

A Closer Examination of Relational Outcomes from a Pilot Study of Abbreviated, Intensive, Multi-Couple Group Cognitive-Behavioral Conjoint Therapy for PTSD with Military Dyads

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Cognitive-behavioral conjoint therapy for posttraumatic stress disorder (CBCT for PTSD) is associated with improvements in patients' PTSD symptoms, partners' psychological distress, and relationship satisfaction. However, little is known about whether CBCT for PTSD is associated with changes in other relationship domains that have theoretical

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and clinical relevance to the relational context of PTSD. The current study is a secondary analysis of relational outcomes from an uncontrolled, within-group trial designed to examine whether an abbreviated, intensive, multi-couple group version of CBCT for PTSD (AIM-CBCT for PTSD) delivered in a retreat during a single weekend was associated with improvements in PTSD symptoms and relationship satisfaction. In this investigation, we examined whether AIM-CBCT for PTSD is also associated with improvements in ineffective arguing, supportive dyadic coping by partner, joint dyadic coping, and partners' accommodation of patients' PTSD symptoms. Participants were 24 couples who included a post-9/11 U.S. service member or veteran with PTSD. At 1- and 3-month follow-up, patients reported significant reductions in couples' ineffective arguing ($d_s = -.71$ and $-.78$, respectively) and increases in supportive dyadic coping by partners relative to baseline ($d_s = .50$ and $.44$, respectively). By 3-month follow-up, patients also reported significant increases in couples' joint dyadic coping ($d = .57$), and partners reported significant reductions in their accommodation of patients' PTSD symptoms ($d = -.44$). Findings suggest that AIM-CBCT for PTSD is associated with improvements in multiple relationship domains beyond relationship satisfaction but that these may be differentially salient for patients and partners.

Keywords: Trauma; Couples; Treatment; Massed; Communication; Support

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Posttraumatic stress disorder (PTSD; American Psychiatric Association [APA], 2013) is associated with relationship discord and partner psychological distress, and these associations are stronger for military samples than civilians (Lambert, Engh, Hasbun, & Holzer, 2012; Taft, Watkins, Stafford, Street, & Monson, 2011). Trauma survivors' intimate relationships can also play a role in trauma recovery, or lack thereof (Monson, Fredman, & Dekel, 2010). There are several evidence-based couple therapies for PTSD that simultaneously target PTSD and relationship adjustment (e.g., Monson et al., 2012; Sautter, Glynn, Cretu, Senturk, & Vaught, 2015). However, little is known about whether these interventions are associated with intimate relationship functioning beyond overall relationship adjustment or satisfaction. Better understanding of the broader relational effects of these treatments may lead to further refinements in couple-based approaches to

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the treatment of PTSD. This study was designed to examine whether a brief, intensive, multi-couple group version of cognitive-behavioral conjoint therapy for PTSD (CBCT for PTSD; Monson & Fredman, 2012) is associated with improvements in various aspects of couple functioning, including ineffective arguing, supportive dyadic coping by partners, joint dyadic coping, and partners' accommodation of patients' PTSD symptoms, in a sample of active duty military and veteran couples.

Cognitive-Behavioral Conjoint Therapy for PTSD

Cognitive-behavioral conjoint therapy for PTSD is a disorder-specific conjoint therapy for PTSD with the dual goals of treating PTSD and enhancing relational functioning. Central to the treatment, and consistent with other disorder-specific couple therapies (e.g., Abramowitz et al., 2013), is helping couples to conceptualize the disorder as a shared stressor that they are working together to address by applying specific skills designed to "shrink" the role of PTSD in their relationship.

Cognitive-behavioral conjoint therapy for PTSD is typically delivered as a 15-session couple therapy with sessions grouped into three phases. Phase 1 includes psychoeducation about the intimate relationship context of PTSD, acknowledgment and reinforcement of positive behaviors in each other, and instruction in conflict management techniques (e.g., negotiated time out). Phase 2 includes instruction in communication and problem-solving skills designed to help couples identify and share PTSD-relevant thoughts and feelings to improve communication and intimacy and to combat PTSD-related avoidance and emotional numbing. Couples are also introduced to a dyadic cognitive intervention designed to increase cognitive flexibility and address maladaptive thoughts held by either member of the couple that can maintain PTSD and/or relationship difficulties (e.g., "It's not safe to let others know what I'm thinking or feeling."). Phase 3 focuses on the application of the dyadic cognitive intervention to historical misappraisals of the trauma(s), as well as here-and-now thoughts disrupted by the trauma in the domains of trust, control, intimacy, and posttraumatic growth.

