

Accurate Where It Counts: Empathic Accuracy on Conflict and No-Conflict Days

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When we are accurate regarding our partners' negative moods, are we seen as more responsive (and do we see them as such) as a function of the presence/absence of conflict? In 2 daily diary studies, empathic accuracy (EA) was assessed by comparing targets' daily negative moods with perceivers' inferences of these moods. We hypothesized that conflict will be associated with reductions in perceived partner responsiveness (PPR) for both parties; that on no-conflict days, EA will be positively associated with both parties' PPR; that on conflict days, this positive association will be stronger for targets but will become negative for perceivers; and that regardless of conflict, overestimation (vs. underestimation) of negative moods will be tied with higher PPR for targets but with lower PPR for perceivers. Thirty-six (Sample 1) and 77 (Sample 2) committed couples completed daily diaries (for 21 or 35 days, respectively). We utilized multilevel polynomial regression with response surface analyses, a sophisticated approach for studying multisource data of this sort (Edwards & Parry, 1993). Results partially supported our hypotheses: conflict was tied to reduced PPR; on no-conflict days, EA was not consistently predictive of target or perceiver PPR; on conflict days, EA predicted increased target PPR but decreased perceiver PPR; finally, overestimation predicted increased target PPR on no-conflict days and decreased perceiver PPR regardless of conflict. These results highlight the double-edged effects of EA on conflict days, and the importance of investigating dyadic EA in a context-sensitive approach.

Keywords: romantic relationships, interpersonal conflict, interpersonal perception, empathic accuracy, response surface analysis

Accurate interpersonal understanding within romantic relationships is tied, at least under most conditions, to relational well-being (Cohen, Schulz, Liu, Halassa, & Waldinger, 2015; Cohen, Schulz, Weiss, & Waldinger, 2012; Rafaeli, Gadassi, Howland, Boussi, & Lazarus, in press; for review, see Ickes & Hodges, 2013; for a meta-analysis see Sened, Lavidor, Lazarus, Bar-Kalifa, & Rafaeli, 2017). Still, relatively little is known about when and how it is that accurate empathic inferences made by romantic partners would be linked to relational outcomes. In the current study, we tested the possibility that the presence or absence of conflict may be one important contextual factor (i.e., a moderator) in this regard. Conflict, of course, tends to hinder the health of relation-

ships (for a review, see Fincham & Beach, 1999); but does it also moderate the effects of accurate interpersonal understanding? To answer this, the current study explored the role of empathic accuracy regarding negative moods as an index of interpersonal understanding among relationship partners, vis-à-vis an important relational outcome—namely, perceptions of partner responsiveness, on conflict and no-conflict days.

Empathic Accuracy and Its Assessment

Empathic accuracy (EA), or the ability to read others' fleeting mental states, has been garnering a growing amount of research attention in recent years, and appears to play a role in many, if not most, interpersonal interactions (for review, see Hall, Mast, & West, 2016). Several methods have been developed for assessing the degree to which individuals are accurate and/or biased in their inferences of others' mental states. One prominent method, developed by Ickes (1997, 2003), is the dyadic interaction paradigm, which has been used extensively over the last three decades (for a review, see Hodges, Lewis, & Ickes, 2015; Ickes & Hodges, 2013). In studies using this paradigm, EA is defined as the ability to "mind-read" other people's thoughts and feelings following a brief videotaped conversation. The participants independently view the videotapes, recalling their own thoughts and feelings and inferring their partners'. Objective observers then rate the correspondence between targets' recollection and perceivers' inferences.

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An emerging alternative method for assessing accuracy in interpersonal understanding makes use of ecologically valid diary data (e.g., Howland & Rafaeli, 2010; Overall, Fletcher, Simpson, & Fillo, 2015; Wilhelm & Perrez, 2004). The diary method takes the study of accuracy out of the lab and into daily life by comparing quantitative indices of targets' mental states and perceivers' inferences of these states. Daily diaries allow for the examination of accuracy regarding a variety of target variables in a standardized way. Thus, they let us prespecify which constructs (e.g., specific feelings or moods) will be reported (and inferred).

Notably, the diary-based approach diverges from the lab-based one in several ways. First, its reliance on numerical ratings of affective states differs from the more verbally reflective nature of the lab-based paradigm, which is based on the content of both affect and cognition. Second, the time scale of the experienced/inferred mental states differs in the two approaches; whereas lab-based EA tracks moment-to-moment changes in participants' mental states, diary-based EA tracks longer-term (day-to-day) changes. Finally, whereas lab-based EA may tap the *capacity* for accuracy more directly, diary-based EA may tap the *tendency* toward real-life accuracy more directly. After all, diary-based reports and inferences are gathered within the context of daily life and quotidian interactions. These do not afford the (somewhat artificial) opportunity of reviewing the interactions in search of relevant cues, as is the case in the lab-based EA paradigm; instead, because they are obtained in the course of daily life, they profit from a proximity to the respondents' real-life experiences that may be absent from lab-based interactions. These factors have led to a growing interest in using diary-based methods in studying accurate interpersonal understanding (e.g., Gadassi, Mor, & Rafaeli, 2011; Howland & Rafaeli, 2010; Overall et al., 2015; Wilhelm & Perrez, 2004).

Empathic Accuracy and Relational Outcomes

Most previous research regarding outcomes associated with EA has been based on studies using lab-based EA. In general, studies of this sort have shown greater EA to be associated with more positive relationship outcomes (for a review, see Ickes & Hodges, 2013; for a meta-analysis, see Sened, Lavidor, et al., 2017). For example, EA was correlated positively with both partners' relationship satisfaction (Cohen et al., 2012), with perceivers' more skillful (practical) social support (Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008), with more accommodating target and perceiver behaviors (Kilpatrick, Bissonnette, & Rusbult, 2002), and with less physical and psychological aggression for targets and perceivers (Cohen et al., 2015).

However, several lab-based studies have failed to find salutary associations for EA (e.g., Thomas & Fletcher, 2003; Thomas, Fletcher, & Lange, 1997), and some have even demonstrated EA to be tied to negative relational outcomes under certain circumstances. Specifically, Simpson, Ickes, and Grich (1999) found that among anxiously attached individuals, higher EA was tied to lower closeness following an interaction as well as to lower relationship stability over time. In a similar vein, Simpson, Oriña, and Ickes (2003) have shown that when targets' thoughts and feelings were threatening to the relationship, perceivers who were more accurate experienced pretest to posttest declines in closeness. Indeed, in an extensive review of the literature on judgment accuracy in intimate

relationships, Fletcher and Kerr (2010) found that the average association between relationships satisfaction and a variety of interpersonal tracking-accuracy indices (only some of which were EA-type "mind-reading accuracy" indices) was null. Still, as Ickes and Hodges (2013) note in a more focused review of the EA literature, EA should be (and is) tied to positive relational outcomes under most conditions.

Diary-based EA outcome studies are still relatively scarcer, though increasing in recent years. Their results generally speak to EA's positive role in intimate relationships. For example, Overall et al. (2015) found that (at least among avoidantly attached individuals) those who engaged in less overestimation of their partners' negative emotions were less hostile and defensive. Howland (2016) found daily EA to be associated with more provision of invisible practical support by the perceivers—that is, with support provided subtly, often without recipient awareness, a behavior considered particularly beneficial within close relationships. Similarly, in a series of diary-based studies, Rafaeli et al. (in press) found EA for negative moods to be associated with better relationship feelings for both perceivers and targets.

One insight from the extant EA literature is that the associations between accuracy and outcomes often depend on what the perceivers are accurate *about*. Indeed, EA itself appears not to be a monolithic ability. Accuracy regarding negatively valenced states tends to differ from accuracy regarding positively valenced states (Howland & Rafaeli, 2010), and to be tied much more strongly to relational outcomes (Cohen et al., 2012; Rafaeli et al., in press; Sened, Lavidor, et al., 2017). This greater importance of accuracy regarding negatively valenced states may reflect the more powerful communicative role that negative emotions or moods (such as anxiety, anger, and sadness) play in intimate relationships (for review, see Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; e.g., Gottman, 1994). Negatively valenced states tend to signal unfulfilled needs; underestimating them may lead the perceiver away from taking appropriate corrective or supportive action, but overestimating them may also generate unnecessary relational tension and lead to exaggerated reactions (Murray & Holmes, 2009; Overall & Hammond, 2013). Additionally, negative-valenced states may signal the occurrence of unfavorable relational processes. When perceivers detect such states, they can try to remedy these processes. For these reasons, the current work (like Rafaeli et al., in press) focuses solely on accuracy regarding negative affect.

Factors Driving EA's Association With Relational Outcomes

EA's constructive role in romantic relationships may be driven by various relational processes which may be distinct for targets versus perceivers. For one, targets of accurate perception may have their relational needs better identified, and thus feel better understood. This feeling of being understood is considered highly valuable in intimate relationships and found to be associated with various positive relationship outcomes (e.g., Gordon, Tuskeviciute, & Chen, 2013; Pollmann & Finkenauer, 2009; Weger, 2005).

