social interactions (Gotlib & Lee, 1989), enjoy these interactions less (Nezlek, Hampton, & Shean, 2000), and experience more interpersonal difficulties (e.g., Rehman, Gollan, & Mortimer, 2008). In addition, the association between interpersonal difficulties and depression is bidirectional (cf. Joiner, 2002).

Hammen's (1991) stress-generation model is a central theory of the bidirectional association between depression and interpersonal difficulties. According to this model, depressed individuals' behavior actively (though not deliberately) generates interpersonal difficulties, which erode their relationships and subsequently exacerbate their depression (cf. Hammen, 2006).

The vicious cycle of depression and interpersonal difficulties is especially likely to emerge in the context of intimate relationships (Joiner, 2002). In these relationships, depressed individuals have a higher tendency than nondepressed individuals to repeatedly ask for reassurance (Pettit & Joiner, 2006), demand support in a hostile manner (Rehman, Ginting, Karimiha, & Goodnight, 2010), and display negative behaviors, such as a

reduced tendency to smile (Rehman et al., 2008). Consequently, depressed individuals often burden or alienate their partners (Benazon & Coyne, 2000). Because depressed individuals display these problematic interpersonal behaviors more with romantic partners than with strangers, their intimate relationships suffer more (Joiner, 2002). The particular processes that occur in these relationships have remained largely unstudied (Hammen, 2006). In this article, we explore one candidate process that may underlie the association between depression and interpersonal difficulties: interpersonal perception.

Interpersonal perception (or *sensitivity*) is a broad construct, encompassing a variety of processes, from identifying

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fleeting emotional facial expressions to deciphering complex social interactions (cf. Bernieri, 2001). Interpersonal perception is an essential prerequisite for successful communication and appropriate social behavior (e.g., Gleason, Jensen-Campbell, & Ickes, 2009). It is therefore possible that depressed individuals' interpersonal perception may mediate the association between depression and interpersonal difficulties.

Indeed, previous research has shown that depressed individuals' interpersonal perception is biased. Following repeated experiences of interpersonal rejection, depressed individuals learn to expect negative reactions and to readily identify reactions as negative even when it is ambiguous whether the reactions are negative (Coyne, 1976). In studies examining nonverbal aspects of interpersonal perception (e.g., recognition of facial expressions), depression was associated with negative biases, and depressed individuals' performance was poorer than that of nondepressed individuals (e.g., Gilboa-Schechtman, Foa, Vaknin, Marom, & Hermesh, 2008; Hall, Andrzejewski, & Yopchick, 2009).

In contrast, studies that have conceptualized interpersonal perception as social information processing suggest that depressed individuals are more accurate than nondepressed individuals. Specifically, in studies comparing nondepressed control participants with mildly and moderately depressed individuals, the depressed participants made more inferences based on social information (Gleicher & Weary, 1991), searched for more diagnostic information regarding individuals they judged (Edwards, Weary, von Hippel, & Jacobson, 2000), and made fewer biased attributions (Yost & Weary, 1996). However, these studies used paradigms investigating the ability to make social inferences using verbal descriptive information; therefore, the generalizability of these studies to actual interpersonal processes is uncertain.

Studies of interpersonal perception and depression have tended to focus on a single verbal or nonverbal component of interpersonal interactions. Only a few studies have examined depressed individuals' perception of more complex interpersonal information (cf. Papp, Kouros, & Cummings, 2010). Moreover, the majority of research on interpersonal perception has used lab methods, and therefore has taken place outside the context of real relationships. The processes that take place in daily interactions with significant others have not been investigated. We focused on one such process: individuals' ability to accurately infer their partners' thoughts and feelings from both verbal and nonverbal social information. This ability is known as *empathic accuracy* (Ickes, 1993).

In contrast with paradigms that focus on a particular aspect of interpersonal information (e.g., facial expression), measuring empathic accuracy requires a context in which individuals can make inferences using a wide range of interpersonal information. Thus, the procedures used to measure empathic accuracy use contexts that closely resemble situations in which such inferences are made in daily situations, and assessing empathic accuracy provides more ecologically valid data on interpersonal perception than do the controlled experimental techniques

typically used. Additionally, conceptualizing empathic accuracy as a dyadic process makes it possible to examine interpersonal difficulties in the contexts in which they most frequently occur: with significant others (cf. Hammen, 2006).