Cognitive-behavioral conjoint therapy for PTSD is associated with improvements in patients' PTSD and comorbid mental health symptoms, partners' psychological well-being, and patient and partner overall relationship adjustment and satisfaction in community and veteran couples (see Liebman, Whitfield, Sijercic, Ennis, & Monson, 2020, for a review). To increase treatment efficiency and scalability, we developed an abbreviated, intensive, multi-couple group version of CBCT for PTSD (AIM-CBCT for PTSD) consisting primarily of the first two phases of CBCT for PTSD and tested it in an uncontrolled, within-group trial in a sample of active duty military and veteran couples (Fredman et al., 2020). AIM-CBCT for PTSD was associated with significant improvements in patients' PTSD and comorbid symptoms, as well as in partners' mental health and relationship satisfaction. However, there is limited empirical research on whether CBCT for PTSD, tested as either the full or abbreviated protocol, is associated with improvements in relational domains that have clinical relevance to the couple context of PTSD beyond satisfaction or overall relationship adjustment.

Cognitive-Behavioral Interpersonal Theory of PTSD

Much of the theoretical foundation of CBCT for PTSD is based on the cognitive-behavioral interpersonal theory of PTSD (Monson et al., 2010), which posits that there are processes within and between members of a couple that contribute to the maintenance of the disorder and its relational comorbidities. At the intra-individual level, trauma survivors frequently exhibit problematic trauma appraisals and overgeneralized beliefs in the domains of safety, control, trust, and intimacy. Behaviorally, communication

impairments, avoidance, withdrawal, and, potentially, aggression are exhibited. Disturbances in a range of emotions (e.g., anxiety, sadness, anger), their experience, and their expression are also common. These social-cognitive impairments and behavioral and emotional disturbances can contribute to intimate relationship discord and the erosion of social support from close others. Consistent with the presumed bidirectional association between PTSD symptoms and relational functioning within the cognitive-behavioral interpersonal theory of PTSD, aspects of trauma survivors' interpersonal environments also play a role in maintaining PTSD symptoms and relationship difficulties. Following are three domains of intimate relationship processes identified within the cognitive-behavioral interpersonal theory of PTSD with theorized relevance to the relational context of PTSD that both the full and abbreviated versions of CBCT for PTSD are presumed to target explicitly or implicitly.

Ineffective arguing

PTSD symptoms are associated with a range of dysfunctional couple conflict communication behaviors (e.g., higher levels of hostility, invalidation, and withdrawal and lower levels of warmth and affiliation) and the inability to successfully resolve conflict with one's partner (e.g., Fredman et al., 2017; Knobloch-Fedders, Caska-Wallace, Smith, & Renshaw, 2017; Miller et al., 2013). These impairments can contribute to and maintain a negative interpersonal milieu, with negative communication behaviors implicated in the link between PTSD symptoms and lower relationship satisfaction (e.g., Allen, Rhoades, Stanley, & Markman, 2010). A family environment characterized by negativity also has poor prognostic implications for recovery from PTSD (e.g., Tarrier, Sommerfield, & Pilgrim, 1999).

No prior studies have examined whether CBCT for PTSD or other conjoint therapies for PTSD are associated with improvements in couples' communication during relationship conflict. However, consistent with the cognitive-behavioral interpersonal theory of PTSD, it is theorized that communication during conflict may improve among couples participating in CBCT for PTSD, given the conflict management and communication skills taught and practiced during both the full and abbreviated versions of the treatment.