Alongside the targets' perception of their partners' understanding, accurate empathic inferences may benefit targets by fostering more skillful social support by their perceivers. As qualitative

analyses of supportive transactions (e.g., Pearlman & McCall, 1990) have shown, such transactions tend to unfold in sequential stages that begin with the potential recipient's recognition of the problem at hand and the potential provider's awareness of this problem; continue with the recipient's and the provider's appraisal of the problem, the situation, and the available resources; and culminate in the actual support transaction or *action*. Successful action often depends on the ability of the provider to traverse successfully the preceding two stages of awareness and appraisal. As such, it seems that providers can benefit from having accurate insights regarding their partners' internal states—particularly those that convey distress (e.g., anxiety, sadness, or anger). In other words, providers may be better positioned to help when they are empathically accurate in seeing the putative recipient's perspective (for review, see Rafaeli & Gleason, 2009). Links between EA and support have been found in several studies (Howland, 2016; Rafaeli, Bar-Kalifa, & Ashur, 2017; Verhofstadt et al., 2008, 2016; Verhofstadt, Ickes, & Buysse, 2010).

For their part, accurate perceivers may enjoy relational benefits through both direct and indirect processes. Directly, accurate empathy may fulfill the perceivers' truth motivation (i.e., the desire to see things as they really are; Cornwell, Franks, & Higgins, 2014), and/or help them feel more relationally efficacious, with their relationship being more predictable, controllable, and thus pleasant (e.g., Cui, Fincham, & Pasley, 2008; Riggio et al., 2013). Indirectly, accurate empathy, which attunes perceivers to their targets and thus turns them into better support providers (as argued above), may in turn benefit the perceivers themselves. Indeed, the provision of skillful support is likely to facilitate cycles of mutuality and reciprocation of positive prosocial behaviors (Reis, 2012).

Conflict as Potential Moderator of EA's Association With Relational Outcomes

Diary-based methods are particularly useful for studying EA and its outcomes in the daily life of both targets and perceivers. Ironically, most diary-based studies of EA have failed to capitalize to date on an important opportunity that is part of their *raison d'être*—the opportunity to examine contextual factors that may be tied to the level of EA (though see Sened, Lavidor, et al., 2017) or to its effects. The key aim of the present work is to do just that—by examining the possible effects of one important contextual factor, namely relational conflict, on a relational outcome of EA.

Conflicts and the way they are managed hold great importance for relationship functioning (Bolger, DeLongis, Kessler, & Schilling, 1989; Carstensen, Gottman, & Levenson, 1995; Gottman, 1979; Papp, Kouros, & Cummings, 2009). On the one hand, conflictual situations in intimate relationships can be quite destructive. On the other hand, conflicts constitute opportunities for individuals to express their regard for their partners in the face of clashing motivations and/or interests (Reis, 2001). Failure to show consideration or care during (and following) conflict may lead to both immediate and longer term tension, dissatisfaction, and negative affect, whereas finding ways to show understanding and caring can lead to increased feelings of relatedness, intimacy, and positive affect (e.g., Gottman, Coan, Carrere, & Swanson, 1998; Sanford, 2010).

In their comprehensive review of the marital conflict literature, Fincham and Beach (2010) stressed that conflict by itself goes only so far in explaining relational outcomes, and should be considered in interaction with other factors (see also Janicki, Kamarck, Shiffman, & Gwaltney, 2006). The accuracy of both partners' empathic inferences in any given moment may constitute one such factor. Specifically, given the centrality of negative affect to conflict situations, misestimating this affect may prove harmful. For example, exaggerating one's partner's anger or hurt feelings may catalyze deleterious relationship outcomes (Campbell, Simpson, Boldry, & Kashy, 2005; Overall et al., 2015). Conversely, minimizing one's partner's anger or hurt feelings may also be problematic, as it may impede the perceiver's ability to engage in appropriate repair or reconciliation.

Conflict situations have the potential to call into question our faith in our partners' goodwill, their care for us, their appreciation of our abilities or traits, or the degree to which they share our worldview. In short, conflicts erode our sense of our partner's understanding. As a series of studies by Gordon and Chen (2016) demonstrated, perceived partner understanding buffered against the detrimental effects of conflict on the targets' relational outcomes. Presumably, even in the midst of conflict, one partner is likely to perceive the other as more understanding when he or she truly understands. In other words, perceivers' greater empathic accuracy could help protect or rebuild their partners' faith (and indirectly, their own as well) following conflict. A similar argument, highlighting the role of accommodative motivations, was made by Kilpatrick et al. (2002). The occurrence of relational conflict was indeed found to be correlated with EA in a recent study conducted in our lab (using data from the same samples used in the current study; Sened, Yovel, Bar-Kalifa, Gadassi, & Rafaeli, 2017); during conflict days, indirect EA (accuracy obtained through correct assumed similarity) was higher. Additionally, agreement between the partners regarding the occurrence of conflict was also tied to greater EA.

Perceived Partner Responsiveness as an Outcome

One proximal outcome that may be particularly sensitive to EA is the perception of one's partner's responsiveness (PPR; for review, see Reis & Clark, 2013; Reis, Clark, & Holmes, 2004). PPR comprises one's feelings of being understood, validated, and cared for; it is a sensitive index of a relationship's health (e.g., Bar-Kalifa & Rafaeli, 2013; Maisel & Gable, 2009). It has been found to be associated with more positive affect (Canevello & Crocker, 2010), reduced stress (Collins & Ford, 2010), enhanced intimacy (Laurenceau, Barrett, & Pietromonaco, 1998), and more marital satisfaction (e.g., Gadassi et al., 2016) within romantic relationships. Though PPR can be thought of as a stable characteristic, it may also fluctuate from day to day or moment to moment (Reis et al., 2004), reflecting the respondent's sensitivity to events within the relationship. For this reason, and because its associations with EA has yet to be examined, we chose to focus on PPR as our relational outcome.

The Present Study

The present study's aim was to examine the associations between EA and PPR under the relational contexts of conflict versus

no conflict. More specifically, we used dyadic daily diaries, and focused on the accuracy of perception regarding *negative moods*, as it appears to have greater influence on relational outcomes than the accuracy regarding positive moods (Cohen et al., 2012; Rafaeli et al., in press; for review, see Baumeister et al. 2001; Sened, Lavidor, et al., 2017).

Daily diaries, like any repeated measures of individuals' reports/inferences of their own and their partners' mental states, allow exploring the association between point-level accuracy and a variety of momentary (or daily) outcome variables. Yet, the interpretation of accuracy scores, which requires comparing targets' reports of their affect with their partners' perceptions of it, and of their associations with relevant outcomes, is more complicated than simply using an (intuitively appealing) difference score, for reasons made clear by various methodological writers over the years (e.g., Cronbach & Furby, 1970; Griffin, Murray, & Gonzalez, 1999). Briefly, when using difference scores to predict outcomes, we risk confounding the effect of the difference score with that of each one of its constituents. To address this issue, Edwards (1994) proposed using polynomial regression and response surface analysis (PRRSA).

PRRSA is a statistical approach which lets researchers examine the extent to which specific combinations of two predictor variables are associated with an outcome variable. In that, it expands on other approaches based on multiple regression (including the actor-partner interdependence model [Kenny, Kashy, & Cook, 2006]), which provide estimates for the effects of one independent variable for different values of the other independent variable (for a detailed account see Griffin et al., 1999). PRRSA is particularly suitable when accuracy (or discrepancy) scores are used as predictors (Shanock, Baran, Gentry, Pattison, & Heggstad, 2010), as it simultaneously explores linear, quadratic, and interactive effects of target and perceiver reports.

PRRSA yields several indices (named "surface test values") relevant to the study of EA: It indexes the degree to which perceivers' accurate inferences of their partners' moods (vs. under- or overestimated inferences of these moods) are associated with an outcome variable. It also provides an index testing the degree to which underestimation of the partner's mood is tied to better or worse outcomes than overestimation. Thus, PRRSA delineates a clear nuanced picture of the interactive effects of quantitatively assessed moods (reported by one partner) and their perception (reported by the other) on a given outcome variable. It is interesting to note that only one study to date (Muise, Stanton, Kim, & Impett, 2016) has made use of these methods to explore interpersonal accuracy in close relationships.

Using PRRSA, we predicted the following:

Hypothesis 1: Conflict and PPR. On days in which individuals report that conflict has occurred, they will experience drops in PPR. Though this link has yet to be examined directly, some findings support it. For example, Rafaeli et al. (2008, Study 1) as well as Seidman and Burke (2015) found that the occurrence of daily conflicts is tied to stronger negative relationship feelings and weaker positive relationship feelings.

Hypothesis 2: EA and targets' PPR. Targets will perceive their (perceiving) partners as more responsive on days in which these partners are more accurate, regardless of conflict (Hypothesis 2a). However, the association between perceiver

EA and target PPR will be stronger on conflict days (Hypothesis 2b). These associations between EA and target PPR have yet to be examined directly. Still, one component of PPR is perceived understanding, and there is some indirect evidence supporting the association between perceived and actual understanding (Campbell, Lackenbauer, & Muise, 2006; Swann, Stein-Seroussi, & Giesler, 1992). Moreover, actual understanding may lead to positive relational behaviors and thus to perceptions of greater care and validation, which are also components of PPR. This effect should be more pronounced when conflict occurs: perceivers who accurately detect elevated hurt feelings experienced by the target during conflict may show more validation and caring, which will lead to smaller (conflict-related) drops in the target's PPR.

In a more speculative manner, we expected that targets whose negative moods are perceived inaccurately would have somewhat higher PPR if the inaccuracy involved overestimation than if it involved underestimation; we further speculate that this bias would occur regardless of conflict (Hypothesis 2c). This speculation is premised on the idea that perceivers who miss or underestimate their target partners' negative affect would miss opportunities for any reparative action, and would be perceived as unresponsive. Of course, perceivers who overestimate may also "miss the mark" – by possibly engaging in unneeded or exaggerated responses; still, they aren't likely to be seen as unresponsive.

