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THE ASSOCIATION BETWEEN PARTNERS' EXPRESSED EMOTION AND DEPRESSION: MEDIATED BY PATIENTS' DYSFUNCTIONAL ATTITUDES?

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The respective roles of expressed emotion and dysfunctional cognitive processes are well documented in depression, but their interplay has seldom been given attention. We examined the patients' and partners' expressed emotion (EE) and dysfunctional attitudes in predicting depressive symptoms in a sample of $N = 63$ couples with one clinically-depressed partner (37 females and 26 males). Partners' EE played a more important role for patients' dysfunctional attitudes and their depressive symptoms; nondepressed partners' dysfunctional attitudes and depressive symptoms were unaffected by patients' EE. In contrasting two models that predict self-reported and clinician-rated depression, we found more support for dysfunctional attitudes serving as a mediator rather than a moderator for the association between partners' EE and patients' depressive symptoms. Partners' criticism may play a role worthy of more attention in depressed patients' dysfunctional attitudes and maintenance of their depressive symptoms.

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The role of negative cognitive variables in depressive disorders, such as dysfunctional attitudes and attributional processes (Abramson, Seligman, & Teasdale, 1978; Beck, 1967) and hopelessness (e.g., Abramson, Metalsky, & Alloy, 1989), has an established place in depression theories and research. In particular, latent dysfunctional or depressogenic schemas are key elements in Beck's theory for understanding depression. These schemas are closely linked to dysfunctional information processing. In times of increased stress, the triad of negative view of oneself, the environment, and the future is activated and characterizes the depressed individual's cognitive functioning. Studies support Beck's assumption that dysfunctional attitudes are linked to depression (for a review, see Haaga, Dyck, & Ernst, 1991), and a reduction in dysfunctional attitudes leads to fewer depressive symptoms when undergoing cognitive therapy (e.g., Quilty, McBride, & Bagby, 2008); yet, several studies have failed to detect the theoretically predicted elevated dysfunctional attitudes in remitted patients (e.g., Haeffel et al., 2005). This suggests that dysfunctional attitudes may only be evident once activated (Abela & Brozina, 2004). Once activated, they represent an important individual characteristic of depressive symptomatology and its maintenance.

Depressive symptomatology also has ties to the patients' social environment, especially with respect to the attitudes and behavior of intimate partners (Coyne, 1976). Relationship quality and depressive symptoms are closely related (for reviews, see Rehman, Gollan, & Mortimer, 2008; Whisman, 2001). Devaluation from an intimate partner has been shown to predict heightened depressive symptoms (Katz, Beach, & Joiner, 1998). Critical feedback from partners may be especially relevant, with some interpersonal theories suggesting that depressed individuals seek negative feedback in order to maintain their negative self-view (Swann, Wenzlaff, Krull, & Pelham, 1992). Others suggest that depressed persons show increased reassurance behavior (Joiner & Metalsky, 2001). There is considerable empirical evidence for the relation between interpersonal feedback seeking and depression (e.g., Davila, 2001; Haeffel & Mathew, 2010; Pettit & Joiner, 2001).

The role of a spouse's behavior toward a patient is highlighted in the expressed emotion literature. It has been shown that expressed emotion is a crucial variable for the development, outcome, and particularly the likelihood of relapse in depression (e.g., Hooley, 1986; Hooley, Orley, & Teasdale, 1986) and other psychological dis-

orders (e.g., Chambless, Bryan, Aiken, Steketee, & Hooley, 2001; Vaughn & Leff, 1976). Expressed emotion (EE) represents a significant other's attitudes towards the patient and is characterized by criticism, hostility, and emotional overinvolvement. The concept of EE was originally assessed by the semi-structured Camberwell Family Interview (CFI) with a family member (Leff & Vaughn, 1985). Expressed emotion is construed as reflecting disturbances in the organization, emotional climate, and transactional patterns of the entire family system (Hooley, 2007). Typically not all three components of EE (criticism, hostility, emotional overinvolvement) have been found to predict disorders' outcome. Criticism has the most consistent evidence for an influence in terms of the effects of EE on negative psychological well-being, and patients with highly critical spouses have a higher likelihood of relapse (for a review, see Butzlaff & Hooley, 1998; Hooley, 2007). Observational studies suggest that interactions of highly critical spouses are characterized by more negativity towards the depressed partner (e.g., Hooley, 1986). It remains to be seen if expressed emotion plays a critical role for maintaining cognitive dysfunction and depressive symptomatology.