Empathic accuracy can be assessed in several ways. In the typical lab-based procedure, a dyad is videotaped while having either an unstructured conversation (cf. Ickes, 1993) or a conversation regarding a predetermined topic (e.g., a conflict-resolution task; Thomas, Fletcher, & Lange, 1997). Subsequently, each member of the dyad views the videotape separately and reports his or her own thoughts and feelings during the interaction, as well as inferences regarding the partner's thoughts and feelings during the interaction. Empathic accuracy is measured by the similarity between the inferences made by the perceiver and the actual thoughts and feelings reported by the target. A more recent approach for assessing empathic accuracy uses experience-sampling diaries (Howland & Rafaeli, 2010). In this approach, respondents provide daily reports of their own moods and their inferences regarding their partners' moods over several weeks. Directing participants to provide ratings for a specific list of moods allows empathic accuracy to be assessed for various target moods (e.g., positive vs. negative moods; Howland & Rafaeli, 2010) by ensuring that both partners provide data about the same set of moods.

To date, only two studies have examined the association between depression and empathic accuracy. Thomas et al. (1997) found no association between the two. However, they also did not find the well-established link between empathic accuracy and relationship satisfaction (Ickes & Simpson, 2001). In contrast, Papp et al. (2010) found that higher levels of depressive symptoms were associated with reduced empathic accuracy for negative emotions (among both men and women) and with increased empathic accuracy for positive emotions (among women). Both studies used only lab-assessed empathic accuracy measured in a conflict-resolution task.

The study we present here is one of the first (following Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008) to use a lab-based procedure to assess empathic accuracy in a support-provision task. The use of a support-provision task is important for two reasons. First, spousal support is a protective factor in the development of depression (Panzarella, Alloy, & Whitehouse, 2006) and a buffer against marital stress subsequent to depression (Davila, Bradbury, Cohan, & Tochluk, 1997). Second, a conflict-resolution task is likely to activate relationship threat; given the work on motivated inaccuracy in times of threat (Simpson, Oriña, & Ickes, 2003), reduced empathic accuracy in a conflict-resolution task is likely to be adaptive. Because we were interested in situations in which increased empathic accuracy is adaptive, a support-provision task was more appropriate for our needs.

Furthermore, the study we report here is the first to assess the associations between depressive symptoms and empathic accuracy using a diary procedure. Although both lab and daily diary procedures offer an interpersonal context for studying depressive symptoms and interpersonal perception, the former assess

the capacity for empathic accuracy, whereas the latter assess the tendency to actually use it (Howland & Rafaeli, 2010).

Another innovation of our research is its focus on gender differences. The association between interpersonal difficulties and depression is consistently found to be stronger among women than among men (e.g., Leach, Christensen, Mackinnon, Windsor, & Butterworth, 2008). Moreover, interpersonal factors may contribute to the higher prevalence of depression among women than among men (Keenan & Hipwell, 2005). However, little research on depression and interpersonal perception has specifically addressed gender differences. Two recent exceptions are studies suggesting that biased interpersonal perception of emotional expressions is more pronounced in depressed women (Wright et al., 2009) and girls (van Beek & Dubas, 2008) than in depressed men and boys. However, these studies focused solely on perception of nonverbal behaviors. Therefore, we wanted to examine gender differences in the association between depressive symptoms and interpersonal perception.

Given the findings that depression is associated with decreased interpersonal perception (e.g., Hall et al., 2009), and that this association is stronger for women than for men (e.g., Wright et al., 2009), we hypothesized (a) that depressive symptoms would be associated with lower levels of empathic accuracy both when empathic accuracy was measured in a lab procedure and when it was assessed in a daily diary procedure, and (b) that this association would be found for women but not men. In addition, we expected (c) that in the daily diary procedure, in which the valence of the target feelings was known, depressive symptoms would be specifically associated with lower empathic accuracy for negative feelings, but not with lower empathic accuracy for positive feelings.