Hypothesis 3: EA and perceivers' PPR. We see the link between perceivers' accuracy and their own PPR as more complex. Indeed, associations between EA and perceivers' PPR have yet to be examined directly, and the existing literature can lead to contradictory predictions. On the one hand, perceivers who are accurate may experience greater PPR, as accurate inferences about one's partner's mental states may render interactions more predictable and thereby provide accurate perceivers with greater relational confidence. Under most conditions, this confidence should foster more affiliative behaviors and cognitions, including more skillful social support (for review, Ickes & Hodges, 2013; e.g., Verhofstadt et al., 2008). Both strong confidence and skillful support are likely, in turn, to lead to reciprocal affiliative behaviors on the partner's part, and thus to higher PPR. Recent meta-analytic results from our lab (Sened, Lavidor, et al., 2017) are consistent with this approach, and document a positive (though weak) association between (lab-based) EA and perceivers' relationship satisfaction.

On the other hand, as Ickes and Simpson's (2001) revised EA model has taught us, accurate inferences regarding one's partner's mental states may not always be beneficial. In particular, higher levels of EA have been found to be tied to negative outcomes in threatening relational situations (e.g., Simpson, Ickes, & Blackstone, 1995; Simpson et al., 2003). In the present study, the empathic inferences were not focused explicitly on any relationally threatening content, but rather, simply on the partners' negative moods. Still, one could consider a partner's negative mood in the presence of conflict to be somewhat threatening.

Given this complex picture, our hypotheses regarding the association between EA and perceiver PPR are context-dependent.

Specifically, on no-conflict days, we expect individuals to perceive their partners as more responsive when they themselves are more accurate (Hypothesis 3a). In contrast, on conflict days, we expect individuals to perceive their partners as less responsive on days in which they themselves are more accurate (Hypothesis 3b).

As was the case with the role of overestimation and underestimation for targets, we did not have firm grounding for hypotheses regarding the role of bias for perceivers, either. Still, in an admittedly speculative manner, we expected that perceivers would have somewhat lower PPR if they overestimate their target partner's negative mood than if they underestimate it; we further speculated that this bias would occur regardless of conflict (Hypothesis 3c). This speculation is premised on the idea that targets who seem to be upset (whether sad, anxious, angry, or some combination of these) are likely to be perceived as more preoccupied and thus less available and responsive. Indeed, individuals who experience more negative affect have been shown to be more self-focused (Mor & Winquist, 2002; Mor et al., 2010).

Our predictions regarding the differential role of EA in different contexts were examined using daily diary data from two samples. The first sample included 37 romantic couples who completed daily questionnaires for 3 weeks. The second sample included 77 romantic couples who completed daily questionnaires for 5 weeks.

Method

Participants

Both samples involved adult couples (age >18) who were in relationships for at least 6 months.

Sample 1. Forty-three heterosexual Israeli couples. We excluded five couples who had insufficient daily diaries (entries <6 for either partner) and one couple whose members' conflict reports were exceptionally high (84% vs. 13% mean [$SD = 15\%$]). Among the remaining 37 couples, the mean age for men was 30.1 years (range: 20–65, $SD = 10.0$) and the mean age for women was 28.0 years (range: 20–57, $SD = 9.0$). All participants had at least a high-school education with an average of 2.5 years ($SD = 2.3$) of postsecondary education. Average relationship duration was 7.2 years (range: 10 months to 36 years, $SD = 8.5$ years). Among the couples, 29 (78.3%) were married and 17 (45.9%) had at least one child.

Sample 2. Eighty-six heterosexual Israeli couples. Six couples dropped out and three couples whose members' conflict reports were exceptionally high (higher than 72% vs. 20% mean [$SD = 16\%$]) were excluded. Among the remaining 77 couples, the mean age for men was 29.2 (range: 23–43, $SD = 4.3$) and the mean age for women was 26.7 (range: 21–38, $SD = 3.9$). All participants had at least a high-school education, with an average of 2.9 years ($SD = 2.3$) of postsecondary education. Average relationship duration was 4.6 years (range: 1–17 years, $SD = 2.9$). Among the couples, 53 (68.8%) were married and 21 (27.2%) had at least one child.

Procedure

Sample 1. As part of a course requirement, undergraduate students recruited couples as participants. Participating couples were entered into a raffle for a prize worth approximately US\$80. At the study's initiation, a research assistant visited the couple's home, introduced the study's goal of examining daily processes in intimate relationships, and gave each participant a personal password for a secure online data collection site (www.surveymonkey.com). After providing informed consent, participants were asked to complete the questionnaires privately and to avoid discussing their answers with their partners. Participants were requested to complete the daily diaries within an hour of going to bed over 21 consecutive evenings; on average, participants completed 17.8 ($SD = 4.2$) of these daily diary entries (84.9% response; of these, 87.5% were completed on time; only compliant on-time data were used for analyses).

Sample 2. Participants were recruited via flyers, social media, and online classified websites, which offered approximately US\$100 per couple and inclusion in a raffle for a gift worth US\$200. In a first lab visit, after completing background questionnaires, participants were introduced to the web diary, instructed in its use, and given a personal password for a secure online data collection site (www.qualtrics.com). Each evening, for 35 days, participants received an e-mailed link to that day's diary questionnaire. They were asked to complete it within an hour of going to bed. When participants failed to complete the diary for two consecutive days, a research assistant contacted them to emphasize the importance of adherence. Participants completed an average of 34.8 ($SD = 0.6$) of the diary entries (99.4% response; of these, 85.1% were completed on time; as in Sample 1, only compliant on-time data were used for analyses).

Measures

For both samples, only measures relevant to the current report are described.¹ The studies were administered in Hebrew; all instruments were translated and back-translated to ensure consistency with the English versions.

Own negative mood and perception of partner negative mood. Participants were asked to report their mood and to estimate their partner's mood. Mood was assessed using an adapted and shortened daily diary version (Cranford et al., 2006) of McNair, Lorr, and Droppleman's (1971) Profile of Mood States (POMS). Participants were presented with 9 items, composing brief scales of negative moods: anger, sadness, anxiety. Items were rated on a five-point scale, ranging from 0 (*not at all*) to 4 (*extremely*). The within- and between-person reliabilities for the scales were computed using procedures outlined by Shrout and Lane (2012). For own negative mood within- and between-person reliabilities in Sample 1 were .85 and .72, respectively, and in Sample 2 they were .79 and .83, respectively. For perceived negative mood within- and between-person reliabilities in Sample 1 were .84 and .76, respectively, and in Sample 2 they were .86 and .78, respectively.

¹ For a full list of study measures, and for the data used in the present study, please see <http://www.osf.io/2bbh9>.

Conflict. Conflict on a given day was defined as “a situation in which partners disagree significantly and was expressed verbally or behaviorally”, and was assessed with a simple dichotomous item. Conflict was reported by participants on 13% of days in Sample 1 and on 20% of the days in Sample 2. Partners’ percentage of agreement regarding the presence or absence of conflict were 56.0% in Sample 1 and 67.6% in Sample 2. We used the conflict reports of the partner whose PPR scores we predicted in all analyses.

Perceived Partner Responsiveness. Participants were asked to rate three items on a 7-point Likert scale ranging from 0 (*not at all*) to 6 (*very much*). The items inquired to what extent they felt today that “my partner understood me,” “expressed liking and encouragement for me,” and “valued my abilities and opinions.” The items were an adapted daily diary version of Reis (2003) trait PPR measure (Maisel & Gable, 2009). The within- and between-person reliabilities for the scales in Sample 1 were .91 and .93, respectively, and in Sample 2 were .88 and .91, respectively. Sample’s 1 and 2 average PPR level across all days were 4.96 and 5.08, respectively (*SDs* = 1.21 and 1.15; Range: 0 to 6). As can be inferred from the relatively high means, the distributions of PPR scores in both samples were negatively skewed. However, significant amounts of variability were present in both conflict and no-conflict days. Moreover, the distribution of residuals in all PRRSA models showed acceptable margins for skewness (all above -1.48; Ryu, 2011).

Results

Demographics and descriptive statistics for both samples are presented in Table 1. Negative moods and PPR means in conflict and no conflict days are presented in Table 2.

Data Analysis

Because our data had a multilevel structure (days nested within persons, and persons nested within couples), we used multilevel models (MLM, using PROC MIXED; SAS Institute, 2003). Such models allowed us to estimate two levels (a within-individual level

and a between-individual level), to take into account the nonindependence of partners within a couple, and to accommodate unbalanced data (which occurred only in Sample 1; see Bolger & Laurenceau, 2013).

To test whether accurate (or biased) mood perception was tied to PPR, we conducted multilevel PRRSA (Edwards & Parry, 1993). Specifically, we used the relevant coefficients and their respective standard errors from the two-level polynomial regression model to construct the response surface test values (namely, a_1 , a_2 , a_3 , and a_4 ; these will be explained below). We ran two separate models: one in which targets’ mood and perceivers’ estimation of it predicted targets’ PPR (testing hypotheses 2a, 2b, and 2c), and another in which targets’ mood and perceivers’ estimation of it predicted perceivers’ PPR (testing Hypotheses 3a, 3b, and 3c). To test the effect of conflict, our models included separate intercepts and coefficients for conflict and no-conflict days. This was accomplished by using two dummy coded variables: Conflict and No Conflict. Additionally, the previous day’s outcome score (i.e., lagged PPR) was also included in the model as a covariate to reduce concerns regarding reverse causation (Shrout et al., 2010).