Dyadic coping

As conceptualized within Bodenmann's (1997, 2005) systemic-transactional model of dyadic responses to stress, the presence of physical illness or a psychological disorder in one member of a couple can serve as a stressor for both members of the dyad (Leuchtman & Bodenmann, 2017). Prior research on couples coping with physical or mental health-related stressors indicates that individuals' perceptions of supportive dyadic coping by partners (i.e., the extent to which the other spouse provides emotion- and/or problem-focused support when the individual is stressed) and joint dyadic coping (i.e., the extent to which the couple works together when both are stressed) have important implications for couples' relational adjustment. For example, in a study of female partners of male combat veterans, Lambert, Hasbun, Engh, and Holzer (2015) found that the negative association between veterans' posttraumatic stress symptoms and partners' relationship satisfaction was attenuated when partners perceived that veterans provided higher levels of support when partners were stressed or when the couple engaged in higher levels of joint dyadic coping.

As described in the cognitive-behavioral interpersonal theory of PTSD and consistent with studies on the role of social support in the development and maintenance of PTSD (see Wagner, Monson, & Hart, 2016, for a review), social support from close others can mitigate the risk of developing PTSD; however, once PTSD symptoms become chronic, they can erode social support over time, which can make it harder to recover from the

disorder. To counteract this phenomenon, CBCT for PTSD aims to foster couples' ability to work effectively as a unit to address the role of PTSD in their relationship. This is done by conceptualizing the disorder as a shared stressor and applying dyadic communication, problem-solving, and cognitive skills to decrease the impact of PTSD on each of them as individuals and on their relationship. Thus, although no prior studies have examined supportive dyadic coping by partners and joint dyadic coping as outcomes of CBCT for PTSD, there is reason to expect that CBCT for PTSD would be associated with improvements in these domains. These include increases in both patients' and partners' feeling supported by the other one when they are stressed and the extent to which they work as a team to address shared stress generally.

Partner accommodation

The cognitive-behavioral interpersonal theory of PTSD also posits that partners can accommodate patients' PTSD symptoms by colluding in avoidance of people, places, situations, or emotions that patients find anxiety provoking and/or by not expressing their own thoughts and feelings to avoid provoking patients' distress or irritability. Accommodation is often a reaction to the trauma survivor's PTSD symptoms (Allen et al., 2020) and motivated by a desire to be supportive of the trauma survivor and/or to maintain relationship harmony (Renshaw, Allen, Fredman, Giff, & Kern, 2020). However, such behaviors can inadvertently impede recovery and contribute to the maintenance of partner psychological distress and patient and partner relationship distress (Fredman et al., 2016; Fredman, Vorstenbosch, Wagner, Macdonald, & Monson, 2014).

To address partner accommodation, couples participating in CBCT for PTSD are assigned dyadic approach tasks to counteract avoidance (e.g., going to places that had been conjointly avoided, engaging in conversations that involve the direct expression of thoughts and feelings about the couple's relationship). Two published studies examined whether CBCT for PTSD is associated with decreases in accommodation, though findings are inconsistent. One study demonstrated significant and medium effect size reductions in partners' accommodation among couples participating in a present-focused version of CBCT for PTSD that did not involve discussion of historical trauma content or *in vivo* approach assignments (Pukay-Martin et al., 2015). Another study did not find changes in accommodation over the course of treatment for couples who received the traditional protocol (Fredman et al., 2016). Relative to other versions of CBCT for PTSD, AIM-CBCT for PTSD includes a more explicit discussion of the construct of accommodation and targets it throughout the treatment protocol. Throughout the weekend, group leaders repeatedly coach couples in how to work together to develop strategies to decrease partners' accommodation, framing efforts to decrease accommodation as a jointly endeavored process to decrease the salience of PTSD in their relationship. Thus, despite the inconsistent prior findings and brief format, there is reason to expect that AIM-CBCT for PTSD may be associated with significant reductions in partners' accommodation.