Method

Participants

Couples were recruited via advertisements posted on physical and online bulletin boards in the New York City area. The ads said that in return for their participation, couples would receive $90 and be included in a raffle for $200. Participants were 55 couples who had been cohabiting for a minimum of 6 months. We excluded data from 4 couples: Three same-sex couples were excluded because our focus was on gender differences, and another couple was excluded because of technical problems with the daily diary. Of the remaining 51 couples, 8 couples (15.7%) had some missing data: One did not complete the videotaped interaction, and 7 had insufficient daily diary data. We used all available data for each analysis.

Mean age was 30.0 years (*SD* = 6.3) among the women in our sample and 32.4 years (*SD* = 8.5) among the men. The majority of the sample had completed high school (90.2% of women and 84.3% of men). Mean relationship duration was 53.9 months (*SD* = 41.7, range = 7–217), and mean cohabitation duration was 34.1 months (*SD* = 36.0, range = 6–192).

Twenty couples (39.2%) were married. Fifty-six participants (54.9%) were Caucasian, 14 (13.7%) were African American, 9 (8.8%) were Latino, 6 (5.9%) were East Asian, and 17 (16.7%) defined themselves as "other."

Instruments

Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), which assesses depressive symptoms over the previous week. Items are scored from 1 to 4, and the scores were summed across items. Higher scores indicate more depression. The CES-D has good internal-consistency and test-retest reliabilities (Radloff, 1977). We used the 10-item version of the CES-D, which is comparable to the full version (Irwin, Artin, & Oxman, 1999). In this study, internal consistency was good (α = .81).

Lab procedure

Support-provision task. In an adaptation of the procedure used by Thomas et al. (1997), participants were videotaped while carrying out a conversation. Instructions were based on those used by Verhofstadt and her colleagues (2008): Discussions focused on eliciting support, with one partner playing the role of help seeker and the other playing the role of help giver. The couples were given an alarm that beeped after 6 min, at which point they switched roles and continued the conversation for an additional 6 min.

Thoughts-and-feelings protocol. After the conversation, partners reviewed their recordings separately, using computer monitors and headphones. The recordings were first paused after 55 s and then again every 30 s. Two stopping points were skipped around the time of the role switch (i.e., at 6 min 25 s and 6 min 55 s). Because the recordings lasted approximately 12.5 min, this procedure resulted in a total of 22 stops. After viewing each segment, participants wrote down the thoughts and feelings they experienced at that time during the interaction and inferred their partners' thoughts and feelings.

Calculating empathic-accuracy scores. Five coders independently judged the degree of similarity between perceivers' and targets' statements by examining the taped discussions in conjunction with the writings participants generated during the thoughts-and-feelings protocol. A 3-point scale was used: 0 (*essentially different content*), 1 (*somewhat similar, but not the same content*), and 2 (*essentially the same content*). The intraclass correlation (ICC) assessing intercoder reliability was high (ICC = .86).[1] Therefore, empathic-accuracy scores were averaged across coders.

Daily diary procedure

In the first lab visit, we introduced participants to the electronic diaries (Palm Zire 21 devices; Palm, Inc., Sunnyvale,

CA). We showed participants that their responses became inaccessible once entered (so that partners could not view their responses), and we asked them not to discuss their responses with each other. Participants completed the diaries over a period of 3 weeks: We instructed participants to complete the questionnaires every evening, within 1 hr of going to bed, a time determined by each participant's daily routine. We contacted participants during the diary period to ensure compliance and to address technical difficulties.

Daily diary measures

Mood. Participants were asked to report their mood and to estimate their partner's mood using an adapted and shortened daily diary version (Cranford et al., 2006) of Lorr and McNair's (1971) Profile of Mood States. The questionnaire included 18 items, forming 3-item subscales for each of three negative moods (anger, depression, and anxiety) and each of three positive moods (vigor, happiness, and calm). Participants rated the 18 items on 5-point scales, ranging from *not at all* to *extremely*. We calculated the between- and within-subjects reliabilities separately across the negative-mood subscales and the positive-mood subscales using procedures outlined in Cranford et al. (2006). For a given measure, the between-subjects reliability coefficient is the expected between-subjects reliability estimate for a single typical day. The within-subjects reliability coefficient is the expected within-subjects reliability of change within individuals over the 3 weeks of diary entries. The between- and within-subjects reliabilities were .77 and .85, respectively, for negative moods, and .85 and .84, respectively, for positive moods.

