Partner criticism during acute-phase cognitive therapy for recurrent major depressive disorder

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ABSTRACT

Many patients with major depressive disorder (MDD) are married or in marriage-like relationships that could influence treatment process and outcomes. We clarified relations of patient-reported criticism from partners (perceived criticism) and criticism of partners with psychosocial functioning and changes in cognitive therapy (CT) for depression. Partnered outpatients ($N = 219$) received a 12-week CT protocol and completed measures repeatedly. As hypothesized, perceived criticism and criticism of partners correlated with personality (e.g., perceived criticism: trait mistrust, self-harm; criticism of partners: negative temperament, aggression), social-interpersonal problems (perceived criticism: cold and overly nurturant behavior; criticism of partners: vindictive and domineering behavior; both measures: poor adjustment in partnered and family relationships), cognitive content (both measures: negative failure attributions, dysfunctional attitudes), and depressive symptom intensity (both measures), although effect sizes were small-moderate. Both criticism measures decreased little during CT and remained elevated compared to community norms, despite the fact that relations between the criticism measures and depressive symptoms included both stable trait and more transient state components. From these findings, we speculate that some patients with MDD elicit or amplify criticism in ways that harm their relationships and psychosocial functioning and may benefit from additional or strategic treatment.

1. Introduction

Patients with major depressive disorder (MDD) experience physical, economic, and social environments that may influence the severity and course of illness. Regarding experience of the social environment, patient reports of criticism from spouses or similar romantic partners (perceived criticism) reflect negative expressed emotion that is "getting through" to the patient (Chambless & Blake, 2009; Hooley & Parker, 2006). Perceived criticism has predicted poorer treatment outcomes in several studies (e.g., Hooley & Teasdale, 1989; Kwon, Lee, Lee, & Bifulco, 2006), although the nature of perceived criticism (e.g., overlap with personality, cognitive, and social-interpersonal functioning) in the context of cognitive therapy (CT) for MDD is incompletely understood. In parallel to perceived criticism, patient-reported criticism of partners can be assessed (Hooley & Teasdale, 1989), but less is known about criticism of partners overall and during treatment of depression specifically. The current analyses clarified (a) relations of perceived criticism

and criticism of partners to a broad array of personality, cognitive content, and social-interpersonal functioning measures; (b) changes in perceived criticism and criticism of partners; and (c) correlations of perceived criticism and criticism of partners with depressive symptoms, during acute-phase CT for depression.

Perceived criticism assessed by patient-report questionnaire has related inconsistently to depression treatment outcomes and depressive symptom severity. In an early study (Hooley & Teasdale, 1989), perceived criticism was a strong predictor ($r = 0.64$) of relapse among 22 inpatients who completed treatment for depression (primarily medication and/or electro-convulsive therapy) and a 9-month follow-up assessment. Replicating this finding, perceived criticism strongly predicted relapse ($r = .50$) among 27 outpatients with depression followed for 11 months (Kwon et al., 2006). However, other studies of depressed patients found that perceived criticism did not predict treatment outcomes (e.g., Andrew, Hawton, Fagg, & Westbrook, 1993; Kronmüller et al., 2008). Similarly, perceived criticism has occasionally correlated

significantly with depressive symptom severity (e.g., $r = 0.15$ in study 2 of Renshaw, Blais, & Caska, 2010) but often not (e.g., see reviews by Renshaw, 2008, and Masland & Hooley, 2015), although sample sizes have typically been < 100 in studies finding no significant relations. In addition, a study and review suggested that perceived criticism may predict treatment outcomes only for patients who are living with the person providing criticism (e.g., spouse, romantic partner, or parent) as opposed to criticism in other relationships that may be less close or stable (Renshaw, 2007, 2008). Consequently, the current analyses focused on married or cohabiting patients. Compared to many past studies, our relatively large sample ($N = 219$) and repeated measures (pre-, mid-, and post-CT) provided greater statistical power to detect potential relations between criticism and depressive symptoms during CT.

Perceived criticism has shown moderate convergence with observers' rating of criticism (e.g., from spouses), suggesting that perceived criticism ratings are partly objective but also partly subjective (Masland & Hooley, 2015). Subjective contributions to perceived criticism ratings may include patients' personality, cognitive content, and social-interpersonal functioning, but these relations have been reported infrequently. For example, perceived criticism may minimally reflect patients' personality or personality pathology, such as high neuroticism or sensitivity to criticism (Hooley & Miklowitz, 2017; Renshaw, 2008). Calls for additional research on personality and perceived criticism (Renshaw, 2008) have gone largely unanswered, however. In the current study, we tested relations of perceived criticism from partners, as well as patients' reports of criticism of their partners, with 15 temperament and trait dimensions relevant to both normal and pathological personality functioning (Clark, Simms, Wu, & Casillas, 2014).

Perceived criticism may relate more robustly to negative information processing. For example, a fMRI study found that women with high (versus low) perceived criticism showed greater activation of brain areas associated with emotion reactivity and regulation after listening to critical (versus favorable) comments from their mothers (Hooley, Siegle, & Gruber, 2012). Moreover, adults with high (versus low) perceived criticism made more negative interpretations of ambiguous stimuli and showed impaired executive control over negative emotional information in computerized reaction time tasks (Masland, Hooley, Tully, Dearing, & Gotlib, 2015). Finally, negative attributions about spouses' behavior in a videotaped interaction correlated with perceived criticism (Chambless, Blake, & Simmons, 2010). The current study extended this literature by testing relations of perceived criticism from partners, plus patients' reports of criticism of their partners, with well-established questionnaire measures of depressive cognitive content, including hopelessness, dysfunctional attitudes, attributional style, and learned resourcefulness.