Previous studies examining the link between expressed emotion and attributions have mostly focused on relatives' perspectives. Highly critical relatives of depressed patients blame patients more often for their problems (i.e., internal attribution) than do low-critical relatives (for a review, see Barrowclough & Hooley, 2003). The role of intimate partners' expressed emotion for patients' dysfunctional attitudes remains unclear. This role may be relevant since couples' relationship functioning and spouses' criticism are related to depression (e.g., Coyne, Thompson, & Palmer, 2002). Based on these considerations, we posit two possible models for the interplay between partners' criticism and dysfunctional attitudes in predicting depression.

The first is a mediation model; specifically, partners' criticism maintains patients' dysfunctional attitudes and therefore mediates the relationship between partners' expressed emotion and depressive symptoms. Increased negative self-perceptions have been found to mediate the association between negative maternal feedback and depressive symptoms in adolescents (Jacquez, Cole, & Searle, 2004). Henriques and Leitenberg (2002) reported that students' negative thinking and dysfunctional attitudes are positively associated with increased depressive mood following negative social feedback in an

experimental setting. Such studies provide examples of investigating cognitions as potential mediators between interpersonal experiences and depressive symptoms.

A second possibility is a moderation model. Consistent with a stress-diathesis model of depression (Abramson et al., 1989; Abramson et al., 1978; Beck, 1967), partners' criticism serves as a stressor and triggers dysfunctional attitudes. Patients' dysfunctional attitudes and partners' EE therefore interact in predicting depressive symptoms; thus, depressive symptoms may be higher for patients with highly negative partners and more strongly held dysfunctional attitudes.

With few exceptions, studies have not linked cognitive dysfunctions, intimate partners' expressed emotion, and depression (but see Gibb, Uhrlass, Grassia, Benas, & McGeary, 2009). Partner's expressed emotion might be particularly important theoretically and clinically as they may reinforce and nurture patients' dysfunctional attitudes. Thus, criticism of the partner may be internalized, thereby maintaining depressive symptoms. The aim of the present study was to examine the associations between expressed emotion, dysfunctional attitudes, and depressive symptoms within a clinical sample of currently depressed patients and their respective partners. We hypothesized that depressed patients are more sensitive to a partner's EE than nondepressed partners; thus, partners' EE should be more strongly related to dysfunctional attitudes and depressive symptoms in patients, while those associations might not be present in nondepressed partners.

We further examined the two models of mediation and moderation for the interplay between partners' EE and dysfunctional attitudes in predicting depressive symptoms. In the first model, dysfunctional attitudes were hypothesized to mediate the association between partners' expressed emotion and depressive symptoms, as negative interpersonal feedback may maintain a depressed patient's cognitive dysfunctionality and therefore their depressive symptoms (mediation hypothesis). Thus, depressed patients with highly negative partners should report more dysfunctional attitudes and more depressive symptoms. In the second model, dysfunctional attitudes were hypothesized to moderate the association between partners' expressed emotion and depressive symptoms (moderation hypothesis). Thus, negative interpersonal feedback might trigger dysfunctional attitudes and therefore be critical in

predicting depressive symptoms for depressed patients with highly dysfunctional attitudes.

In line with Katz et al. (1998) suggestions, we assessed partners' devaluation (in our case, partners' criticism) with a more sophisticated methodology than self-report. Patients and nondepressed partners were interviewed separately with the invitation to talk about his or her partner during five minutes, addressing negative and positive aspects (Five Minute Speech Sample; Magaña et al., 1986).

METHODS

RESEARCH PARTICIPANTS

The sample consisted of 63 couples with one partner suffering from depression (37 of the couples consisted of a depressed woman and a nondepressed man). All depressed patients were screened by the German version of the Structured Clinical Interview (SCID-I; Wittchen, Wunderlich, Gruschwitz, & Zaudig, 1997) and were required to meet Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1979) for Major Depressive Disorder or Dysthymia. According to German cut-off scores for depression (Hautzinger, Bailer, Worall, & Keller, 1994), they also had to score 12 or above on the BDI (Beck Depression Inventory; Beck, Steer, & Carbin, 1988). Exclusion criteria for patients were psychotic and manic symptoms, bipolar depression, personality disorders, drug abuse, and acute suicidality. Apart from four patients who had other depressive disorders, all patients met full criteria for major depression. All participating couples had to be in an intimate and stable relationship for at least one year.