Analyses were based on guidelines described in Shanock et al. (2010) which were adapted for our data’s multilevel structure. Specifically, whereas Shanock et al. (2010) recommend centering variables around the scale midpoint, we person-mean-centered individuals’ daily reports of their moods and their estimates of their partners’ moods around these variables’ respective means (across all days). This centering choice allows for the removal of between-subjects variability and is recommended when analyzing hierarchically nested data (Raudenbush & Bryk, 2002). This approach means that the effects can be interpreted as changes in the outcome associated with variation from the couple’s typical (i.e., average) level of accuracy or discrepancy.

Next, we followed Shanock et al.’s (2010) guidelines, by calculating mean-squares of the target’s mood (x^2) and the perceiver’s estimate of this mood (y^2), as well as a product term of the two (xy). These five terms (x , y , x^2 , y^2 , and xy) were entered as predictors into the model twice—for conflict and for no-conflict

Table 1
Demographics and Descriptive Statistics of Sample 1 and 2 Variables

Variable	Sample 1				Sample 2			
	Men		Women		Men		Women	
	<i>M</i> (<i>SD</i>)	Range	<i>M</i> (<i>SD</i>)	Range	<i>M</i> (<i>SD</i>)	Range	<i>M</i> (<i>SD</i>)	Range
Age	30.1 (10.0)	20–65	28.0 (9.0)	20–57	29.2 (4.3)	23–43	26.7 (3.9)	21–38
% Students	27.0%		32.4%		29.9%		42.9%	
% Married			78.3%				68.8%	
% Parents			45.9%				27.2%	
Education (years)	14.1 (2.2)	12–19	14.8 (2.4)	12–21	14.8 (2.5)	12–24	15.0 (2.1)	12–24
Relationship duration	<i>M</i> (<i>SD</i>) = 7.2 (8.5), range = .9–36				<i>M</i> (<i>SD</i>) = 4.6 (2.9), range = 1–17			
Cohabitation duration	<i>M</i> (<i>SD</i>) = 5.7 (10.3), range = .2–46				<i>M</i> (<i>SD</i>) = 3.1 (2.5), range = .5–15			
Relationship satisfaction	69.1 (9.9)	47–81	69.6 (8.8)	51–81	72.1 (6.90)	53–81	70.3 (9.00)	47–81
Negative moods	0.29 (0.30)	0.00–4.00	0.30 (0.25)	0.00–3.33	0.28 (0.28)	0.00–3.33	.36 (.30)	0–3.33
Estimation of partner negative moods	0.40 (0.33)	0.00–3.33	0.24 (0.24)	0.00–3.33	0.40 (0.32)	0.00–3.67	.32 (.26)	0–2.90
% Conflict days	11.5%		14.1%		19%		19%	
PPR	4.93 (1.18)	0–6	5.00 (1.26)	0–6	5.12 (1.07)	0–6	5.13 (1.09)	0–6

Note. Time variables are in years. Relationship satisfaction is based on the CSI (Couples Satisfaction Index). PPR = perceived partner responsiveness.

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Table 2
Levels of Overall and of Specific Negative Moods, and PPR on Conflict and No-Conflict Days in Samples 1 and 2

Variable	Sample 1				Sample 2			
	Conflict		No conflict		Conflict		No conflict	
	M (SD)	Range	M (SD)	Range	M (SD)	Range	M (SD)	Range
Overall Negative mood	.60 (.64)	0–3.11	.24 (.42)	0–4	.53 (.64)	0–3.33	.28 (.43)	0–2.89
Anger	.66 (.80)	0–3	.16 (.45)	0–4	.47 (.77)	0–4	.14 (.38)	0–3
Anxiety	.64 (.71)	0–2.67	.37 (.59)	0–4	.61 (.76)	0–4	.43 (.65)	0–4
Sadness	.50 (.70)	0–4	.18 (.45)	0–4	.50 (.72)	0–3.67	.26 (.53)	0–3.67
PPR	4.00 (1.58)	0–6	5.11 (1.08)	0–6	4.51 (1.46)	0–6	5.27 (.91)	0–6

Note. PPR = perceived partner responsiveness.

days. Additionally, lagged PPR was entered as a covariate. The mixed-level equation was as follows:

$$\begin{aligned} & \text{Target's/Perceiver's PPR}_{ij} = \\ & \text{Conflict} * [(\gamma_{00} + u_{0j}) + (\gamma_{10} + u_{1j}) * \text{Target's negative mood}_{ij} + (\gamma_{20} + u_{2j}) * \text{Perceiver's estimation of negative mood}_{ij} + (\gamma_{30} + u_{3j}) * \text{Target's negative mood}_{ij}^2 + (\gamma_{40} + u_{4j}) * \text{Target's negative mood}_{ij} * \text{Perceiver's estimation of negative mood}_{ij} + (\gamma_{50} + u_{5j}) * \text{Perceiver's estimation of negative mood}_{ij}^2] + \\ & \text{No_Conflict} * [(\gamma_{60} + u_{6j}) + (\gamma_{70} + u_{7j}) * \text{Target's negative mood}_{ij} + (\gamma_{80} + u_{8j}) * \text{Perceiver's estimation of negative mood}_{ij} + (\gamma_{90} + u_{9j}) * \text{Target's negative mood}_{ij}^2 + (\gamma_{10,0} + u_{10j}) * \text{Target's negative mood}_{ij} * \text{Perceiver's estimation of negative mood}_{ij} + (\gamma_{11,0} + u_{11j}) * \text{Perceiver's estimation of negative mood}_{ij}^2] + \\ & (\gamma_{12,0} + u_{12j}) * \text{PPR}_{(i-1)j} + e_{ij} \end{aligned}$$

where the outcome for person's *j* on day *i* was predicted by the sample's intercepts (γ_{00} for conflict days, and γ_{60} for no-conflict days), by the average (i.e., fixed) effects (γ_{10} - γ_{50} , and γ_{70} - $\gamma_{12,0}$) of the predictors, by this person's deviation for the fixed effects (i.e., the random effects: u_{0c} - u_{12c}), and by a Level-1 residual term quantifying the day's deviation from these effects (i.e., the random effect at Level 1; e_{ij}). All variables were considered to be random at Level 2.

Using the estimates obtained in these models, we evaluated the four surface test values (a_1 , a_2 , a_3 , and a_4). Our main interest was to determine whether individuals' degree of accuracy regarding their partners' negative moods is associated with their own—or their partner's—PPR. This question is best addressed by the curvature along the line of incongruence (a_4 —computed as $[x^2 + y^2 - xy]$). A significant positive value for a_4 , manifested in a convex surface plot, would indicate that greater accuracy (i.e., congruence between targets' moods and perceivers' estimation of these moods) is associated with lower PPR; conversely, a significant negative value for a_4 , manifested in a concave surface plot, would indicate that greater accuracy is associated with higher PPR.

We also wanted to determine whether one direction of inaccuracy (i.e., underestimation vs. overestimation) in perceivers' estimates of their targets' negative moods has stronger associations

with either partner's PPR. This question is best addressed by the linear slope of the line of incongruence (a_3 —computed as $[x - y]$). A significant positive value for a_3 , manifested in a left-to-right downward slope of the surface plot, would indicate that overestimation of partners' moods is associated with lower PPR (vs. underestimation), whereas a significant negative value for a_3 , manifested in a left-to-right upward slope of the surface plot, would indicate that overestimation of partners' moods is associated with higher PPR (vs. underestimation).

Tables 3 and 4 presents two additional surface test values derived from the PRRSA model. One is the linear slope of the line of perfect agreement (a_1 , computed as $[x + y]$); the other is the curvature of that line (a_2 , computed as $[x^2 + xy + y^2]$). A negative value for a_1 would indicate that PPR decreases as targets' negative moods and perceivers' estimations of these moods both increase, which would manifest as an upward slope away from the viewer. A negative value for a_2 would indicate that this line of perfect agreement has a concave structure. Conversely, a positive value for a_1 would indicate that PPR increases as targets' moods and perceivers' estimations of these moods both increase, which would manifest as a downward slope away from the viewer. A positive value for a_2 would indicate that this line of perfect agreement has a convex structure.

Sample 1 Results

In accordance with Hypothesis 1, conflict was significantly associated with PPR ($b = -0.56$, $SE = 0.24$, $p = .021$, 95% confidence interval (CI) $[-1.04, -0.09]$) so that on conflict days, individuals experienced lower levels of PPR. The results of the response surface analyses testing the associations between EA on the one hand, and target or perceiver PPR on the other, are presented in Tables 3 and 4 (left panels) and in Figures 1 and 2 (upper panels).²

² We reran the analyses with partners' age and relationship length as covariates. Results remained the same for relationship length, whereas for age there were some minor differences in Sample 2: when target PPR was the dependent variable, the a_3 index on conflict days which had been *ns* without age became marginally significant ($t = -1.86$, $p = .062$) and the a_4 contrast which had been significant without age became only marginally significant ($t = -1.85$, $p = .065$). When perceiver PPR was the dependent variable, the a_2 index on conflict days which had been significant without age became only marginally significant ($t = 1.95$, $p = .051$), the a_3 index on conflict days which had been significant without age became only marginally significant ($t = 1.84$, $p = .066$), and the a_4 contrast which had been only marginally significant without age became significant ($t = 2.12$, $p = .034$).