Social-interpersonal functioning may relate to perceived criticism in expected ways that provide convergent validity evidence for the measures, and in less-anticipated ways that hint at potential causes or consequences of perceived criticism. Understandably, perceived criticism has converged with ratings of poorer quality marital relationships in past research (e.g., Chambless & Blake, 2009). Perhaps more intriguingly, perceived criticism has also related to interpersonal dependence (Kwon et al., 2006), interpersonal avoidance (Rosenthal, Polusny, & Follette, 2006), and negative non-verbal behavior (Gerlsma, van Duijn, Hale, & van Hout, 2009) in the partner perceiving more criticism. In the current study, we tested relations of perceived criticism, and patients' reports of criticism of their partners, with 8 dimensions of interpersonal problems (Horowitz, Alden, Wiggins, & Pincus, 2000) and 6 domains of social role functioning (Weissman & Bothwell, 1976) to clarify the range of possible causes and consequences of criticism.

In this context, the goals of this partly-exploratory study were to (1) better understand perceived criticism and self-reported criticism of partners among outpatients receiving CT for depression in the "nomological network" of personality, social-interpersonal functioning, and

depressive symptoms and cognitive content; (2) test changes in perceived criticism and criticism of partners during CT for MDD; and (3) clarify relations of changes in perceived criticism and criticism of partners with changes in depressive symptoms during acute-phase CT for depression. We tested the broad hypothesis that both perceived criticism and self-reported criticism of partners correlate with poorer functioning and greater pathology, and thus decrease during CT. We were equally interested in the patterns of findings about which we did not make specific predictions, so we also searched all the data available for possible, informative correlations. This data exploration, the patterns of statistically significant findings and their effect sizes may suggest finer grained hypotheses to be tested in future studies.

2. Method

For the purpose of hypothesis generation, data were drawn from the acute phase of a multi-phase clinical trial (see Jarrett & Thase, 2010, for method and Jarrett, Minhajuddin, Gershenfeld, Friedman, & Thase, 2013, for primary results). The acute phase was not randomized and all acute-phase patients received CT. The study procedures and data collection received annual approval by the institutional review boards at the University of Texas Southwestern Medical Center and University of Pittsburgh Medical Center.

2.1. Participants

Outpatients who (a) provided written informed consent for evaluation and treatment; (b) met *DSM-IV* criteria for recurrent MDD (American Psychiatric Association, 2000); (c) previously had remitted between depressive episodes, had at least one prior episode with complete inter-episode recovery, or had antecedent dysthymic disorder; and (d) scored ≥ 14 on the 17-item Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) participated. Potential participants who (a) had severe or poorly controlled concurrent medical disorders that could cause depression, (b) had psychotic or organic mental disorders, bipolar disorder, active substance dependence, or primary obsessive-compulsive or eating disorders, (c) could not complete questionnaires in English, (d) were an active suicide risk, (e) were < 18 or > 70 years old, (f) had not responded previously to ≥ 8 weeks of CT or 6 weeks of fluoxetine, or (g) were pregnant or planned to become pregnant during the first 11 months after intake were excluded. Diagnosis was made with the Structured Clinical Interview for *DSM-IV* (First, Spitzer, Gibbon, & Williams, 1996). The current analyses focused on the subset of participants who were married and living with their spouse or cohabiting at intake. These 219 partnered patients were $M = 44.7$ ($SD = 11.6$) years old and had completed $M = 15.1$ ($SD = 2.7$) years of education; 71% were women, and 84% were white. Patients' mean age of MDD onset was 21.2 ($SD = 10.7$) years. Their current major depressive episode had lasted $M = 23.5$ ($SD = 31.1$) months.

2.2. Acute-phase CT

Patients were unmedicated or withdrew from any psychotropic medications before starting acute-phase CT (Beck, Rush, Shaw, & Emery, 1979). The 16 cognitive therapists had completed at least 1 year of CT training, submitted videotaped sessions for review, participated in group supervision/feedback sessions weekly, and demonstrated competence by maintaining mean Cognitive Therapy Scale (Young & Beck, 1980) scores ≥ 40. The acute-phase CT protocol lasted 12–14 weeks. Patients received 2 individual sessions per week for 4 weeks. Then patients with ≥ 40% reduction in HRSD scores received 8 individual additional weekly sessions (16 total sessions), whereas patients with less early symptom reduction received 4 additional weeks of twice weekly sessions before beginning weekly sessions (20 total sessions). Patients with less early symptom reduction received more CT sessions

to increase their chances of acute-phase response (no MDD and final HRSD ≤ 12) and eligibility for later study phases not analyzed here.

2.3. Measures

2.3.1. Criticism

Patients completed the Perceived Criticism Scale (Hooley & Teasdale, 1989) pre-, mid-, and post-CT. Using a scale from 1 ("not at all critical") to 10 ("very critical indeed"), patients rated how much their spouses or cohabiting partners criticized them (perceived criticism), and how much patients criticized their spouses or cohabiting partners (criticism of partners). Chambless and Blake (2009) reported that wives' and husbands' ratings of how critical they were of their partners correlated moderately (0.39-0.59) with how critical their partners rated them to be, in support of the validity of both the perceived criticism and criticism of partner scales. In addition, the perceived criticism scale correlated substantively (0.47) with global ratings of destructive criticism by untrained observers of dyadic interactions (Chambless & Blake, 2009). Retest reliability for the perceived criticism scale has been moderately high, 0.75 over 2 weeks and 0.66 over 4 months (Chambless & Steketee, 1999). Similarly, retest correlations were moderately high from pre-to mid-CT and from mid-to post-CT, respectively, for perceived criticism (0.70, 0.71) and criticism of partners (0.49, 0.65) in the current sample.

2.3.2. Depressive symptoms

Patients completed the 21-item Beck Depression Inventory (BDI; drawing items from the interview developed by Beck, Ward, Mendelson, Mock, & Erbaugh, 1961, adapted for use as a self-report questionnaire; Beck, Steer, & Garbin, 1988) and 30-item Inventory of Depressive Symptomatology—Self-Report (IDS-SR; Rush, Gullion, Basco, Jarrett, & Trivedi, 1996), and clinicians administered the 17-item HRSD, pre-, mid-, and post-CT. Because these well-established measures mark the same symptom severity construct during acute-phase CT (Vittengl, Clark, Kraft, & Jarrett, 2005; Vittengl, Clark, Thase, & Jarrett, 2013), we standardized them by their distributions at intake ($M = 50$, $SD = 10$) and aggregated them to form a robust symptom index. Higher scores indicate more severe depressive symptoms. The symptom composite demonstrated acceptable alpha internal consistency reliability (median = 0.94, range 0.81–0.95) in the current clinical trial (Vittengl, Clark, Thase, & Jarrett, 2014).