Couples were recruited by means of advertisements in newspapers, information flyers, personal information given by psychotherapists, and public talks in clinics. The sample was originally recruited for a randomized depression intervention study reported elsewhere (Bodenmann et al., 2008). The present data were collected prior to depression treatment. Of the former 496 subjects interested in the study, 68 subjects with their partners met inclusion criteria. Thirty-nine percent of the interested individuals were excluded because they were single, 27% because of symptomatology, 18% had an intimate partner not willing to participate in the study, 13% were

older than 60 years, and 3% could not sufficiently communicate in German. As four couples refused to be videotaped during the Five Minute Speech Sample and data of one couple was incomplete, the final sample size for the current analysis was $N = 63$ couples.

Participants were on average 45.59 years old ($SD = 10.84$) with no significant difference between patients and nondepressed partners, $t(62) = 1.93$, $p = .847$. The majority of couples lived together (82.5%) and was married (74.6%). Most couples (70%) had children. All couples were in a stable relationship for at least one year with a mean of 16.8 ($SD = 11.3$) years of relationship duration. Mean relationship quality ($M = 52.66$) was below the cut-off score for a satisfied relationship (a score of 54–72 indicating a satisfying close relationship according to Hahlweg, 1996); however, there was considerable variation ($SD = 16.49$) in relationship satisfaction measures, with no significant difference for patients and partners, $t(62) = -1.12$, $p = .268$. Nearly half of the patients (47.6%) reported to be in their first depressive episode.

Measures

Beck Depression Inventory (BDI; Beck et al., 1988). In this study we used the German version of the 21-item self-report measure of depressive symptoms (Hautzinger et al., 1994). Both partners were asked to complete the questionnaire independently from each other. The BDI is a widely-used measure with clinical, community, and student samples and well-established reliability and validity. Internal consistency in our study was $\alpha = .80$ for depressed patients and $\alpha = .82$ for partners.

Hamilton Rating Scale for Depression (HRSD; Williams, 1988). The HRSD (originally proposed by Hamilton, 1960) is a 17-item, semi-structured clinical interview allowing clinicians to assess severity of depression in a sample of diagnosed depressed patients over recent and extended time intervals. It is one of the most frequently used rating scales to assess depression in research because of its high level of reliability and validity (Bagby, Ryder, Schuller, & Marshall, 2004). It provides a complementary observer perspective to self-report measures such as the BDI. In this study, the HRSD was conducted with depressed patients by a trained clinical psychologist at the patient's home. As the HRSD was originally designed for use only with depressed patients, these interviews were not conducted with nondepressed partners. Mean interrater reliability was

κ = .80 (80% of interviews were re-rated by a second interviewer to obtain interrater-reliability).

Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978). Patients and nondepressed partners both rated the 40 items of the German version of the DAS (Hautzinger, Luka, & Trautmann, 1985). The DAS is based on Beck's concept of dysfunctional attitudes and the negative triad (i.e., negative view of oneself, the environment, and the future). Internal consistency of the scale was $\alpha = .75$ for depressed patients and $\alpha = .86$ for partners.

Expressed Emotion. The Five Minute Speech Sample (FMSS; Magaña et al., 1986) assessed expressed emotion (for a validation in German language, see Leeb et al., 1991). During five uninterrupted minutes, one partner was invited to talk about his or her feelings and thoughts with regard to the other partner. Speeches were videotaped and subsequently coded for the number of positive and negative remarks (criticism, hostility, and overinvolvement) concerning the partner. The FMSS was conducted separately with both the depressed patient and the nondepressed partner. Statistical analyses reported in this paper are based on the total number of critical statements made by participants. Behavioral coders were thoroughly trained during three months prior to coding work and had to complete an exam testing their interrater-reliability. A one-week introduction to the coding system was provided in the lab of Dr. Peter Fiedler (University of Heidelberg) who studies expressed emotion in depressed patients and uses the FMSS (Kronmüller et al., 2008). Interrater-reliability between the two coders for EE categories was κ = .82. Although the FMSS may somewhat underestimate the prevalence of high EE relative to the CFI, several studies have shown satisfying psychometric properties of this instrument, mainly for the prediction of relapse of depression (e.g., Asarnow, Goldstein, Tompson, & Guthrie, 1993). An advantage of this instrument is its practicality and ready clinical applicability, as it is considerably less time-consuming than the CFI (Hooley & Parker, 2006). The FMSS provides a valuable alternative to the CFI, at least in the context of depression.