Relationship feelings. Participants were asked to report their feelings regarding the relationship and to estimate their partner's feelings about the relationship by rating the extent to which they and their partner felt each of several feelings in their relationship at the time of making each diary entry. The instrument used for these ratings was an adapted version (Rafaeli, Cranford, Green, Shrout, & Bolger, 2008) of the Emotional Tone Index (ETI; Berscheid, Snyder, & Omoto, 1989). The ETI includes 12 items, forming 2-item subscales for each of three negative feelings (anger, sadness, and anxiety) in the relationship and each of three positive feelings (passion, love, and contentment) in the relationship. Items were rated on 5-point scales, ranging from *not at all* to *extremely*. The between-person and within-person reliabilities were .77 and .81, respectively, for negative relationship feelings and .93 and .82, respectively, for positive relationship feelings.

Calculating empathic-accuracy scores. Diary-assessed empathic accuracy was operationalized as the absolute difference between the perceiver's and target's ratings, averaged across all the diary entries (*level accuracy*; Howland & Rafaeli, 2010). To simplify interpretation, we reversed these differences so that higher scores indicate greater accuracy. Four diary-assessed empathic-accuracy scores were computed: one each for positive and negative moods and for positive and negative relationship feelings.

Data analyses

Although the order of the lab and diary procedures was counterbalanced across participants, no order effects were found. Therefore, the analyses reported collapsed across the two orders.

Data were hierarchically nested within couples. Because couples provide data that are nonindependent, our analyses followed the recommendations of the actor-partner interdependence model (APIM; Kenny, Kashy, & Cook, 2006). APIM is a dyadic data-analytic approach that simultaneously estimates *actor effects* (the effects of the actor's independent-variable scores— e.g., the actor's own depressive symptoms—on the actor's own dependent-variable score—i.e., the actor's own empathic accuracy), as well as *partner effects* (the effects of the partner's independent-variable scores—e.g., the partner's depressive symptoms—on the actor's dependent-variable score—i.e., the actor's own empathic accuracy; Kenny et al., 2006).

We used the SAS PROC MIXED procedure for multilevel modeling, with Level 1 as the individual level and Level 2 the dyadic level. Predictors were centered around individual means to make the interpretation of intercepts clearer and to allow us to test for interaction effects.

Results

Gender differences in depressive symptoms and empathic accuracy

Table 1 presents descriptive statistics for participants' depressive symptoms, lab-assessed empathic accuracy, and diary-assessed empathic accuracy, separately for men and women. CES-D scores ranged from 11 to 30 for men and from 7 to 30 for women. No gender differences were found for depressive symptoms or empathic-accuracy scores.

Predicting empathic accuracy from depressive symptoms

All APIM analyses were conducted once with gender coded as 0 for men and again with gender coded as 0 for women, which allowed us to calculate separate beta coefficients for the main effects for men and women. Participant's age and mean relationship duration were entered as covariates; unless noted, their effects did not significantly alter the results.

Lab-assessed empathic accuracy. We hypothesized that among women (but not among men), higher depressive symptoms would be associated with lower lab-assessed empathic accuracy. To test this hypothesis, we created an APIM model in which the actor's empathic accuracy was predicted by both the actor's and the partner's depressive symptoms, the gender

Table 1. CES-D and Empathic-Accuracy Scores for Men and Women

	Men		Women		Paired-sample *t* test	
Measure	M	SD	M	SD	t	df
CES-D score	23.45	4.24	23.26	5.12	−0.22	49
Lab-assessed empathic accuracy	0.48	0.21	0.46	0.18	−0.91	49
Diary-assessed empathic accuracy						
Negative moods	3.55	0.29	3.56	0.31	0.38	43
Positive moods	3.22	0.24	3.22	0.22	0.12	43
Negative relationship feelings	3.64	0.35	3.65	0.38	0.32	43
Positive relationship feelings	3.24	0.38	3.26	0.37	0.37	43

Note: CES-D = Center for Epidemiologic Studies Depression Scale (Radloff, 1977).

of the actor, and the interactions of the actor's gender with the actor's and the partner's depressive symptoms:

$$y_{ij} = \beta_{0i} + \beta_{1i} + \beta_{2i} + \beta_{3i} + \beta_{4i} + \beta_{5i} + \text{error},$$

where y_{ij} is the lab-assessed empathic-accuracy score for person j in dyad i, β_{0i} is the intercept, β_{1i} is the actor's depressive symptoms, β_{2i} is the partner's depressive symptoms, β_{3i} is the actor's gender, β_{4i} is the interaction between the actor's depressive symptoms and the actor's gender, and β_{5i} is the interaction between the partner's depressive symptoms and the actor's gender.