2.3.3. Social-interpersonal functioning

Participants completed the Social Adjustment Scale—Self-Report (Weissman & Bothwell, 1976) and the Inventory of Interpersonal Problems (Horowitz et al., 2000) pre-, mid-, and post-CT. We scored 6 subscales reflecting (poor) social adjustment in work, leisure, extended family, marital (or cohabiting) relationship, parental, and immediate family unit domains. We also scored 8 subscales reflecting interpersonal problems attributed to domineering, vindictive, cold, socially avoidant, non-assertive, exploitable, overly nurturant, and intrusive behavior. Higher scores mark poorer functioning. The interpersonal problems subscales demonstrated adequate alpha internal consistency reliability (median = 0.83, range 0.71–0.92), but internal consistency of the social adjustment subscales was sometimes lower than desirable (median = 0.65, range 0.58–0.79), in the current clinical trial.

2.3.4. Cognitive content

Patients completed four measures of depressive cognitive content pre-, mid-, and post-CT. The Dysfunctional Attitudes Scale (Form A; Weissman, 1979) measures attitudes hypothesized to relate to depression. From the Attributional Style Questionnaire (Dykema, Bergbower, Doctora, & Peterson, 1996), we analyzed scales reflecting more global and stable attributions for failures. The Beck Hopelessness Scale assesses pessimistic views of the future (Beck, Weissman, Lester, & Trexler, 1974). Finally, the Self-Control Schedule measures learned

resourcefulness in problem-solving (Rosenbaum, 1980). These scales demonstrated adequate alpha internal consistency reliability (median = 0.87, range 0.79–0.94) in the current clinical trial (Vittengl et al., 2014).

2.3.5. Personality

Participants completed the Schedule for Non-adaptive and Adaptive Personality-2nd Edition (SNAP-2; Clark et al., 2014) early (week 1–2) and late (week 13–14) in acute-phase CT. The SNAP-2 is a 390-item, true-false format, factor analytically derived self-report inventory that assesses 15 personality-trait dimensions relevant to normal personality and personality disorder. The scales reflect three broad factors, positive temperament (e.g., exhibitionism, low detachment), negative temperament (e.g., mistrust, aggression), and disinhibition (e.g., impulsivity, low propriety), which are similar to dimensions of extraversion, neuroticism, and (low) conscientiousness, respectively, on other personality measures. Perhaps less clear from its short title, the self-harm scale taps low self-esteem plus self-destructive tendencies. The SNAP-2 scales demonstrated adequate alpha internal consistency reliability (median = 0.82, range.73–0.90) in the current clinical trial (Vittengl, Clark, Thase, & Jarrett, 2015).

2.4. Data analysis

2.4.1. Preliminary analyses

The perceived criticism and criticism of partners scales, respectively, were not significantly correlated with patients' age (0.03, −0.08), years of education (−0.02, −0.01), female versus male gender (−0.12, 0.11), white versus non-white ethnicity (−0.05, −0.09), age of MDD onset (−0.01, −0.11), or length of depressive episode (0.04, −0.01) measured pre-CT, ps > .08. In addition, pre-treatment perceived criticism and criticism of partners did not predict whether patients received the 16- or 20-session CT protocol, ps > .21. Consequently, we did not analyze these demographic, illness characteristics, or protocol variables further.

2.4.2. Hypothesis tests

Descriptive statistics for primary study variables appear in Appendix 1. During the 12-year clinical trial, missing data resulted from processes including patient attrition and fatigue, inapplicability of some SAS-SR scales (e.g., parenting) to particular patients, and adding the SNAP to the initial acute-phase assessment battery after the trial began. To include patients with some missing outcome data in hypothesis tests, we used multilevel models with restricted maximum likelihood estimation for repeated-measures data (Schafer & Graham, 2002). Each multilevel model included the random effect of participant to account for nesting of repeated measures within participants, plus fixed effects of interest.

Because we conducted a number of exploratory analyses, we employed Type I error control. In particular, we highlighted findings significant at p < .05, two-tailed, after a modified Bonferroni correction (Holm, 1979), with separate corrections for perceived criticism and criticism of partners and for analytic goals 1 (35 tests for each criticism scale), 2 (3 tests for each criticism scale), and 3 (2 tests for each criticism scale). Consistent with our aim of hypothesis generation, we noted additional findings significant at uncorrected p < .01, two-tailed. Moreover, we focused on patterns of findings rather than isolated results, and we reported effect sizes so that readers may consider their magnitude. Even so, our results may include some false-positives, and replication in future research will be important.

3. Results

Toward our goal of hypothesis generation, we tested bivariate relations of perceived criticism and self-reported criticism of partners with personality, social-interpersonal functioning, and depressive symptoms and cognitive content variables in a series of repeated

measures multilevel models. Fig. 1 shows relations of the criticism measures with the trait and temperament scales.

Relations of perceived criticism and self-reported criticism of partners with these personality scales were typically weak but variable ($|r|$ median = 0.09, range 0.00–0.32). Perceived criticism related to greater trait mistrust (0.20), self-harm (0.19), and detachment (0.20), whereas criticism of partners correlated with greater negative temperament (0.32) and aggression (0.24), at Holm-Bonferroni corrected $p < .05$, two-tailed.

Fig. 2 shows relations between criticism and social-interpersonal functioning. Perceived criticism and criticism of partners related broadly to interpersonal problems and poor social adjustment ($|r|$ median = 0.17, range 0.10–0.41), and the majority of coefficients were significant at Holm-Bonferroni corrected $p < .05$, two-tailed. Among the significant relations for interpersonal problems, cold (0.20) and overly-nurturant (0.19) problems were most closely related to perceived criticism, whereas domineering (0.29) and vindictive (0.24) problems were most closely related to criticism of partners.[1] Among the significant relations for social adjustment domains, poor marital (0.41, 0.28) and family unit (0.28, 0.20) adjustment were most closely related to both perceived criticism and criticism of partners, respectively.