Table 3
Testing the Associations Between Accuracy and Bias in Negative Moods Perception and Target PPR (by Conflict) Using Multilevel Polynomial Regression Response Surface Analyses

Variable	Sample 1			Sample 2		
	b (SE)	95% CI	p	b (SE)	95% CI	p
No conflict						
Intercept	5.11 (0.12)	[4.87, 5.35]	<.001	5.20 (0.07)	[5.07, 5.33]	<.001
x	-.33 (.12)	[-0.56, -0.10]	.005	-.26 (.04)	[-0.34, -0.18]	<.001
y	-.19 (.11)	[-0.40, 0.02]	.070	-.07 (.04)	[-0.16, 0.01]	.077
x ²	-.03 (.17)	[-0.35, 0.30]	.865	.00 (.07)	[-0.13, 0.13]	.985
xy	-.26 (.37)	[-0.99, 0.48]	.494	.13 (.11)	[-0.08, 0.33]	.246
y ²	.13 (.16)	[-0.18, 0.43]	.405	.04 (.04)	[-0.04, 0.11]	.332
a ₁	-.52 (.15)	[-0.81, -0.23]	<.001	-.34 (.05)	[-0.44, -0.24]	<.001
a ₂	-.15 (.39)	[-0.92, 0.61]	.691	.16 (.10)	[-0.04, 0.37]	.122
a ₃	-.14 (.17)	[-0.47, 0.19]	.408	-.19 (.06)	[-0.32, -0.06]	.004
a ₄	.36 (.49)	[-0.60, 1.31]	.464	-.09 (.15)	[-0.39, 0.22]	.590
Conflict						
x	4.55 (0.22)	[4.12, 4.98]	<.001	4.85 (0.19)	[4.66, 5.03]	<.001
y	-.66 (.50)	[-1.65, 0.33]	.191	-.56 (.13)	[-0.81, -0.32]	<.001
x ²	-.59 (.51)	[-1.60, 0.41]	.248	-.37 (.09)	[-0.54, -0.20]	<.001
xy	-1.59 (.74)	[-3.04, -0.15]	.031	-.26 (.13)	[-0.52, 0.00]	.048
y ²	3.26 (1.08)	[1.14, 5.38]	.003	.49 (.15)	[0.19, 0.79]	.002
a ₁	-.66 (.60)	[-1.84, 0.52]	.273	-.06 (.08)	[-0.22, 0.10]	.456
a ₂	-1.25 (.64)	[-2.52, 0.01]	.052	-.94 (.14)	[-1.22, -0.66]	<.001
a ₃	1.00 (1.03)	[-1.03, 3.03]	.334	.17 (.18)	[-0.18, 0.51]	.342
a ₄	-.07 (.79)	[-1.61, 1.48]	.933	-.19 (.16)	[-0.51, 0.13]	.247
	-5.51 (1.82)	[-9.09, -1.94]	.003	-.81 (.26)	[-1.32, -0.30]	.002
Contrasts between conflict and no-conflict days						
a ₁	-.73 (.66)	[-2.03, 0.57]	.269	-.60 (.15)	[-0.89, -0.30]	<.001
a ₂	1.15 (1.10)	[-1.01, 3.32]	.295	.01 (.20)	[-0.39, 0.41]	.977
a ₃	.07 (.80)	[-1.49, 1.64]	.926	.00 (.18)	[-0.35, 0.34]	.991
a ₄	-5.87 (1.88)	[-9.56, -2.18]	.002	-.73 (.30)	[-1.32, -0.13]	.017

Note. PPR = perceived partner responsiveness; CI = confidence interval.

EA and targets' PPR. Contrary to Hypothesis 2a which predicted a positive association between EA and target PPR on no-conflict days, *a*₄ was not significant on such days. In contrast, in accordance with Hypothesis 2b which predicted a stronger association between EA and target PPR on conflict days, *a*₄ was significant and negative on such days. Thus, perceivers' greater accuracy regarding negative mood was associated with greater PPR for the targets on conflict days. Furthermore, the contrast between *a*₄ on conflict versus no-conflict days was significant. Contrary to Hypothesis 2c, the *a*₃ value was not significant on either no-conflict or conflict days, suggesting no difference in target PPR between days marked by perceiver under- versus overestimation. Finally, the *a*₁ value was significant (and negative) on both no-conflict and conflict days. Thus, for either type of day, increased negative mood along with increased perceiver estimation of this mood was associated with lower target PPR. This effect was stronger on conflict days, though the contrast between no-conflict and conflict days was not significant.

EA and perceivers' PPR. Contrary to Hypothesis 3a which predicted a positive association between EA and perceiver PPR on no-conflict days, *a*₄ was significant and *positive*. Thus, on no-conflict days, more accuracy regarding negative moods was associated with *lower* perceiver PPR. Additionally, Hypothesis 3b which predicted a negative association between EA and perceiver

PPR on conflict days was not supported; though *a*₄ was in the expected direction, it did not reach significance. Contrary to Hypothesis 3c, the *a*₃ value was not significant on either no-conflict or conflict days, suggesting no difference in perceiver PPR between days marked by perceiver under- versus overestimation. Finally, the *a*₁ value was significant on no-conflict days.

Sample 2 Results

As in Sample 1, Hypothesis 1 was supported, with conflict again significantly associated with PPR (*b* = -0.35, *SE* = 0.11, *p* = .001 95% CI [-0.57, -0.13]) so that on conflict days, individuals experienced lower levels of PPR. The results of the response surface analyses testing the associations between EA on the one hand, and target or perceiver PPR on the other, are presented in Tables 3 and 4 (right panels) and in Figures 1 and 2 (lower panels; see Footnote 2).

EA and targets' PPR. As was the case with Sample 1, Hypothesis 2a was not supported whereas Hypothesis 2b was supported. Specifically, *a*₄ was not significant on no-conflict days, but was significant and negative on conflict days. Furthermore, the contrast between *a*₄ on conflict versus no-conflict days was significant. Hypothesis 2c was partially supported: on no-conflict days, the *a*₃ value was significant and negative, indicating that

Table 4
Testing the Associations Between Accuracy and Bias in Negative Moods Perception and Perceiver PPR (by Conflict) Using Multilevel Polynomial Regression Response Surface Analyses

Variable	Sample 1			Sample 2		
	b (SE)	95% CI	p	b (SE)	95% CI	p
No conflict						
Intercept	5.09 (0.12)	[4.85, 5.32]	<.001	5.19 (0.07)	[5.06, 5.32]	<.001
x	-.12 (.08)	[-0.27, 0.03]	.127	-.01 (.04)	[-0.09, 0.06]	.737
y	-.30 (.10)	[-0.50, -0.10]	.003	-.34 (.06)	[-0.44, -0.23]	<.001
x ²	.02 (.05)	[-0.07, 0.12]	.632	.04 (.04)	[-0.05, 0.12]	.405
xy	-.42 (.27)	[-0.95, 0.11]	.119	.01 (.08)	[-0.14, 0.17]	.870
y ²	.30 (.20)	[-0.09, 0.70]	.131	.07 (.06)	[-0.04, 0.18]	.209
a ₁	-.42 (.11)	[-0.64, -0.20]	<.001	-.35 (.06)	[-0.47, -0.23]	<.001
a ₂	-.10 (.30)	[-.70, 0.50]	.750	.12 (.08)	[-0.03, 0.27]	.123
a ₃	.18 (.14)	[-.09, 0.46]	.185	.32 (.07)	[0.18, 0.47]	<.001
a ₄	.75 (.37)	[.02, 1.48]	.044	.09 (.13)	[-0.17, 0.35]	.476
Conflict						
Intercept	4.51 (0.23)	[4.06, 4.96]	<.001	4.78 (0.10)	[4.59, 4.97]	<.001
x	.26 (.45)	[-0.63, 1.15]	.565	-.35 (.13)	[-0.60, -0.10]	.006
y	-.43 (.50)	[-1.42, 0.55]	.387	-.77 (.13)	[-1.04, -0.51]	<.001
x ²	.92 (.62)	[-.29, 2.14]	.136	.34 (.14)	[0.07, 0.60]	.014
xy	-2.11 (1.10)	[-4.27, 0.05]	.056	-.11 (.13)	[-0.36, 0.14]	.402
y ²	-.90 (.53)	[-1.94, 0.14]	.091	.17 (.09)	[0.00, 0.34]	.051
a ₁	-.17 (.58)	[-1.32, 0.97]	.767	-1.12 (0.17)	[-1.46, -0.78]	<.001
a ₂	-2.08 (1.07)	[-4.19, 0.02]	.053	.40 (.16)	[0.08, 0.72]	.014
a ₃	.70 (.76)	[-.79, 2.19]	.360	.42 (.20)	[0.04, 0.81]	.031
a ₄	2.13 (1.65)	[-1.11, 5.38]	.198	.61 (.25)	[0.13, 1.10]	.014
Contrasts between conflict and no conflict days						
a ₁	.25 (.60)	[-.92, 1.42]	.678	-.78 (.18)	[-1.14, -0.42]	<.001
a ₂	-1.99 (1.11)	[-4.17, 0.20]	.075	.28 (.18)	[-0.07, 0.63]	.121
a ₃	.51 (.77)	[-1.00, 2.02]	.505	.10 (.21)	[-0.31, 0.51]	.629
a ₄	1.38 (1.69)	[-1.94, 4.71]	.414	.52 (.28)	[-0.03, 1.07]	.065

Note. PPR = perceived partner responsiveness; CI = confidence interval.

overestimation of one's negative moods (compared with underestimation of these moods) was associated with greater target PPR. In contrast, a_3 was not significant on conflict days. Finally, the a_1 value was significant (and negative) on both no-conflict and conflict days. A significant contrast between conflict and no-conflict days for a_1 suggests that this effect was stronger on conflict days.