Statistical Analyses

Statistical data analyses were based on the Actor-Partner-Interdependence-Model (APIM; Kenny & Cook, 1999) with
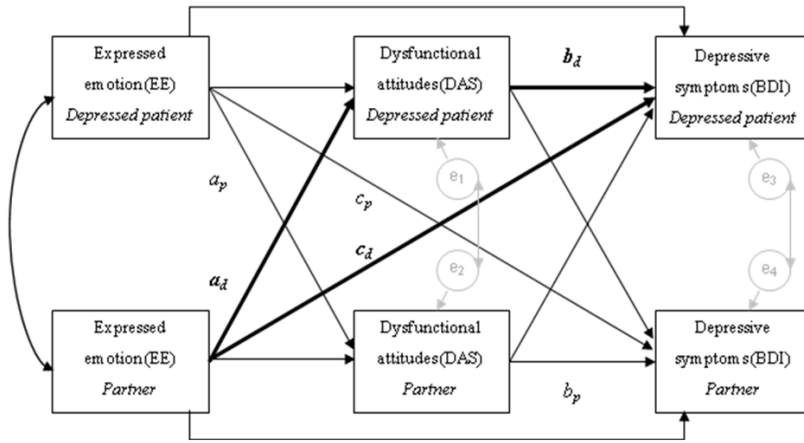
FIGURE 1. Actor-Partner-Interdependence-Model with mediation
(APIM)
Note. A simplified mediation model with paths printed in bold was
tested for clinician-rated depression (HRSD) for depressed patients only.

mediation (Ledermann & Bodenmann, 2006) presented in
Figure 1. The APIM allows estimating actor and partner effects
simultaneously within a couple. An actor effect represents an
association between two variables of the same individual (e.g., the
effect of patients' DAS on patient's depressive symptoms), while
a partner effect represents an association between two variables
of different partners (e.g., the effect of partners' EE on patients'
DAS). To test the mediation hypothesis, we examined the direct
association between partners' EE and patients' BDI scores (path c_d)
after controlling for indirect effects, as well as the indirect effect a_d
$\times b_d$ (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The
direct and indirect effects in the center of interest are **printed in bold**
in Figure 1; the corresponding paths for nondepressed partners are
labeled as a_p, b_p, and c_p. As HRSD measures were only assessed for
patients, we estimated in a second step a simple mediation model
estimating patients' HRSD scores including all relevant paths of the
previous APIM (path a_d, b_d, and c_d). To test the moderation models,
we first centered the variables before we composed interaction
terms according to suggestions of Cohen, Cohen, West, and Aiken
(2003). Because of the skewed distribution of EE scores and the small
sample size, we conducted bootstrap analyses with 1000 bootstrap
samples for all analyses in order to obtain correct standard errors of
parameter estimates (Efron & Tibshirani, 1993). These can be used

TABLE 1. Means, SD, and Correlations Among Variables

	M	*SD*	1	2	3	4	5	6
			Correlations					
1. EE patient	2.05	1.81						
2. EE partner	1.97	2.09	.09					
3. DAS patient	3.47	.89	.07	.32**				
4. DAS partner	2.42	.72	.05	.05	.12			
5. BDI patient	23.46	8.42	.06	.31*	.43***	.07		
6. BDI partner	5.73	5.11	.06	.03	.00	.46***	.06	
7. HRSD patient	14.58	6.10	.13	.24 [a]	.33**	.01	.47***	.23[a]

Note. EE = Expressed Emotion; DAS = Dysfunctional Attitude Scale; BDI = Beck Depression Inventory; HRSD = Hamilton Rating Scale. ***$p < .001$; **$p < .01$; *$p < .05$; [a]$p < .10$ (two-tailed).

to calculate 95% confidence intervals around parameter estimates and, thus, to identify statistically-significant effects. According to recommendations of MacKinnon, Lockwood, and Williams (2004), we included bias-corrected confidence intervals to test for significant direct and indirect effects. Models were estimated with M-Plus 5 (Muthén & Muthén, 1998–2007).