Fig. 3 shows relations between criticism and depressive symptoms and cognitive content. Both perceived criticism (0.17) and criticism of partners (0.16) demonstrated modest but statistically significant relations with depressive symptom severity, Holm-Bonferroni corrected $p < .05$, two-tailed.

Relations of perceived criticism and criticism of partners with the cognitive content scales were similarly small and relatively consistent ($|r|$ median = 0.16, range 0.11–0.23). Perceived criticism and criticism of partners, respectively, related to greater dysfunctional attitudes (0.16, 0.17), and global (0.16, 0.20) and stable (0.17, 0.23) failure attributions at Holm-Bonferroni corrected $p < .05$, two-tailed. Criticism of partners also related to less learned resourcefulness (-0.16) at Holm-Bonferroni corrected $p < .05$, two-tailed. Perceived criticism (0.13) and criticism of partners (0.12) were not associated with greater hopelessness at Bonferroni corrected $p < .05$, two-tailed, but did cross the uncorrected $p < .01$, two-tailed, significance threshold.

We addressed our second goal by testing changes in mean perceived criticism and criticism of partners during CT in separate multilevel models. Perceived criticism, $F(2,326) = 3.77$, and criticism of partners, $F(2,326) = 5.77$, changed significantly, Holm-Bonferroni corrected $p < .05$. Fig. 4 displays estimated means. Overall, the decreases in perceived criticism ($d = 0.14$) and criticism of partners ($d = 0.25$) from pre-to post-CT were small. In contrast, depressive symptoms decreased greatly, pre-post $d = 2.74$.

Compared to a normative sample of couples from the community (Chambless & Blake, 2009), estimated mean perceived criticism among the current CT patients with MDD was 0.72 and 0.53 SD above

community norms ($M = 4.04$, $SD = 2.32$) before and after CT, respectively, Holm-Bonferroni corrected $p < .05$, two-tailed. Similarly, criticism of partners was 0.55 and 0.27 SD above community norms ($M = 4.81$, $SD = 2.09$) before and after CT, respectively, Holm-Bonferroni corrected $p < .05$, two-tailed.

We addressed our third goal by partitioning between-subjects (stable "trait") and within-subjects (more transient "state") relations between depressive symptoms and criticism in the context of CT. In particular, we regressed depressive symptoms (pre-, mid-, and post-CT) on each patient's mean level of perceived criticism across these repeated assessments (between-subjects component) and the differences of each patient's perceived criticism scores from the patient's perceived criticism mean (within-subjects component) in a multilevel model. A parallel model was computed for criticism of partners. As shown in Table 1, the between- and within-subjects relations of perceived criticism and criticism of partners with depressive symptoms were all statistically significant and relatively small in magnitude (standardized betas 0.11–0.14). These analyses suggested that the overall relations between perceived criticism and criticism of partners with depressive symptoms (as depicted in Fig. 3) consisted of both trait and state components.

4. Discussion

The findings of our exploratory analyses supported the hypothesis that perceived criticism and criticism of partners converge with poorer functioning and greater pathology during CT for recurrent MDD. Thus, in this patient population, the current analyses helped clarify the nature of perceived criticism and criticism of partners via relations with a network of other depression-relevant measures, including depressive symptom severity, personality, cognitive content, and social-interpersonal functioning. However, both perceived criticism and criticism of partners remained elevated compared to community norms after CT. Following we interpret the patterns and strengths of findings to inform more-refined hypothesis tests in future studies.

Replicating and extending past research (Hooley & Miklowitz, 2017; Renshaw, 2008), perceived criticism and criticism of partners related unevenly to 15 trait and temperament dimensions. In particular, CT patients with higher perceived criticism tended to describe themselves as suspicious and cynical (high trait mistrust), aloof (high detachment), and dissatisfied with themselves (high self-harm). Moreover, patients reporting more criticism of their partners tended to be easily distressed and angered (high negative temperament and aggression). Our finding that perceived criticism and criticism of partners related significantly to some but not other personality dimensions was representative of past research suggesting inconsistent relations between these constructs (Chambless, Bryan, Aiken, Steketee, & Hooley, 2001; Masland & Hooley, 2015) and that relations between personality and perceived criticism are likely small in general (Renshaw, 2008).

Perceived criticism and criticism of partners related more consistently with social-interpersonal functioning. Although the criticism variables correlated with interpersonal problems broadly, perceived criticism's nominally strongest relations with both cold and overly-nurturant behaviors suggested either non-specific interpersonal distress (i.e., an elevated but relatively flat profile of interpersonal problems) or an inconsistent (e.g., "push-pull") interpersonal style. An inconsistent interpersonal style is consistent with past findings of elevated dependence in the marital relationship among patients reporting higher perceived criticism (Kwon et al., 2006). In contrast, criticism of partners related somewhat more strongly and specifically with domineering and vindictive behaviors, suggesting a particular interpersonal style and fitting the personality profile described above.