EA and perceivers' PPR. As was the case in Sample 1, Hypothesis 3a was not supported; specifically, on no-conflict days, the a_4 value was not significant. Unlike Sample 1, Hypothesis 3b was supported. Specifically, a significant and positive a_4 value was found for conflict days, indicating that on such days, perceivers' accuracy regarding their partners' negative moods was associated with their own lower PPR. Additionally, the contrast between conflict and no-conflict days approached significance for a_4 . In contrast to Sample 1, but in accordance with Hypothesis 3c, the a_3 value was significant and positive on both conflict and no-conflict days, indicating that perceivers' overestimation of their partners' negative moods (compared with underestimation of these moods) was associated with their own lower PPR. Finally, the a_1 value was significant and negative on both no-conflict and conflict days, and the a_2 value was significant and positive on conflict days, indicating a convex surface (upward curving), as can be seen in Figure 2.

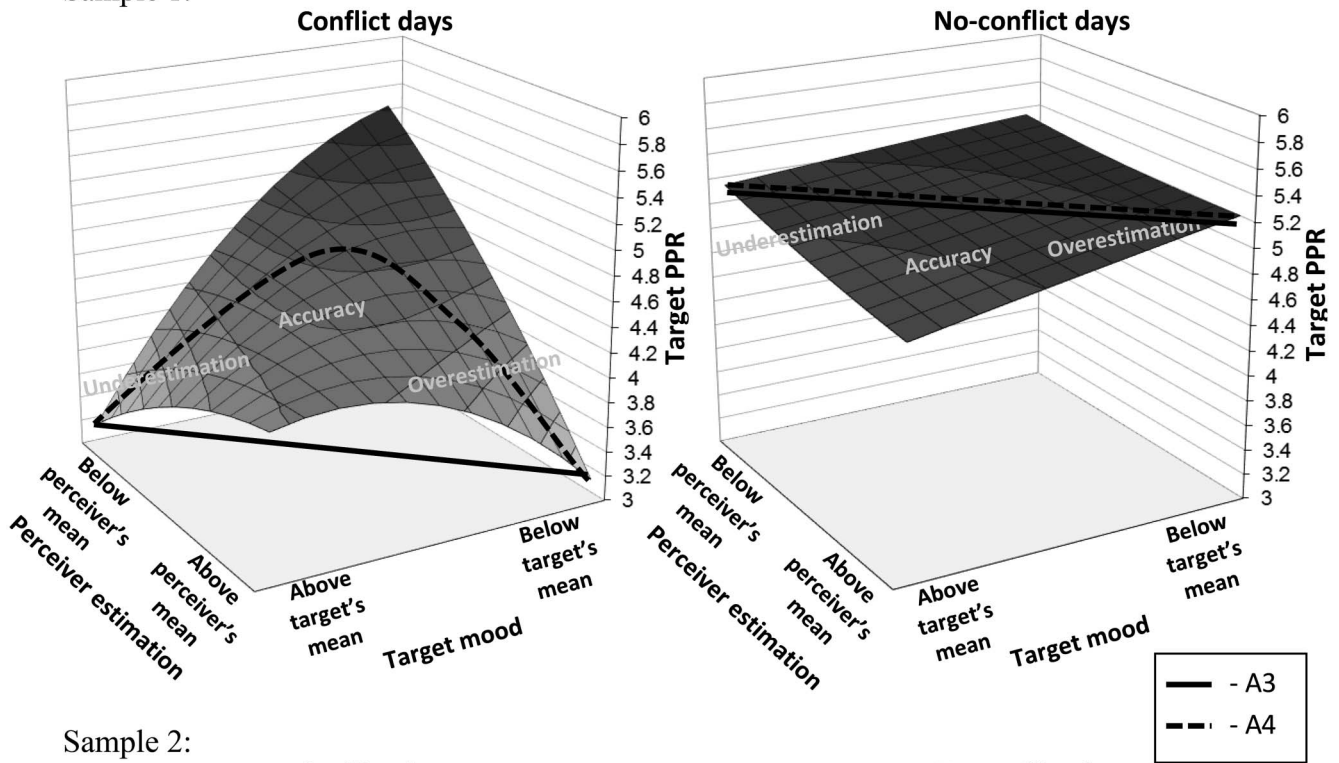
Discussion

This study takes a step toward understanding the role of accurate (and/or biased) interpersonal perception vis-à-vis daily conflicts in the lives of romantic couples. The results partly support our hypotheses regarding the links between daily conflict, EA, and PPR. Specifically, conflict occurrence predicted PPR levels: on days in which individuals reported conflict, they also experienced lower levels of PPR. Additionally, on conflict days, perceiver EA was positively associated with target PPR (though on no-conflict days it was not). The predicted association between EA and perceiver PPR emerged, though only in the more powerful sample (Sample 2), and only on conflict days; indeed, in Sample 1, an unexpected negative association was found between EA and perceiver PPR on no-conflict days. Finally, in Sample 2, overestimation (compared with underestimation) predicted increased target PPR on no-conflict days and decreased perceiver PPR regardless of conflict. Below, we expand on each one of these findings.

Conflict and PPR

The predicted negative association between conflict and daily PPR (Hypothesis 1) was supported. Consistent with previous findings (e.g., Fincham & Beach, 2010), the occurrence of relational

Sample 1:



Sample 2:

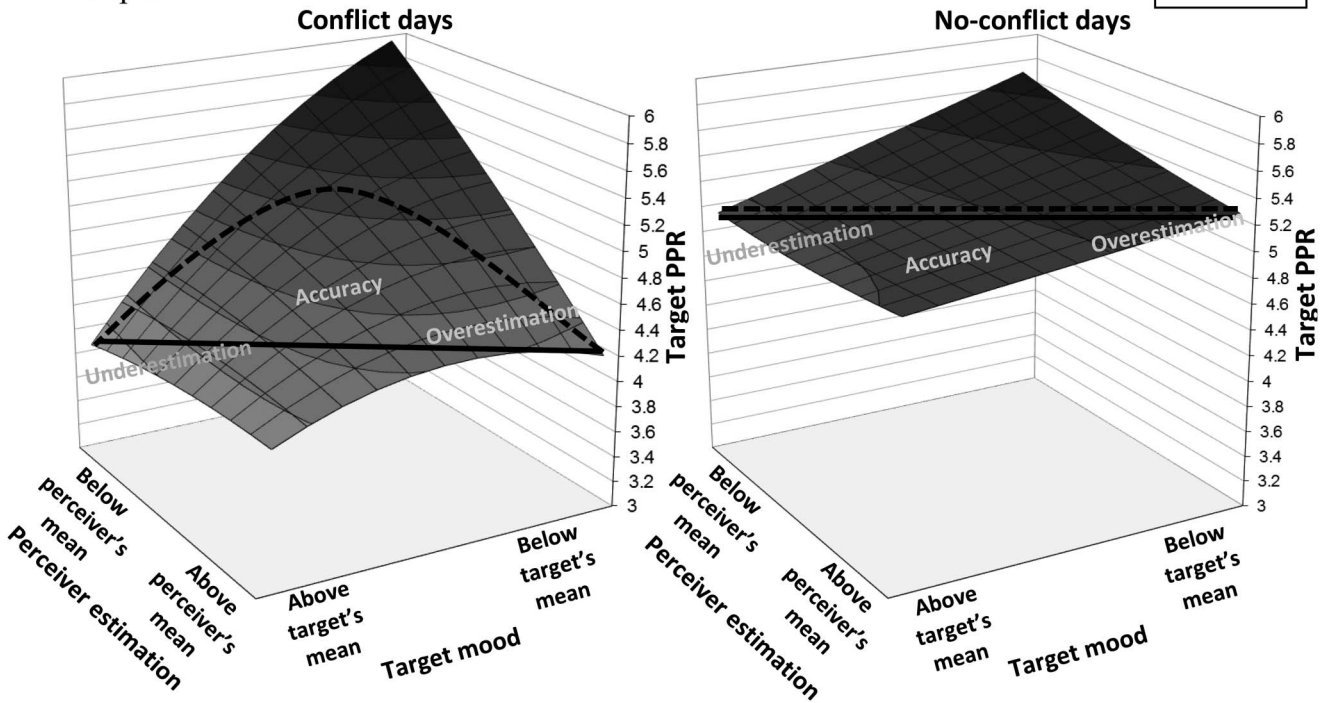
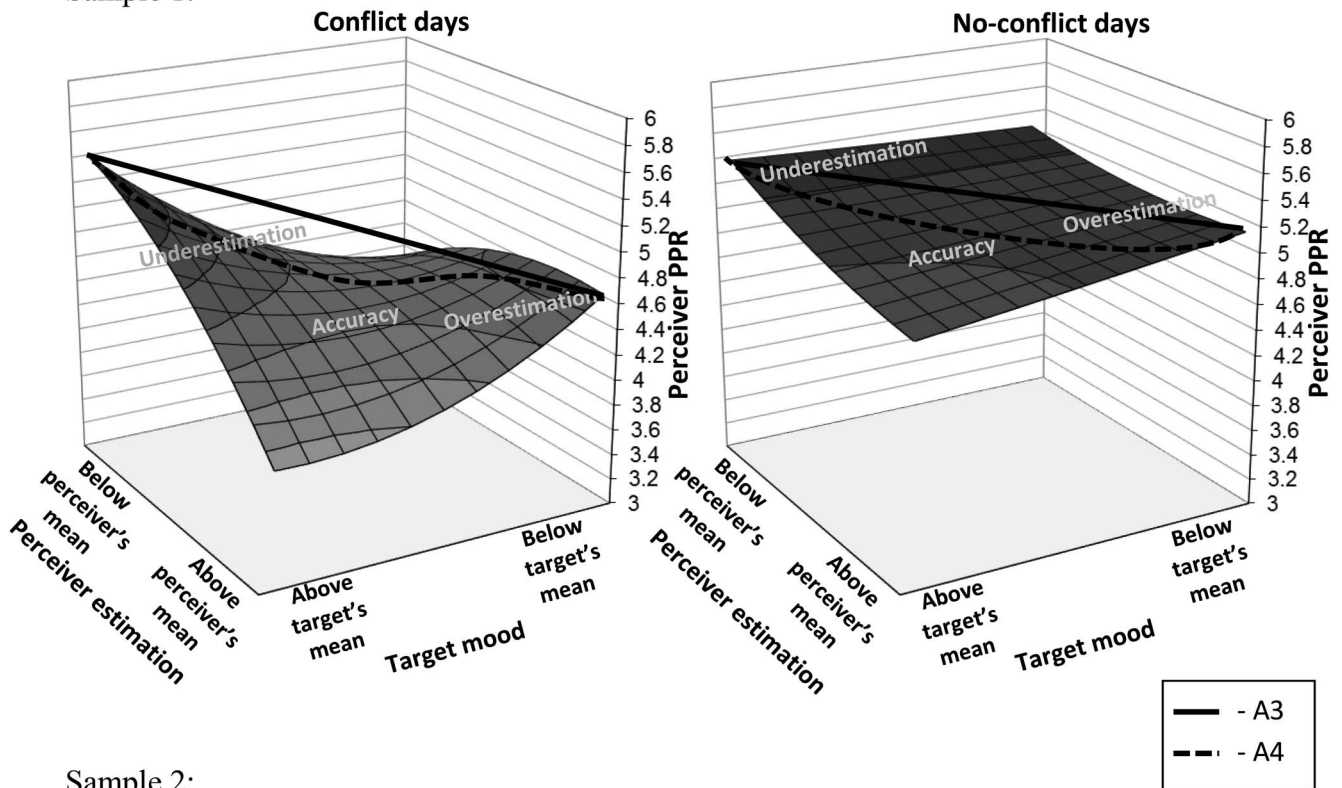