Current Study

The goal of the present secondary analysis was to examine changes in relational processes beyond satisfaction or overall adjustment that are either explicitly or implicitly targeted in CBCT for PTSD, using data collected in the conduct of an uncontrolled, within-group trial of AIM-CBCT for PTSD with military couples at baseline, 1-month follow-up, and 3-month follow-up. We had three hypotheses. First, we anticipated that the treatment would be associated with significant decreases in patients' and partners' perceptions of ineffective arguing (Hypothesis 1). Second, we

expected significant increases in patients' and partners' perceptions of the other spouse's supportive dyadic coping (supportive dyadic coping by partner) and the couple's joint dyadic coping (Hypotheses 2a and 2b). Third, we predicted significant reductions in partners' reports of accommodation (Hypothesis 3).

METHOD

Participants

Participants were 24 mixed-gender couples (mean relationship length = 14.56 years, $SD = 9.15$) enrolled in an uncontrolled, within-group trial to test AIM-CBCT for PTSD in a sample of active duty military and veteran couples (Fredman et al., 2020). All couples completed treatment (i.e., 0% dropout). Treatment was delivered over a single weekend from 2016 to 2017 and conducted as part of the work of the Consortium to Alleviate PTSD. Couples were recruited via clinician referral from providers at the Carl R. Darnall Army Medical Center at the U.S. Army's Fort Hood in Killeen, Texas, and self-referrals from the greater San Antonio, Texas, area through the STRONG STAR Consortium (South Texas Research Organizational Network Guiding Studies on Trauma and Resilience) website and phone line. Demographic characteristics of patients and partners are provided in Table 1.

As described in Fredman et al. (2020), couples were included if they were married or had been cohabiting for a minimum of 3 months and included a service member or veteran who met the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; APA, 2013) diagnostic criteria for current PTSD according to the Clinician-Administered PTSD Scale for *DSM-5* (CAPS-5; Weathers et al., 2013) and had a CAPS-5 score ≥ 25 based on symptoms experienced within the last month. The service member/veteran with PTSD must have experienced a *DSM-5* Criterion A trauma during deployment in support of combat operations following 9/11. However, PTSD could have been secondary to a

TABLE 1
Demographic Characteristics by Partner Status

Characteristic	Patient ($n = 24$) <i>M or n (SD or %)</i>	Partner ($n = 24$) <i>M or n (SD or %)</i>
Age (years)	40.49 (7.12)	38.70 (8.18)
Male	23 (95.83%)	1 (4.17%)
Ethnicity		
Hispanic	7 (29.17%)	8 (33.33%)
Race		
African-American	7 (29.17%)	8 (33.33%)
Asian	1 (4.17%)	1 (4.17%)
Caucasian	11 (45.83%)	9 (37.50%)
Other	5 (20.83%)	6 (25.00%)
Education		
Some high school	0	2 (8.33%)
GED	0	2 (8.33%)
Some college	15 (62.50%)	8 (33.33%)
Associate degree	5 (20.83%)	2 (8.33%)
4-year college degree	2 (8.33%)	4 (16.67%)
Master's degree	2 (8.33%)	6 (25.00%)
Employed at least part-time	21 (87.5%)	17 (70.83%)
Military status		
Active duty	17 (70.83%)	2 (8.33%)
Veteran	7 (29.17%)	1 (4.17%)

nonmilitary-related traumatic event (e.g., child physical abuse). In addition, both partners needed to be between the ages of 18–65 and able to speak and read English fluently. Couples were excluded if they were separated or planning to divorce or if either partner: (a) had experienced a manic episode in the previous 12 months or had ever met criteria for a psychotic disorder; (b) was engaged in current and severe alcohol use warranting immediate intervention; (c) exhibited evidence of a moderate or severe traumatic brain injury; (d) endorsed current suicidal ideation severe enough to warrant immediate attention; and/or (e) endorsed severe intimate aggression in the relationship in the past 6 months in response to items adapted from the Conflict Tactics Scale-Revised (Straus, Hamby, McCoy, & Sugarman, 1996). Couples were excluded if the partner met diagnostic criteria for PTSD according to the CAPS-5, if the patient was currently participating in cognitive processing therapy (Resick, Monson, & Chard, 2016) or prolonged exposure (Foa, Hembree, Rothbaum, & Rauch, 2019), or if the couple was already receiving CBCT for PTSD. Please see the CONSORT chart in Fredman et al. (2020) for the flow of participants through the study procedures.