Table 2 presents the results of this model separately for men and women. For women, there was a significant effect of actor's depressive symptoms on lab-assessed empathic accuracy. As expected, higher levels of depressive symptoms predicted lower levels of empathic accuracy. Partner's depressive symptoms and the interaction terms did not significantly predict empathic accuracy.

Diary-assessed empathic accuracy. We hypothesized that among women (but not among men), higher depressive symptoms would be associated with lower diary-assessed empathic accuracy. We also hypothesized that this association between depressive symptoms and empathic accuracy would emerge for empathic accuracy regarding negative moods and relationship feelings, but not regarding positive moods and relationship feelings. As we did for the analyses of lab-assessed empathic accuracy, we conducted all APIM analyses once with gender coded as 0 for men and again with gender coded as 0 for women. We examined four APIM models: Each model had one of the four diary-assessed empathic-accuracy scores as the dependent variable. We entered actor's and partner's depressive symptoms, actor's gender, and the interaction terms of actor's gender and actor's and partner's depressive symptoms as predictors.

Table 3 presents the results of the models for women. As expected, actor's depressive symptoms were a significant predictor of diary-assessed empathic accuracy regarding both negative moods and negative relationship feelings. These effects indicate that among women, higher levels of depressive symptoms were associated with lower empathic accuracy regarding partners' negative moods and feelings. Partner's depressive symptoms and the interaction terms did not significantly predict

Table 2. Results From the Actor-Partner Interdependence Models Predicting Lab-Assessed Empathic Accuracy

	Men			Women		
Parameter	β	SE	df	β	SE	df
Intercept	0.48***	0.03	46	0.46***	0.02	46
Gender	−0.02	0.03	46	0.02	0.03	46
CES-D score						
Actor effect	−0.003	0.01	46	−0.02**	0.005	46
Partner effect	−0.005	0.01	46	−0.008	0.01	46
Actor's Gender × Actor's CES-D Score	−0.01	0.01	58	0.01	0.01	58
Actor's Gender × Partner's CES-D Score	−0.003	0.01	60.9	0.003	0.01	60.9

Note: In these multilevel models, values denoted as βs can be interpreted as unstandardized regression coefficients.
CES-D = Center for Epidemiologic Studies Depression Scale (Radloff, 1977).
**p < .01. ***p < .001.

Table 3. Results From the Actor-Partner Interdependence Models Predicting Women's Diary-Assessed Empathic Accuracy

Parameter	Positive moods			Negative moods			Positive relationship feelings			Negative relationship feelings		
	β	SE	df	β	SE	df	β	SE	df	β	SE	df
Intercept	3.21**	0.04	40	3.54***	0.04	40	3.24***	0.06	40	3.63***	0.06	40
Actor's gender	−0.01	0.03	40	−0.003	0.02	40	−0.01	0.03	40	−0.003	0.02	40
CES-D score												
Actor effect	−0.01	0.01	40	−0.02**	0.01	40	−0.01	0.01	40	−0.03*	0.01	40
Partner effect	−0.01	0.01	40	−0.01	0.01	40	0.0001	0.015	40	−0.004	0.01	40
Actor's Gender × Actor's CES-D Score	−0.002	0.01	47.4	0.02	0.02	43.8	0.01	0.02	42.9	0.03	0.02	42.5
Actor's Gender × Partner's CES-D Score	0.001	0.01	47.8	−0.02	0.02	43.7	−0.01	0.02	43	−0.02	0.02	42.3

Note: In these multilevel models, values denoted as βs can be interpreted as unstandardized regression coefficients. CES-D = Center for Epidemiologic Studies Depression Scale (Radloff, 1977).
*$p < .05$. **$p < .01$. ***$p < .001$.

empathic accuracy. It should be noted that when the models controlled for relationship duration, the Actor's Gender × Actor's Depressive Symptoms interaction reached significance (negative mood: $\beta = 0.03$, $SE = 0.02$, $p < .05$, one-tailed; negative relationship feelings: $\beta = 0.03$, $SE = 0.02$, $p < .05$, one-tailed).