RESULTS

Depressed patients overall suffered from moderate depression (*M* = 23.46, *SD* = 8.42). Partners all scored in the normal range (0–11 according to German norms; Hautzinger et al., 1994) indicating no depressive symptomatology (*M* = 5.73, *SD* = 5.11). Patients reported higher BDI, $t(62) = 14.70$, $p < .001$, and DAS scores, $t(62) = 7.75$, $p < .001$ than nondepressed partners. The mean frequency of criticism during the FMSS (EE) was comparable for patients (*M* = 2.05, *SD* = 1.81) and nondepressed partners (*M* = 1.97, *SD* = 2.09), $t(62) = .24$, $p = .812$. Correlations in Table 1 show a pattern consistent with our hypotheses. Nondepressed partners' EE was positively related to patients' DAS ($r = .32$, $p = .010$), BDI ($r = .31$, $p = .013$), and HRSD ($r = .24$, $p = .063$). Additionally, patients' DAS was positively related to their self-reported (BDI: $r = .43$, $p = .001$) and clinician-rated depressive symptoms (HRSD: $r = .33$, $p = .009$). For nondepressed partners, DAS and BDI were positively correlated ($r = .46$, $p < .001$). However, as expected, nondepressed partners' DAS and BDI were not related to patients' EE.

TABLE 2. Estimated Parameters for the Saturated APIM Predicting Self-Reported Depression

		R^2	B	SE	CI 95% bias-corrected	β
DV: DAS patient		.11				
EE patient (a)			.02	.07	(-.097, .168)	.04
EE partner (p)	a_d		.14	.07	(.038, .298)	.32
DV: DAS partner		.00				
EE partner (a)			.02	.04	(-.075, .082)	.05
EE patient (p)	a_p		.02	.05	(-.087, .100)	.04
DV: BDI patient		.21				
DAS patient (a)	b_d		**3.40**	1.26	(.856, 5.926)	.36
DAS partner (p)			.19	1.27	(-2.334, 2.370)	.02
EE patient (a)			.07	.53	(-.917, 1.093)	.02
EE partner (p)	c_d		.78	.45	(-.206, 1.693)	.19
DV: BDI partner		.22				
DAS partner (a)	b_p		**3.30**	**1.07**	**(1.534, 5.660)**	**.47**
DAS patient (p)			-.34	.63	(-1.661, .861)	-.06
EE partner (a)			.04	.30	(-.439, .784)	.02
EE patient (p)	c_p		.13	.34	(-.434, .908)	.04
Correlations						
EE			.34	.53	(-.754, 1.304)	.09
DAS residuals			.06	.09	(-.090, .243)	.10
BDI residuals			2.02	3.54	(-4.728, .870)	.06

Note. EE = Expressed Emotion; DAS = Dysfunctional Attitude Scale; BDI = Beck Depression Inventory; DV = dependent variable; (a) = actor effect; (p) = partner effect; CI 95% = 95% confidence interval (lower-bound, upper-bound). Significant effects are printed in bold.

As hypothesized, partners' EE was positively associated with dysfunctional attitudes in depressed patients (path a_d: B = .14; SE = .07; 95% CI [.038, .298]), and nondepressed partners' DAS was unrelated to patients' EE (path a_p *ns*; 0 included in the 95% CI). One's own EE was, however, unrelated to patients' and partners' DAS; these actor effects were not significant (see Table 2). To test the mediation hypothesis for depressed patients, we were particularly interested in path a_d, b_d, and c_d (paths printed in bold in Figure 1). Path b_d was also significant: the higher patients scored on the DAS, the more depressive symptoms they reported (B = 3.40; SE = 1.26; [.856, 5.926]). As expected, the indirect effect a_d x b_d was significant (B = .46; SE = .32; [.104, 1.392]), and the direct effect of partners' EE on patients' BDI (path c_d) was contrary to the positive correlation not

significant after controlling for all other effects (r = .31 vs. β = .19, *ns*). Thus, statistical results support the mediation hypothesis for depressed patients. For nondepressed partners, on the other hand, self-reported depressive symptoms (BDI) were not associated with patients' EE; the direct effect (path c_p) and the indirect effect $a_p \times b_p$ (B = .05; SE = .18; [–.249, .436]) were both not significant. Hence, DAS and BDI were also positively associated in nondepressed partners (path b_p: B = 3.30; SE = 1.07; [1.534, 5.660]).