The current findings about perceived criticism are broadly consistent with, and extended, previous research on social functioning. In support of the measures' validity, both perceived criticism and criticism of partners correlated with poorer marital adjustment in the current

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[1] The eight interpersonal problems scales define a two-dimensional circular space (a "circumplex"; Horowitz et al., 2000; Vittengl, Clark, & Jarrett, 2003), with the domineering scale at the top of the circumplex (90°) and the vindictive (135°), cold (180°), socially avoidant (225°), non-assertive (270°), exploitable (315°), overly nurturant (0°), and intrusive (45°) scales arranged in theoretically equal increments. If the criticism scales marked a defined interpersonal style (versus non-specific interpersonal distress), then the magnitude of their relations with the eight interpersonal problems scales should have followed a cosine curve reflecting the circular arrangement of the interpersonal problems scales. A descriptive circular profile analysis (Gurtman, 1994) of the beta weights from Fig. 2 suggested that the perceived criticism scale did not clearly fit a defined interpersonal style (circumplex fit $R^2 = 0.23$) and instead perhaps marked non-specific interpersonal distress. However, criticism of partners more strongly fit a circumplex pattern ($R^2 = 0.86$), with the predominant interpersonal style at about 116° suggesting a blend of domineering and vindictive behavior.
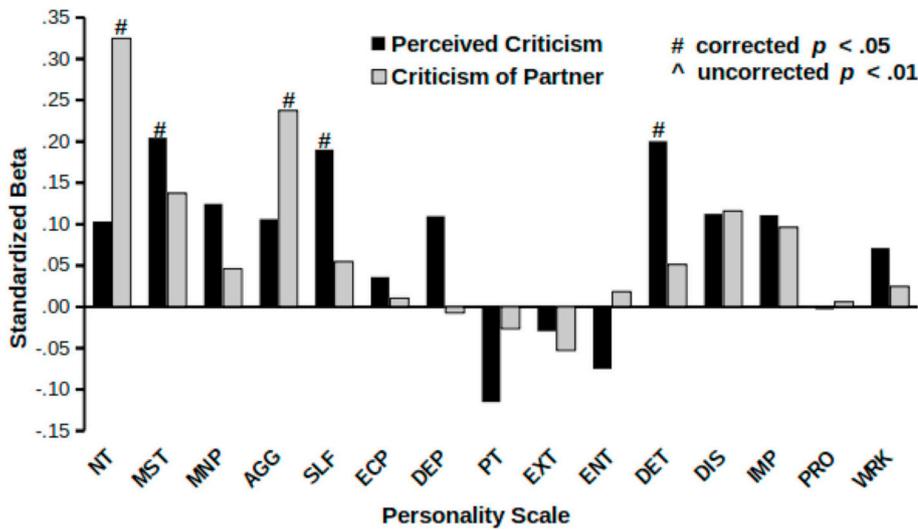
Fig. 1. Concurrent relations between criticism and Schedule for Adaptive and Nonadaptive Personality scales during acute-phase cognitive therapy for depression. NT = negative temperament, MST = mistrust, MNP = manipulativeness, AGG = aggression, SLF = self-harm, ECP = eccentric perceptions, DEP = dependency, PT = positive temperament, EXT = exhibitionism, ENT = entitlement, DET = detachment, DIS = disinhibition, IMP = impulsivity, PRO = propriety, WRK = workaholism.
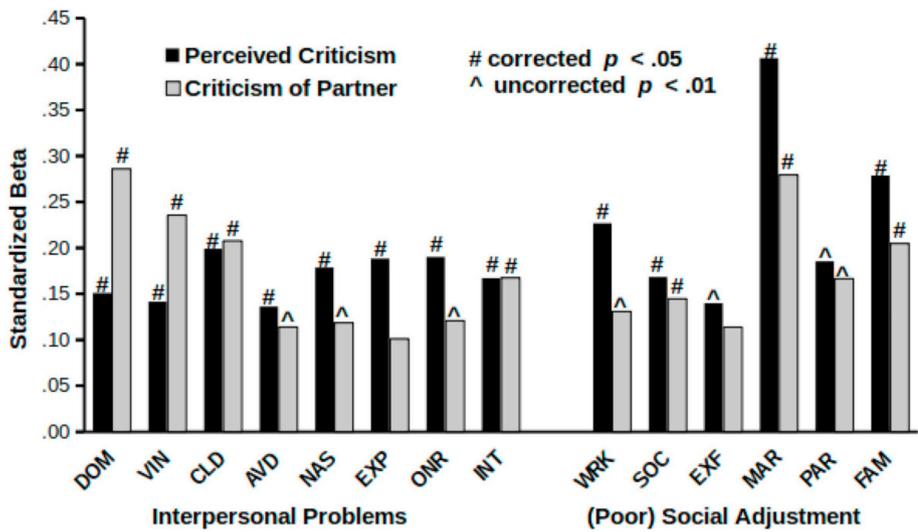

Fig. 2. Concurrent relations between criticism and social-interpersonal functioning during acute-phase cognitive therapy for depression. DOM = domineering, VIN = vindictive, CLD = cold, AVD = socially avoidant, NAS = non-assertive, EXP = exploitable, ONR = overly nurturant, INT = intrusive, WRK = work role, SOC = social/leisure, EXF = extended family, MAR = marital, PAR = parental, FAM = family unit.
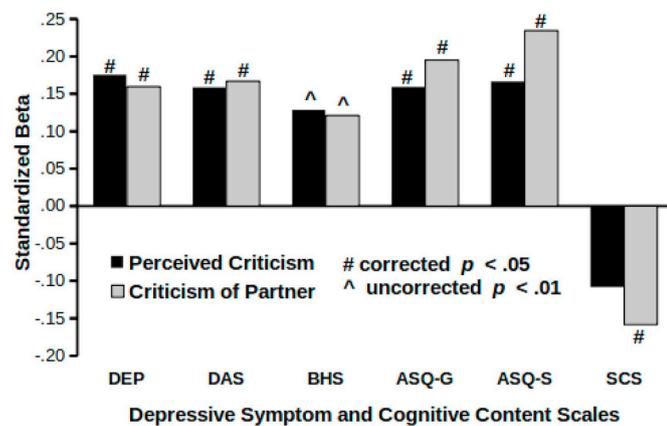