Procedures

The Institutional Review Board (IRB) at the University of Texas Health Science Center at San Antonio (UT Health San Antonio) and Research Ethics Board at Ryerson University approved all study procedures. The IRBs at the Pennsylvania State University and the Citadel deferred their review to the IRB at UT Health San Antonio. The U.S. Army Medical Research and Materiel Command (now the U.S. Army Medical Research and Development Command) Human Research Protections Office at Fort Detrick, Maryland, monitored all regulatory reviews and approvals.

Prospective couples were screened by phone and then, following written informed consent from both members of the couple, were assessed in-person by independent evaluators from the Consortium's Assessment Core to formally determine eligibility based on study inclusion/exclusion criteria. Baseline assessments were conducted in the month prior to the retreat. Assessments were repeated for both members of the couple 1 and 3 months after the retreat to compare improvement relative to baseline.

Treatment Protocol

As described in Fredman et al. (2020), the weekend retreat portion of the treatment took place over two consecutive days at a hotel in Austin, Texas. Couples participated in approximately 12 hours of CBCT for PTSD programming delivered in seven 60- to 90-minute modules that corresponded to the content from Sessions 1–7 (i.e., phases 1 and 2) of the 15-session parent protocol, along with a wrap-up module that corresponded to parent protocol Session 15. Couples were provided with psychoeducation about PTSD and its bidirectional association with relationship functioning and were instructed in behavioral conflict management skills and communication and problem-solving skills designed to enhance intimacy and decrease PTSD-related avoidance. Newly developed psychoeducational material on partner accommodation of PTSD symptoms and its role in maintaining PTSD and relationship problems was added to the protocol and emphasized throughout the weekend. As in the full CBCT for PTSD protocol, couples were taught a dyadic cognitive therapy process designed to challenge patients' maladaptive PTSD-related cognitions as well as unhelpful relationship-oriented thoughts held by either member of the couple. Throughout the weekend, PTSD was conceptualized as a joint stressor against which the couple was aligned, with each skill taught and practiced to help them work together to "shrink" the role of PTSD in their relationship.

Seven retreats, ranging in size from two to six couples, were co-led by two therapists at a time. Approximately 1 week prior to the retreat, each couple met with one of the therapists for an individual couple meeting focused on developing rapport and orienting couples to the structure, content, and expectations for the weekend. The same therapist met with the couple again approximately 2 weeks after the retreat to review progress made during and since the retreat and to plan for further consolidation of gains (please see Fredman et al., 2020 for more details regarding the intervention).

Measures

Ineffective arguing

The Ineffective Arguing Inventory (IAI; Kurdeck, 1994) is an eight-item, self-report measure that assesses dysfunctional patterns in dyadic conflict resolution (e.g., “Our arguments seem to end in frustrating stalemates”). For each item, respondents were asked to indicate how much the statement fit their relationship on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). Items are summed, with higher scores indicating more ineffective arguing. Internal consistency for the IAI in the present sample was excellent and ranged from $\alpha = .90$ to $.96$ for patients and $\alpha = .90$ to $.94$ for partners across assessments.

Supportive dyadic coping by partner and joint dyadic coping

Supportive dyadic coping by partner was assessed using the five-item Supportive Dyadic Coping by Partner subscale of the Dyadic Coping Inventory (DCI; Bodenmann, 2008). This subscale assesses the extent to which the respondent perceives the other spouse as providing emotion- and/or problem-focused support when the respondent is stressed (e.g., “My partner shows empathy and understanding to me,” “My partner helps me analyze the situation so that I can better face the problem.”). Joint (common) dyadic coping was assessed using the five-item Common Dyadic Coping subscale of the DCI. This subscale assesses the extent to which the respondent perceives the couple as working together in a constructive manner when both are stressed (e.g., “We help one another to put the problem in perspective and see it in a new light”). Items are rated on a 5-point scale from 1 (*very rarely*) to 5 (*very often*) and then summed, with higher scores reflecting greater perceived dyadic coping by partner and joint dyadic coping, respectively. Across assessments, internal consistency was good to excellent for patient and partner reports of supportive dyadic coping by the other spouse (patients: $\alpha = .87$ to $.92$; partners: $\alpha = .94$ to $.97$) and joint dyadic coping (patients: $\alpha = .90$ to $.92$; partners: $\alpha = .89$ to $.95$).