   We then estimated a simple mediation model to predict patients' clinician-rated depressive symptoms (HRSD). Because results of the APIM revealed only one significant partner effect (path a_d) and no significant association between depressed patients' and non-depressed partners' EE, DAS, or BDI scores, findings of the APIM and the simple mediation model estimating patients' depressive symptoms by partners' EE scores and patients' DAS scores can be compared (the simple mediation model corresponds to bold dashes in Figure 1 with paths a_d, b_d, and c_d). As can be seen in Table 3, the association between partners' EE and patients' DAS is comparable to the estimated path a_d in the APIM (path *a*: B = .14; SE = .06; [.043, .260]). In line with self-reported depressive symptoms, patients' DAS was positively associated with clinician-rated depressive symptoms (path *b*: B = 1.92; SE = .92; [.122, 3.845]). As in the APIM, the indirect effect (*a* x *b*) predicting HRSD by partners' EE (B = .29; SE = .17; [.024, .740]) and not the direct effect (path *c*) was significant. In contrast to the model with self-reported depressive symptoms (BDI), explained variance for estimated clinician-rated depressive symptoms decreased from 21% to 13%. However, the simple mediation model predicting HRSD provides a stronger test for the significance of the indirect effect since the associations between depressive symptoms and dysfunctional attitudes may not be a result of common shared method variance. To conclude, statistical results support the mediation hypothesis that dysfunctional attitudes mediate the relationship between partners' EE and clinician-rated depressive symptoms (HRSD).

   In order to examine the moderation hypothesis, interaction effects for DAS and partners' EE were added into the analysis. Standardized main effects for the two variables remained unchanged in the model predicting BDI and were slightly decreased in the model predicting HRSD (see Table 4). The interaction effect of partners' EE and patients' dysfunctional attitudes were not significant for predicting self-reported depressive symptoms (BDI: B = .15; SE = 2.35;

TABLE 3. Estimated Parameters for the Simple Mediation Model Predicting
Clinician-Rated Depression

		R^2	B	SE	CI 95% bias-corrected	β
DV: DAS patient		.10				
EE partner	a		**.14**	**.06**	**(.043, .260)**	**.32**
DV: HRSD patient		.13				
DAS patient	b		**1.92**	**.92**	**(.122, 3.845)**	**.28**
EE partner	c		.43	.53	(-.472, 1.496)	.15

Note. EE = Expressed Emotion; DAS = Dysfunctional Attitude Scale; HRSD = Hamilton Rating Scale; DV = dependent variable; CI 95% = 95% confidence interval (lower-bound, upper-bound). Significant effects are printed in bold.

[-4.606, 4.902]) or clinician-rated depressive symptoms (HRSD: *B* = 1.51; SE = 2.15; [-2.123, 6.053]). Adding this interaction term in the model did not substantially increase explained variance of patients' depressive symptoms (no change for BDI; 1% increase for HRSD). To conclude, there was no statistical evidence that dysfunctional attitudes (DAS) and partners' criticism (EE) interact in predicting depressive symptoms of clinically depressed patients. Moderation hypothesis was therefore not confirmed.

DISCUSSION

This study examined the interplay between the interpersonal construct of expressed emotion (EE) and the intrapersonal concept of dysfunctional attitudes in a sample of clinically-depressed patients and their partners. Depressive symptoms were significantly associated with dysfunctional attitudes in depressed patients. In line with previous findings (Haaga et al., 1991), the more dysfunctional attitudes (DAS) they reported, the higher patients scored on the BDI. A similar positive association was found for nondepressed partners. However, only in depressed patients was partners' EE significantly associated with their own dysfunctional attitudes and self-reported depressive symptoms. As hypothesized, partners' criticism was therefore more relevant to patients' dysfunctional attitudes and depressive symptoms than to nondepressed partners' mental well-being. There was no partner effect for nondepressed partners. Overall depressed patients were not less critical than nondepressed partners, but only in depressed patients was partners' EE significantly related to dysfunctional attitudes and depressive symptoms.