Table 4 presents the results of the models for men. Unlike the models for women, those for men showed no significant effects of actor's depressive symptoms. In contrast, partner's depressive symptoms was a significant predictor of empathic accuracy regarding both negative moods and negative relationship feelings. These effects indicate that higher levels of depressive symptoms in women were associated with their partners having lower empathic accuracy regarding the

women's negative moods and feelings. Again, the interaction terms were not significant.

For both women and men, diary-assessed empathic accuracy regarding positive moods and positive relationship feelings was not significantly predicted by actors' or partners' depressive symptoms.

Discussion

This study is the first to investigate the association between depressive symptoms and empathic accuracy using both lab and daily diary procedures. Our results largely support our hypothesis that depressive symptoms are associated with lower levels of empathic accuracy among women, but not

Table 4. Results From the Actor-Partner Interdependence Models Predicting Men's Diary-Assessed Empathic Accuracy

Parameter	Positive moods			Negative moods			Positive relationship feelings			Negative relationship feelings		
	β	SE	df	β	SE	df	β	SE	df	β	SE	df
Intercept	3.21***	0.04	40	3.53***	0.04	40	3.24***	0.06	40	3.62***	0.05	40
Actor's gender	0.01	0.01	40	0.003	0.02	40	0.01	0.03	40	0.003	0.03	40
CES-D score												
Actor effect	−0.01	0.01	40	−0.002	0.01	40	0.002	0.02	40	0.003	0.01	40
Partner effect	−0.005	0.01	40	−0.03**	0.01	40	−0.01	0.01	40	−0.03*	0.01	40
Actor's Gender × Actor's CES-D Score	0.002	0.01	47.4	−0.02	0.01	43.8	−0.01	0.02	42.9	−0.03	0.02	42.5
Actor's Gender × Partner's CES-D Score	−0.001	0.01	47.8	0.02	0.01	43.7	0.01	0.02	43	0.02	0.02	42.3

Note: In these multilevel models, values denoted as βs can be interpreted as unstandardized regression coefficients. CES-D = Center for Epidemiologic Studies Depression Scale (Radloff, 1977).
*$p < .05$. **$p < .01$. ***$p < .001$.

among men. In the lab task, women's depressive symptoms were associated with lower levels of accuracy in inferring partners' thoughts and feelings, whereas men showed no such actor effects. The diary task revealed similar results: Women's depressive symptoms were associated with lower levels of empathic accuracy in inferring partners' negative moods and relationship feelings. No such association was found for accuracy regarding positive moods or relationship feelings. Again, men's depressive symptoms had no such actor effects. The diary task also revealed an effect that was not predicted: Higher levels of depressive symptoms in women predicted partners' lower empathic accuracy regarding the women's negative moods and relationship feelings; no such partner effects were found for positive moods, positive relationship feelings, or men's depressive symptoms.

These results are in line with accumulating evidence showing that the association between depression and interpersonal perception is more pronounced in women than in men (van Beek & Dubas, 2008; Wright et al., 2009). It is plausible that this gender difference contributes to the more general finding that among women, more than among men, depression is closely tied to emotional and behavioral difficulties in intimate relationships (Rehman et al., 2008). Moreover, our finding that women's depressive symptoms are associated not only with a decrease in their own empathic accuracy, but also with a decrease in their partners' empathic accuracy, is noteworthy. First, it suggests that women's depressive symptoms have unique interpersonal effects: They affect not only the depressed individual but also her partner. Although there is much evidence for the interpersonal costs of depression (Joiner, 2002), our finding is novel given the dearth of studies on depression and interpersonal perception in couples (cf. Papp et al., 2010; Thomas et al., 1997). The fact that this interpersonal partner effect was specific to the daily diary measure of empathic accuracy (and did not emerge in the lab data) is consistent with previous findings that depression's detrimental effect on intimate relationships is due to repeating, everyday patterns (Pettit & Joiner, 2006).