Figure 1. Response surface plots for the associations between target negative mood, partner estimation of this mood, and target perceived partner responsiveness (PPR). A positive a_3 indicates that underestimation is associated with greater PPR than overestimation, whereas a negative a_3 indicates the inverse. A concave/convex a_4 indicates a positive/negative correlation between empathic accuracy (EA) and PPR, respectively.

Sample 1:



Sample 2:

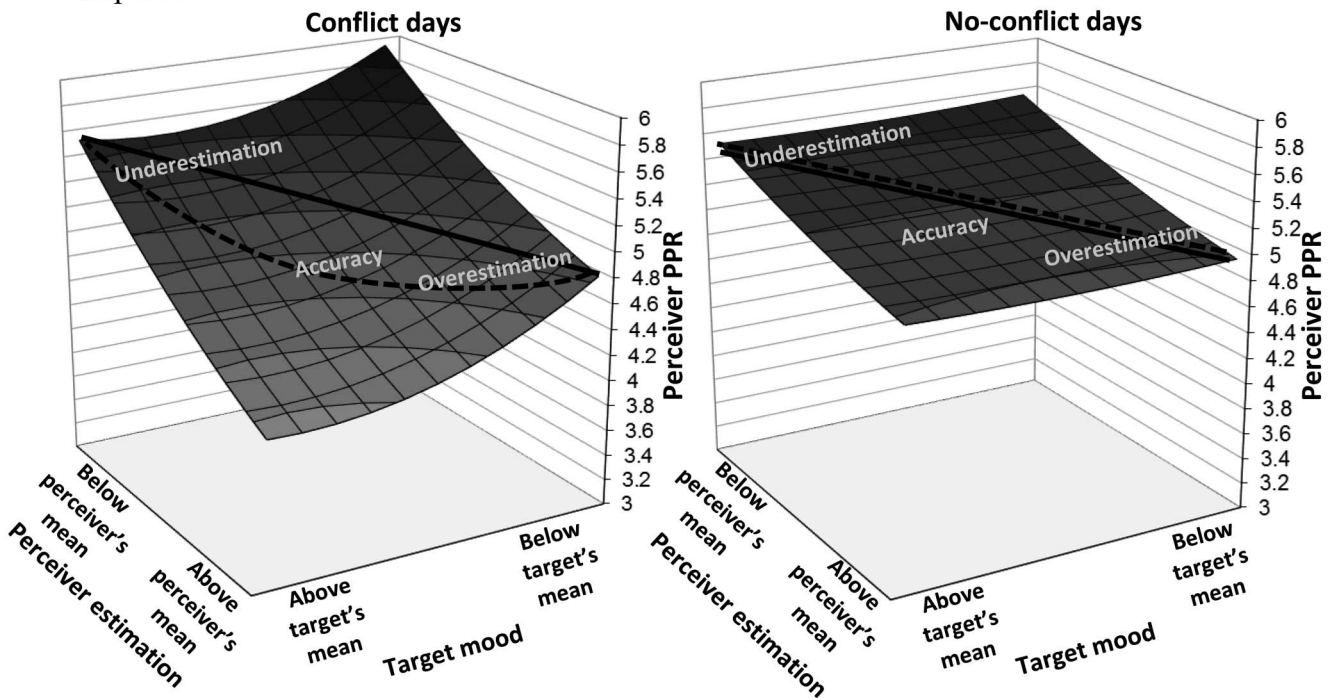


Figure 2. Response surface plots for the associations between target negative mood, partner estimation of this mood, and perceiver perceived partner responsiveness (PPR). A positive a_3 indicates that underestimation is associated with greater PPR than overestimation, whereas a negative a_3 indicates the inverse. A concave/convex a_4 indicates a positive/negative correlation between empathic accuracy (EA) and PPR, respectively.

conflict during the day was tied to a decrease in the perception of one's partner's responsiveness at the end of the day. Conflict can be seen as a situation in which two viewpoints or motivations clash—and thus, as somewhat similar to mutual hindrance (Rafaeli, Cranford, Green, Shrout, & Bolger, 2008), which leads to subsequent declines in positive relational feelings (or to increases in negative relational feelings; e.g., Rafaeli et al., 2008). To our knowledge, this study is the first to document the extent to which conflict also leads partners to feel misunderstood, invalidated, or uncared for to some degree—that is, to perceive each other as less responsive.

EA and Target PPR

No-conflict days. The predicted positive association between daily EA and target PPR on no-conflict days (Hypothesis 2a) was not supported. Being understood more accurately on a particular day did not translate into perceiving one's partner as more responsive (i.e., understanding, validating, or caring). This is a surprising finding, given the intuitive link between real and perceived understanding (see Reis & Clark, 2013). It may be the case that accurate interpersonal understanding does not immediately manifest itself in visible acts of validation and caring, which would be easier to perceive. For example, Verhofstadt et al. (2008, 2016) found that support providers' levels of EA were not tied to their emotional support provision (as reported by their partners) within romantic relationships. In other words, the targets of accurate perceivers may not necessarily enjoy their partners' empathic abilities on a daily basis. Nonetheless, as we will argue below, EA may play an important role in more circumscribed relationally challenging situations, such as conflict.

Conflict days. The predicted association between daily EA and target PPR on conflict days (Hypothesis 2b), which we expected to be positive and stronger, was indeed found to be positive in both samples. Being understood more accurately on a particular conflict day translated into perceiving one's partner as more responsive; importantly, this effect was significantly different on conflict versus no-conflict days.

The occurrence of conflict is key here. It may be that conflict situations, which are diagnostic of a partner's regard (Reis & Clark, 2013), afford perceivers with opportunities to demonstrate their responsiveness and thus to restore and enhance intimacy (Prager et al., 2015). Such opportunities may be scarcer in couples' daily nonconflictual routines; this scarcity may explain the null association, discussed above, between EA and target PPR in the absence of conflict.

Over- versus underestimation of negative mood. The prediction that overestimation will be tied to higher target PPR than underestimation regardless of conflict (Hypothesis 2c) was partially supported. Perceivers' overestimation of their partners' negative mood on no-conflict days was associated with greater target PPR than underestimation of such moods (an effect which occurred in both samples, but which was significant only in Sample 2). Though this result should be interpreted cautiously, it suggests that when conflict is absent and negative moods are missed, more immediate relational harm befalls the target compared with when negative moods are overestimated. Conversely, it suggests that perceivers who overestimate negative mood are experienced by their (target) partners as more responsive—and presumably, more

attentive, at least in the absence of conflict. Overestimation in the presence of conflict fails to have this salutary effect; this may be because some instances of conflictual overestimation actually backfire by setting off escalatory cycles.

The relative benefit of overestimating negative moods is consistent with findings from a recent review (Fletcher & Kerr, 2010) and from empirical work (e.g., Overall, Fletcher, & Kenny, 2012) demonstrating the prevalence of romantic partners' "better safe than sorry" approach in assessing their partners' mental states. Specifically, romantic partners tend to have a mean-level negative bias regarding positive relationship characteristics. Our study suggests that adopting a similar approach (in this case – overestimating partners' negative moods) can actually be tied to immediate relational benefits.

EA and Perceiver PPR

No-conflict days. The predicted positive association between daily EA and perceiver PPR on no-conflict days (Hypothesis 3a) was not supported as EA was not consistently predictive of perceiver PPR. Like we had argued with regards to the association between EA and target PPR, it is possible that nonconflictual days afford romantic partners fewer opportunities to demonstrate their accuracy in behavioral/visible ways, or to instigate cycles of reciprocal prosocial behaviors (that may off-set any conflict). Additionally, it may be that the higher predictability and controllability which result from more accurate perceptions are simply less needed and thus less impactful in the absence of conflict—that is, in nonthreatening relational contexts.