TABLE 4. Estimated Parameters for the Moderation Models Predicting Self-Reported and Clinician-Rated Depression

	R^2	B	SE	CI 95% bias-corrected	β
		BDI (self-reported depression)			
DV: Depression patient	.21				
DAS patient		**3.37**	**1.44**	**(.266, 6.140)**	**.36**
EE partner		.775	.45	(-.246, 1.551)	.19
DAS patient x EE partner		.15	2.35	(-4.606, 4.902)	.01
		HRSD (clinician-rated depression)			
DV: Depression patient	.14				
DAS patient		1.42	1.49	(-1.673, 4.120)	.21
EE partner		.35	.48	(-.458, 1.324)	.12
DAS patient x EE partner		1.51	2.15	(-2.123, 6.053)	.13

Note. EE = Expressed Emotion; DAS = Dysfunctional Attitude Scale; BDI = Beck Depression Inventory; HRSD = Hamilton Rating Scale; DV = dependent variable; CI 95% = 95% confidence interval (lower-bound, upper-bound). Significant effects are printed in bold.

Depressed patients may therefore be especially sensitive to partners' feedback as suggested by interpersonal theories of depression (Coyne, 1976; Joiner & Metalsky, 2001; Swann et al., 1992).

We then compared two different models for the interplay of dysfunctional attitudes and partners' expressed emotion in predicting patients' depressive symptoms. First, we tested a mediation model. As expected, partners' criticism (EE) was positively related to patients' dysfunctional attitudes, which were in turn related to depressive symptoms. In contrast to this indirect effect, the direct effect for the association between partners' EE and patients' depressive symptoms was not significant, neither for the estimation of patients' self-reported depressive symptoms (assessed by the BDI) or for the estimation of clinician-rated depressive symptoms (assessed by the HRSD). The second model was a moderation model. There was no support for the current sample that partners' EE and patients' dysfunctional attitudes interact in predicting patients' depressive symptoms. There was no evidence that the association between partners' EE and depressive symptoms was stronger for patients reporting more dysfunctional attitudes. Contrary to the stress-diathesis model (Abramson et al., 1989; Abramson et al., 1978; Beck, 1967), there was no indication that negative interpersonal behavior would trigger dysfunctional attitudes.

Thus, there was overall more support for the mediation model. In line with Jaquez et al. (2004), we assume that partners' negative feedback is internalized and nurture dysfunctional attitudes, and may therefore maintain depressive symptoms. This finding for depressed patients underscores the importance of interpersonal behavior to understand the maintenance of depression, cognitive dysfunctionality in particular. Since our results are based on a clinically depressed sample, the specific match of the mediation model might be more important for depression maintenance. A moderation model may be more adequate in the prediction of the onset of a depressive disorder (calling for a longitudinal research with a nonclinical sample).

However, our multi-method study of clinically-depressed patients and their partners has some limitations. The major one is its cross-sectional design which does not allow any unambiguous interpretation of causal pathways. The mediational hypothesis warrants a stronger test with longitudinal data in order to test direction of effects. With cross-sectional data, one cannot exclude that a model with reverse effects—DAS leading to increased criticism by the partner (EE)—is more adequate (such a model is statistically equivalent to the tested model). We also do not want to conclude that the association between partners' EE and patients' depressive symptomatology is nonreciprocal in nature. Nonetheless, the indirect effect we examined is remarkable as the associations are not a result of shared method variance. For the simple mediation model estimating clinician-rated depressive symptoms, all variables were measured with different methods (self-report for the DAS, observed behavior for EE, and a semi-structured clinical interview for HRSD).

Our findings suggest that partners' expressed emotion could be important for the severity of depressive symptoms in addition to their established relationship with relapse (Butzlaff & Hooley, 1998; Hooley, 2007). However, findings are only preliminary and there is a need for longitudinal research to clarify temporal order of examined associations. The link between partners' expressed emotion and patients' dysfunctional attitudes may furthermore be important for the treatment of depressive disorders as partners' criticism may be an important factor of depression maintenance. Bodenmann et al. (2008) found some evidence that reducing partners' expressed emotion in couple therapy could be an explanation for lowered risk of relapse after couple therapy in comparison to CBT and IPT.

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