Second, our findings imply that when a woman is depressed, her relationship suffers doubly: first, because her own empathic accuracy is lower, and second, because her partner's empathic accuracy is also lower. In contrast, when men are depressed, neither their own nor their partners' levels of empathic accuracy are lower. It is noteworthy that these findings are not due to gender differences in depressive symptoms or empathic accuracy. The finding that women's depressive symptoms have a more powerful effect on their relationships than men's depressive symptoms do is in line with previous research by Davila et al. (1997), who argued that women have a more significant role than men do in maintaining relationships. Consequently, when women are depressed and less able to tend to their relationships, the relationships suffer more than when men are depressed.

Another important finding emerged from the daily diary procedure. As we hypothesized, the association between depressive symptoms and empathic accuracy was not only gender-specific, but also valence-specific. That is, depressive symptoms predicted lower empathic accuracy regarding negative moods and feelings, but not regarding positive ones. The specificity of this impairment to negatively valenced emotions is a robust finding (e.g., Gilboa-Schechtman et al., 2008). Coyne (1976) proposed that repeated experiences of interpersonal rejection lead depressed individuals to develop a heightened sensitivity to negative interpersonal information (Coyne, 1976).

The specificity of the association between higher levels of depression and accuracy regarding negative moods and feelings is of special importance in the context of intimate relationships. Previous studies suggest that negative exchanges are more significant and have longer-lasting effects on intimate relationships than positive exchanges do (Newsom, Nishishiba, Morgan, & Rook, 2003). An earlier study of couples found that hindrance (e.g., negativity, criticism, and obstruction of goals) had a broader effect on the relationship than supportive behavior did (Rafaeli et al., 2008). Similarly, Howland and Rafaeli (2010) found that empathic accuracy regarding negative moods is higher than empathic accuracy regarding positive moods, a finding that suggests it is more important to accurately identify negative moods than positive ones. Our findings enrich the understanding of the ways in which depression's association with empathic accuracy plays a part in the broader association of depression with interpersonal difficulties: It appears that depressive symptoms impair the type of empathic accuracy that is particularly important and consequential to relationships.

Our study has several limitations. The main one is its relatively small sample, which affected our power to detect the predicted interactions. In fact, according to Green's (1991) recommendations for regression analyses, a sample of 90 couples would be needed to test the full APIM model. Nevertheless, although the Depressive Symptoms × Gender interactions did not reach significance, the effects of depressive symptoms on actor's empathic accuracy were significant for women but not for men in both the lab and the diary data. Although this study suggests that empathic accuracy is a possible mechanism mediating the association between depression and interpersonal difficulties (Hammen, 2006), directly testing this mediation was outside the scope of the present study because of the small sample size. Finally, this study examined a community sample with a restricted range of depressive symptoms. These limitations may have restricted the statistical power of the analyses and reduced the extent to which our findings generalize to individuals with clinical depression. Future research should involve clinical populations and test whether empathic accuracy mediates the association between depression and interpersonal difficulties in such samples.

Conclusions

The study reported here was a unique investigation of the association between depressive symptoms and the interpersonal

processes of empathic accuracy in couples. Using both lab and diary procedures, we found that women's depressive symptoms are associated with poorer interpersonal perception—both their own and their partners'. This impairment is specific to negative feelings. Our results, like others that support the transactional stress-generation model (cf. Davila et al., 1997), demonstrate one way in which individuals may inadvertently contribute to the vicious cycle of depression and interpersonal stress. Specifically, our results suggest that empathic accuracy is an interpersonal mechanism that underlies the association between depressive symptoms and interpersonal stress. We found depressive symptoms to be associated with lower empathic accuracy in settings in which there was presumably little perceived threat to the relationship: a lab interaction in which couples were asked to provide mutual support and a diary task that assessed daily interactions. Previous studies have shown that in nonthreatening situations, lower empathic accuracy is associated with lowered perceived closeness to relationship partners (Simpson et al., 2003), and thus may be detrimental to relationships. Therefore, the lower empathic accuracy we observed among women with higher depressive symptoms likely contributes to lower relationship satisfaction.

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Declaration of Conflicting Interests

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Note

1. The specific type of ICC we computed is equivalent to Cronbach's α and is an appropriate estimate of interrater reliability whenever scores are averaged across raters (McGraw & Wong, 1996).

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