Conflict days. The predicted association between daily EA and perceiver PPR on conflict days (Hypothesis 3b), which we expected to be negative was supported in (the larger) Sample 2 (with a nonsignificant effect in the expected direction in Sample 1). Understanding one's partner more accurately on a particular conflict day translated into perceiving one's partner as less responsive.

The difference in this effect between conflict and no-conflict days approached significance in Sample 2. Though this result should be interpreted cautiously, it seems likely that the perception of a partner's negative affect in the presence of conflict poses more relational threat than similar perception in the absence of conflict. When negative affect is paired with conflict, it may be attributed (correctly or not) to the conflict itself, or to the relationship as a whole. As Ickes and Simpson (2001) note in their revised empathic accuracy model, accuracy during relationship threat situations is tied to adverse relationship outcomes (e.g., declines in closeness and commitment). To our knowledge, this adverse effect has been documented to date only in lab studies (e.g., Simpson et al., 2003); the present study's results can be seen as consistent with this model.

Over- versus underestimation of negative mood. The prediction that overestimation will be tied to lower perceiver PPR than underestimation regardless of conflict (Hypothesis 3c) was supported in the (larger) Sample 2, with nonsignificant effects in the expected direction in Sample 1 as well. Perceivers who overestimate the targets' negative mood may associate this mood (implicitly or explicitly) with greater self-focus (an association borne out in reality: e.g., Mor & Winquist, 2002; Mor et al., 2010). Indeed, self-focused rumination, the maladaptive form of self-

focus, which often accompanies negative moods, has been found to be tied to impaired interpersonal skills (Takano, Sakamoto, & Tanno, 2011)—suggesting that the perceivers' PPR ratings are likely somewhat justified.

It is interesting that Overall, et al. (2015) reported that avoidantly attached perceivers who overestimate their partners' negative emotions display increased hostile behaviors. Our findings, though silent with regards to attachment orientation, suggest a mechanism through which this perception-hostility link may occur. Specifically, it may be that (low) PPR serves as a mediator in this process—at least for those with avoidant attachment.

Take Home Points

The current study examined the same-day associations between accurate (or inaccurate) empathic inferences and perception of partner responsiveness. These associations were found to be contingent upon both the context of the perception (i.e., conflict days vs. no-conflict days) and the party involved (i.e., the perceiver vs. the target).

It is important to remember that this study (like several others before it; e.g., Gadassi et al., 2016; Maisel & Gable, 2009; Rafaeli et al., *in press*) treated EA and PPR as day-level variables and examined their immediate association (this, in contrast to the more common treatment of these constructs as trait-level characteristics; e.g., Pansera & La Guardia, 2012; Verhofstadt et al., 2008). Given our treatment of the constructs, our results should not be interpreted to mean that individuals who are more (or less) accurate in general perceive their partners as more (or less) responsive when conflict occurs, or that those who are perceived more accurately in general would be better or worse off. Instead, they highlight the (double-edged) immediate effects of being accurate when it counts—that is, of recognizing one's partner's moods in close proximity to challenging moments of conflict.

Longer-term consequences of accuracy or inaccuracy may differ from these short-term effects. For instance, though accuracy had little immediate effect on no-conflict days, it may be the case that an aggregate measure of accuracy (sustained over a period of time) would be tied to longer-term outcomes (e.g., relationship commitment and satisfaction). Indeed, such differences between short-term and long-term effects of relationship-relevant constructs have been reported in a variety of studies (e.g., Girme, Overall, & Simpson, 2013; Impett et al., 2010).

Using diary methods to assess the effects of context on the association between EA and its outcomes constitutes a significant step in the exploration of the role of accurate interpersonal understanding in real life situations. Thus far, only lab-based studies have been used to document the power of contextual factors in the association between EA and various outcomes (e.g., Simpson et al., 1999; Simpson et al., 2003). A benefit of treating accuracy and perceived responsiveness as day-level variables is the ability to examine their association in various contexts—in the present case, the contexts of conflict versus no-conflict. Conflicts inherently pose some relational risk to the parties involved—they may turn ugly, escalate, leave things unresolved, or require sacrifices. Studies of relational risk within romantic relationships (Cavallo, Murray, & Holmes, 2013; Murray, Holmes, & Collins, 2006) have tried to model the ways in which partners regulate this risk through their cognition, motivation, and action. Much of this work ad-

dresses the balance between approach and avoidance motivations in the presence of risk. For example, several studies identified factors (e.g., attachment, self-esteem) that affect this balance. Yet, the relational *consequences* of approach versus avoidance behaviors in specific risk situations within romantic partners' daily lives have yet to be examined.

We could consider high empathic accuracy as a form of cognitive-emotional approach behavior, in that the perceiver manages to be "experience-near" to their partner's actual experience, rather than avoiding it or retreating from it. Leading marital therapy researchers (Fincham & Beach, 1999) have argued that satisfied, well-functioning couples are ones who manage to sustain these sort of approach behaviors and to minimize avoidance behaviors during (and following) marital conflict. Our results suggest that, in the face of conflict (a relational risk), partners who prioritized approach and connection (i.e., staying attuned to their partners' moods) over avoidance and self-protection (i.e., underestimating their partners' negative moods) pay a price, whereas their partners reap a reward. These results highlight the importance of considering risk regulation processes dyadically; when we do so, we find only partial support for Fincham and Beach's (1999) position—which appears to be true for one partner but not for the other. Specifically, sustained closeness, which manifests as higher levels of EA, was associated with short term salubrious effects for the targets but with short term aversive effects for the perceivers. Of course, future research is needed to explore the possibility that the short-term price paid by the perceiver is transient, and would be followed in the longer run by individual and dyadic benefits.

Unlike the relational risk inherent to conflict days, no-conflict days should serve as a safer context for close relationships. We expected that on these days, EA would be positively associated with the relational outcome, PPR, in an unmitigated manner. This was not the case—indeed, on no-conflict days EA was not consistently associated with PPR. At the same time, the perceivers' overestimation of the targets' negative moods was associated with higher PPR for the targets but with lower PPR for themselves (effects which reached significance only in [the larger] Sample 2). These findings suggest that, in the absence of conflict, the perception of one's partner's responsiveness is less a matter of accurate interpersonal perception than it is a reflection of being discrepant from the partner—though the directions of discrepancy differ for targets versus perceivers.

This is yet another indication that we should consider empathic inferences within a dyadic context. In particular, we have to contend with the divergent associations found for the two parties on both conflict and no-conflict days. On conflict days, greater accuracy was tied to greater PPR for the target but to lower PPR for the perceiver. On no-conflict days, overestimation was tied to greater PPR for the target but to lower PPR for the perceiver.

Strengths and Limitations

The present study has several strengths. First, our variables were measured using ecologically valid methods affording us a glimpse into couples' daily lives. Second, our data were gathered over a prolonged period (21/35 consecutive days), increasing the likelihood of obtaining a representative sample of experiences from the participants. Third, the use of PRRSA allowed us to portray a nuanced account of the associations between negative moods, their

perception, and PPR. Specifically, this innovative approach to the study of EA made it possible to discriminate overestimation and underestimation from discrepancy, and to overcome the risk of confounding the effects of accuracy and the effects of its constituents (i.e., the moods themselves, and their perception).

These strengths notwithstanding, this study also has several limitations. First, like many relationship studies, the sample tilted in the direction of relatively well-adjusted, satisfied, (and in this case, educated) couples. Notably, couples' high satisfaction was manifested in relatively high PPR scores, which were negatively skewed. Despite this skewness, variability remained high enough to allay concern of a ceiling effect; still, it would be important to examine similar processes in populations that are less select. Second, this study shares with all daily diary studies its reliance on self (or partner) reports. Examining these phenomena using other methods (e.g., behavioral observation) would be very informative. Finally, as noted above, our data do not permit us to assume any causal links between our predictors (conflict and EA) and our outcome (PPR), though the reliance on lagged data and the use of a lagged outcome variables as covariates do help assuage some of the risk of reverse causation.

We still know relatively little about *how* EA exerts its effects on PPR, though our data strengthen the realization that the underlying mechanisms may be different for targets and for perceivers. Future studies should explore this issue; they should also explore how PPR influences down-stream relational consequences (such as relationship satisfaction and stability).

Conclusion and Future Directions

The present study has shown that accurate perception of affect within close relationships is a dynamic process whose consequences are context dependent. Our results indicate that conflicts, a common relational phenomenon, is a critical factor in the associations between accuracy of empathic understanding and its relational outcomes. Specifically, conflict rendered accurate empathic inferences more consequential: the (target) partners of accurate perceivers felt these perceivers to be more responsive, whereas the accurate perceivers themselves felt that their targets were less responsive. In the absence of conflict, accuracy ceased to be as important; instead, what mattered was the direction of inaccuracy—with perceivers' overestimation predicting higher PPR for their partners, but lower PPR for themselves, compared with underestimation.

It is interesting to note that, this pattern of results offers the first support to the revised empathic accuracy model (Ickes & Simpson, 2001) outside the lab, but does so with a caveat. Specifically, though the accurate perception of potentially threatening information may indeed be harmful (at least in the short term) for the perceivers themselves, their partners may draw some benefit from it. We hope these findings spur additional research regarding outcomes and moderators of affect perception within close relationships—that is, on the question of where and when accuracy counts.

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