Fig. 3. Concurrent relations between criticism and depressive symptoms and cognitive content during acute-phase cognitive therapy for depression. DEP = depressive symptom severity composite. DAS = dysfunctional attitudes, BHS = hopelessness, ASQ-G = global attributions for failures, ASQ-S = stable attributions for failures, SCS = self-control (learned resourcefulness).
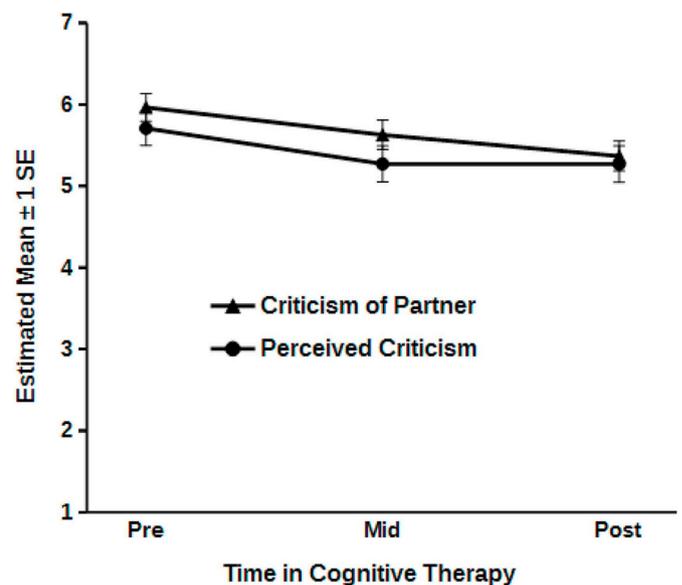

Fig. 4. Changes in mean patient-reported criticism during acute-phase cognitive therapy for depression.

sample. Similarly, in past research, the perceived criticism scale correlated with poorer social and dyadic adjustment in past research on outpatients with anxiety disorders (Chambless & Blake, 2009; Chambless et al., 2001). Moreover, both criticism scales also related to

Table 1
Relations of depressive symptom severity with between- and within-subjects components of criticism during cognitive therapy.

Model	Predictors	B	SE	p
1	Between-subjects effect: Perceived criticism mean	0.14[a]	0.04	.0013
	Within-subjects effect: Perceived criticism changes	0.12[a]	0.04	.0054
2	Between-subjects effect: Criticism of partner mean	0.11[a]	0.04	.0096
	Within-subjects effect: Criticism of partner changes	0.13[a]	0.04	.0032

Note. Depressive symptoms and criticism assessed pre-, mid-, and post-cognitive therapy. Beta values are standardized. Models controlled the random effect of participant (not shown) to account for repeated measures of depressive symptoms.

[a] Holm-Bonferroni corrected $p < .05$.

poorer adjustment in other domains assessed (e.g., with family, during leisure) in the current sample. One interpretation of this pattern of results is that patients reporting high criticism have a broadly problematic manner of relating to, or interpreting, their interpersonal and social worlds. This possibility is consistent with past research on the interpersonal behavior of persons with depression (Segrin, 2011). Thus, our findings replicated and extended previous findings for perceived criticism, and to the literature we added similar relations for criticism of partners, among outpatients with MDD receiving CT.

Perceived criticism and criticism of partners also related relatively consistently to self-reported depressive cognitive content, replicating and extending past research using different methods to assess cognitive processes (Hooley et al., 2012; Masland et al., 2015). In the current analyses, the criticism variables related to dysfunctional attitudes, stable and global failure attributions, less learned resourcefulness (perceived criticism only), and perhaps additionally to hopelessness. Thus, even compared to other patients with recurrent MDD, those with greater perceived criticism and criticism of partners appeared to have particularly negatively-biased information processing habits. These cognitive biases may increase the emotional impact of criticism from partners, and may also increase criticism of partners due to unfavorable views of the self and the partner, pessimism about the future, and less-effective coping behaviors.

Consistent with these ideas, some studies suggested that patients' distress about criticism, rather than perception of criticism itself, may be more important in treatment outcomes (Miklowitz, Wisniewski, Miyahara, Otto, & Sachs, 2005; Steketee, Lam, Chambless, Rodebaugh, & McCullouch, 2007). Thus, our findings that perceived criticism and criticism of partners correlated with self-reported depressive cognitive content broadly parallel and complement previous findings regrading criticism and cognition assessed in a reaction-time assessment of negative information processing (Masland et al., 2015).

On the other hand, our findings of small but statistically significant relations of depressive symptom severity with perceived criticism and criticism of partners did not fit past conclusions that perceived criticism is essentially unrelated to psychopathology (Masland & Hooley, 2015). The magnitude of the overall relations of perceived criticism ($r = 0.17$) and criticism of partners ($r = 0.16$) with depressive symptoms were modest but statistically significant in our relatively large dataset ($N = 219$ measured at up to 3 time points). The effect sizes observed in the current study are similar to that in another larger study finding a significant relation between perceived criticism and depressive symptoms ($r = 0.15$, $N = 545$ in a cross-sectional study; Renshaw et al., 2010), and perhaps explain why some previous studies with less statistical power may not have detected such modest relations (e.g., as reviewed by Renshaw, 2008; Masland & Hooley, 2015). Alternatively, an unknown characteristic of the current population (outpatients with recurrent MDD) or protocol (treated with CT by experienced therapists in a clinical trial), may have increased relations between criticism and

depressive symptoms relative to other populations or protocols. Future large-sample research or meta-analysis could clarify these possibilities.

Improvements in perceived criticism and criticism of partners during CT for depression were small, especially relative to large reductions in depressive symptoms. Criticism of partners and perceived criticism decreased statistically significantly but with small effect sizes during CT. Both before and after CT, the current patient sample showed moderate elevations in perceived criticism, and small-moderate elevations in criticism of partners, compared to a normative sample of couples (Chambless & Blake, 2009). Larger reductions in depressive symptoms may reflect regression to the mean (patients were selected for elevated symptoms but not for elevated criticism) plus targeting of depressive symptoms in CT.

We partitioned the overall correlations of perceived criticism and criticism of partners with depressive symptoms into trait and state components. In the context of acute-phase CT, the trait components marked relations between criticism and depressive symptoms that were stable over time and not changed by treatment. In contrast, the state components marked relations between criticism and depressive symptoms that changed during acute-phase CT, as both symptoms and criticism decreased. We speculate that the trait components reflect individual differences (e.g., in life circumstances, chronic organic illness, personality) that are not easily modified in a brief (12-week) course of CT. In contrast, the state components may be depression-related constructs (e.g., unrealistic expectations about the self, partner, and romantic relationship) that are more readily targeted through acute-phase CT processes such as behavioral activation and cognitive restructuring. For example, depressive cognitive content decreased (Vittengl et al., 2014) and dyadic adjustment increased (Trombello et al., 2018) during acute-phase CT in the current clinical trial. Consequently, depressive symptoms and criticism possibly share both risk factors and mechanisms of improvement during CT, although this treatment appeared to target depressive symptoms more directly and powerfully than it targeted criticism. These speculations require empirical clarification in future research with adequate sample sizes.

A theme emerging from the current findings is that CT patients with depression are not simply passive recipients of criticism. Instead, patients' thoughts, behaviors, and emotions may elicit or amplify criticism and its emotional impact. For example, patients reported criticizing their partners at roughly the same level as they received criticism, and both sources of criticism were significantly above community norms, on average. Moreover, our data suggest that when criticism is delivered by partners, patients may interpret these behaviors in negatively biased ways that increase emotional (e.g., depressive symptoms) and behavioral (e.g., withdrawal and/or retaliation) reactions. This pattern of findings fits both stress-diathesis and stress-generation theories in which persons behave in ways that produce or worsen stressors in their lives, and then react with increased sensitivity to those stressors, resulting in negative emotional states, including depression (e.g., Hammen, 2006; Hooley & Gotlib, 2000).

Because criticism remained above community norms after CT, additional treatment such as behavioral marital therapy (e.g., Shadish & Baldwin, 2005) may further benefit MDD patients with elevated criticism in romantic relationships. In the current study, CT techniques targeting depressive symptoms may have only improved criticism to a limited extent (the state component of the symptom-criticism relation during CT) but not accessed other parts of the symptom-criticism relation (the trait component stable during CT). Some research suggests that couples therapy may reduce depressive symptoms as much as some individual psychotherapies, but couples therapy may produce superior outcomes for couples' distress and criticism (Beach & Whisman, 2012). Whether this finding generalizes to outpatients with recurrent MDD treated with acute-phase CT is unknown but certainly worth testing.

The statistically significant effect sizes observed in the current analyses ($|r|$ median = 0.18) matched or exceeded the magnitude of many important risk factors in public health research (e.g., correlations

of smoking with lung cancer and death; Meyer et al., 2001; Rutledge & Loh, 2004). Nonetheless, many of these effect sizes may be viewed as small in other clinical contexts and their implications for improving treatment of adults with recurrent MDD and elevated criticism in romantic relationships are unknown and important topics for future research. The size of the observed effect sizes suggests that many psychosocial variables potentially make small contributions to criticism in romantic relationships, fitting observations in past research (Renshaw, 2008). Similarly, the magnitude of observed relations of the criticism scales with personality, social-interpersonal functioning, and depressive cognitive content suggest that criticism converges to a small degree with these constructs but is largely divergent. Thus, perceived criticism and criticism of partners appeared related to, but far from redundant with, other domains of psychosocial functioning assessed in the current study.

Features of the sample, measures, study design, and analyses limit our conclusions. First, the current results from outpatients with recurrent MDD treated by well-trained, experienced, and supervised cognitive therapists may not generalize to other patient populations or treatments. Second, due to the design of the parent trial, all patients received acute-phase CT and there was no control or comparison treatment group. Whether CT produced observed reductions in criticism of partners is unknown, consequently. Third, measures of perceived criticism, criticism of partners, personality, social-interpersonal functioning, and cognitive content were all patient-report questionnaires and thus potentially limited by this rating perspective. Additional research incorporating spousal or objective observer reports, for example, might extend our findings in important ways. Finally, many of our analyses are novel, especially for the criticism of partners scale. Although we used Type I error control for our exploratory analyses, replication in independent samples will be important to rule out false positives among our findings.

Future prospective research might profitably test hypotheses emerging from our findings with the goal of better understanding partnered criticism in MDD that may impair patients' functioning. For example, based on the current findings, we hypothesize that the behavior, cognition, and emotions of some patients with MDD potentiate criticism from partners in ways that decrease the quality of their relationships and psychosocial functioning. If this hypothesis is supported, a next step would be to clarify the mechanisms (e.g., overt behavior, information processing, emotional reactivity) that produce perceived and emitted criticism. Identified mechanisms could then be targets for treatment among coupled patients with MDD.

Conflicts of interest

Dr. Vittengl is a paid reviewer for UpToDate. Dr. Clark is author and copyright owner of the Schedule for Adaptive and Nonadaptive Personality and receives royalties from its sales. There is no licensing fee for use of the SNAP family of measures for non-commercial, unfunded research. For all other uses, Dr. Clark negotiates a mutually acceptable licensing fee. Dr. Thase has consulted with and/or served on advisory boards for Alkermes, Allergan (includes Forest Laboratories), AstraZeneca, Cerecor, Johnson & Johnson (includes Janssen), Lundbeck, MedAvante, Merck, Moksha8, Otsuka, Pfizer Pharmaceuticals, Shire, Sunovion, and Takeda; he has received grant support from Alkermes, Allergan (includes Forest Laboratories), Assurerx, Johnson & Johnson, Takeda, the Agency for Healthcare Research and Quality, Patient Centered Outcomes Research Institute and the NIMH. He has equity holdings for MedAvante, Inc. and has received royalties from American Psychiatric Publishing, Inc. (APPI), Guilford Publications, Herald House, and W.W. Norton & Company, Inc. Dr. Thase's spouse is an employee of Peloton Advantage, which does business with several pharmaceutical companies. Dr. Jarrett is a paid consultant to the NIH, NIMH, and UpToDate. Her medical center charges fees for the cognitive therapy she provides to patients.

Appendix 1. Descriptive statistics for study variables

Measure	Time	N	M	SD
Depressive symptoms	Pre	219	49.79	10.04
Depressive symptoms	Mid	187	28.13	12.48
Depressive symptoms	Post	181	22.08	13.40
Perceived criticism	Pre	204	5.72	3.18
Perceived criticism	Mid	174	5.32	2.99
Perceived criticism	Post	164	5.31	2.80
Criticism of partner	Pre	204	5.96	2.42
Criticism of partner	Mid	174	5.61	2.53
Criticism of partner	Post	164	5.36	2.35
IIP: Domineering	Pre	216	8.21	5.49
IIP: Vindictive	Pre	216	9.69	5.95
IIP: Cold	Pre	216	12.22	6.49
IIP: Socially avoidance	Pre	216	15.60	7.23
IIP: Non-assertive	Pre	218	17.02	7.45
IIP: Exploitable	Pre	216	14.85	6.33
IIP: Overly nurturant	Pre	216	15.08	6.01
IIP: Intrusive	Pre	216	8.49	5.51
IIP: Domineering	Mid	173	6.94	5.31
IIP: Vindictive	Mid	173	7.47	5.05
IIP: Cold	Mid	174	9.60	6.06
IIP: Socially avoidance	Mid	173	13.32	6.89
IIP: Non-assertive	Mid	174	15.68	7.18

IIP: Exploitable	Mid	173	13.75	6.09
IIP: Overly nurturant	Mid	173	13.69	6.36
IIP: Intrusive	Mid	173	7.49	4.94
IIP: Domineering	Mid	164	6.08	5.52
IIP: Vindictive	Mid	164	6.41	5.03
IIP: Cold	Mid	165	8.12	6.19
IIP: Socially avoidance	Mid	164	11.29	7.07
IIP: Non-assertive	Mid	165	13.77	7.14
IIP: Exploitable	Mid	164	11.82	5.98
IIP: Overly nurturant	Mid	164	11.55	6.24
IIP: Intrusive	Mid	164	6.38	5.08
Self Control Schedule	Pre	210	−6.49	26.84
Self Control Schedule	Mid	177	5.67	27.45
Self Control Schedule	Post	168	22.03	28.77
Dysfunctional Attitudes Scale	Pre	214	50.86	35.67
Dysfunctional Attitudes Scale	Mid	177	30.84	34.54
Dysfunctional Attitudes Scale	Post	173	15.14	32.53
Beck Hopelessness Scale	Pre	209	11.86	4.97
Beck Hopelessness Scale	Mid	174	7.11	5.08
Beck Hopelessness Scale	Post	165	5.61	5.03
ASQ: Stable failure attributions	Pre	209	1.19	0.86
ASQ: Stable failure attributions	Mid	173	0.57	0.99
ASQ: Stable failure attributions	Post	168	0.30	1.11
ASQ: Global failure attributions	Pre	208	1.19	0.98
ASQ: Global failure attributions	Mid	173	0.66	1.11
ASQ: Global failure attributions	Post	168	0.25	1.19
SAS-SR: Work	Pre	208	2.53	0.79
SAS-SR: Leisure	Pre	212	2.80	0.65
SAS-SR: Extended family	Pre	218	2.27	0.64
SAS-SR: Marital	Pre	213	2.65	0.58
SAS-SR: Parental	Pre	111	2.01	0.71
SAS-SR: Family unit	Pre	215	2.80	0.84
SAS-SR: Work	Mid	170	2.01	0.72
SAS-SR: Leisure	Mid	176	2.30	0.54
SAS-SR: Extended family	Mid	177	1.93	0.62
SAS-SR: Marital	Mid	170	2.33	0.56
SAS-SR: Parental	Mid	92	1.74	0.57
SAS-SR: Family unit	Mid	173	2.29	0.75
SAS-SR: Work	Post	159	1.76	0.66
SAS-SR: Leisure	Post	163	2.13	0.59
SAS-SR: Extended family	Post	165	1.76	0.52
SAS-SR: Marital	Post	157	2.25	0.59
SAS-SR: Parental	Post	81	1.58	0.59
SAS-SR: Family unit	Post	159	1.94	0.68
SNAP: Negative temperament	Pre	137	63.63	7.33
SNAP: Mistrust	Pre	137	59.65	11.61
SNAP: Manipulativeness	Pre	137	51.14	11.37
SNAP: Aggression	Pre	137	55.00	11.81
SNAP: Self-harm	Pre	137	68.72	12.11
SNAP: Eccentric perceptions	Pre	137	48.62	9.83
SNAP: Dependency	Pre	137	59.70	13.67
SNAP: Positive temperament	Pre	137	33.47	9.65
SNAP: Exhibitionism	Pre	137	43.10	9.68
SNAP: Entitlement	Pre	137	41.96	9.61
SNAP: Detachment	Pre	137	61.94	10.09
SNAP: Disinhibition	Pre	137	50.15	9.53
SNAP: Impulsivity	Pre	137	50.66	9.49
SNAP: Propriety	Pre	137	53.49	8.64
SNAP: Workaholism	Pre	137	52.88	11.65
SNAP: Negative temperament	Post	152	57.93	9.69
SNAP: Mistrust	Post	153	54.67	11.71
SNAP: Manipulativeness	Post	153	49.35	10.21
SNAP: Aggression	Post	153	52.30	10.67
SNAP: Self-harm	Post	153	59.18	12.66
SNAP: Eccentric perceptions	Post	153	46.17	7.74
SNAP: Dependency	Post	153	54.30	11.57
SNAP: Positive temperament	Post	152	40.13	11.22
SNAP: Exhibitionism	Post	153	45.00	10.11
SNAP: Entitlement	Post	153	45.99	10.86
SNAP: Detachment	Post	153	56.67	10.95
SNAP: Disinhibition	Post	153	48.63	9.53
SNAP: Impulsivity	Post	153	49.57	9.97
SNAP: Propriety	Post	153	51.98	9.67
SNAP: Workaholism	Post	153	51.44	11.55

Note. IIP = Inventory of Interpersonal Problems. ASQ = Attributional Style Questionnaire. SAS-SR = Social Adjustment Scale—Self-report. SNAP = Schedule for Nonadaptive and Adaptive Personality. Time refers to time in acute-phase cognitive therapy for depression.

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