Partner accommodation

Partner accommodation was assessed via the Significant Others’ Responses to Trauma Scale (SORTS; Fredman et al., 2014). The SORTS is a 14-item partner self-report measure that assesses partners’ behaviors performed in relation to patients’ PTSD symptoms (e.g., “How much have you avoided doing things, going places, or seeing people with [trauma survivor] that make him/her anxious or uncomfortable?” “How much did you bite your tongue or hold back from trying to discuss any relationship issues with [trauma survivor]?”). Items on the SORTS consist of two parts. First, partners are asked to rate the frequency with which they engaged in each behavior within the past month on a scale from 0 (*never*) to 4 (*daily or almost every day*). Second, partners are asked to rate the extent to which engaging in the behavior distresses them on a scale from 0 (*not at all*) to 4 (*extremely*). Items are summed to create a total score, frequency subscale score, and distress subscale score, with higher scores indicating greater accommodation. The measure has demonstrated good internal consistency and construct validity in prior studies (Fredman et al., 2014; Renshaw

et al., 2020). Across assessments, internal consistency was excellent for the present study and ranged from $\alpha = .96$ to $.98$ for the total score, $\alpha = .91$ to $.96$ for the frequency subscale, and $\alpha = .94$ to $.97$ for the distress subscale.

Statistical Analyses

To test the hypotheses, dyadic multilevel models were conducted using PROC MIXED in SAS 9.3 (SAS Institute, Cary, NC, USA). Robust standard errors were specified, and restricted maximum likelihood was used as the method of estimation. Across assessments, missingness ranged from 21% to 25% for patients and from 25% to 42% for partners. As confirmed by Little's MCAR (missing completely at random) test (Little, 1988), data were missing completely at random, $\chi^2(90) = 72.12$, $p = .92$. We also examined whether missingness was significantly associated with baseline levels of dependent variables or demographic variables for either patients or partners, and it was not.

Both patients and partners reported on ineffective arguing, supportive dyadic coping by partner (i.e., the other spouse), and joint dyadic coping. Thus, analyses were conducted dyadically to take into account data dependence between members of a couple (Kenny, Kashy, & Cook, 2006). The two-intercept approach was used to estimate differences across assessments for patients and partners, respectively, in the same model. Two dummy codes were created to identify whether an observation was from the patient (Patient = 1 if assessment data were from the patient, Patient = 0 otherwise) or partner (Partner = 1 if assessment data were from the partner, Partner = 0 otherwise). A Kronecker product covariance structure (UN@UN) was specified in which variances and covariances were freely estimated across the repeated measures within individuals and across partners within the dyad. For partner accommodation, which was only reported by the partner, an unstructured covariance matrix was specified so that variances and covariances could be freely estimated across the repeated measures within individuals.

Least squares means (LSMs) and associated standard errors for each outcome at each assessment (pretreatment/baseline, 1-month follow-up, 3-month follow-up) were generated from the models. Planned contrasts between baseline and 1-month posttreatment LSMs, as well as between baseline and 3-month posttreatment LSMs, were conducted to determine whether there were significant improvements in patients' and partners' perceptions of ineffective arguing, supportive dyadic coping by partner, and joint dyadic coping and in partners' accommodation of PTSD symptoms, for each assessment relative to baseline levels. Within-group effect sizes in the form of Cohen's d (t/\sqrt{df}) were computed to determine the magnitude of change in outcomes from baseline to 1 and 3 months posttreatment, respectively, and were interpreted consistent with Cohen's (1988) recommendations for small ($d = .20$), medium ($d = .50$), and large ($d = .80$) effect sizes.

RESULTS

Least squares means and their standard errors are presented in Table 2, along with accompanying t statistics and Cohen's d s with 95% confidence intervals for planned contrasts to evaluate patient and partner outcomes at the 1- and 3-month follow-up assessments relative to baseline.

Ineffective Arguing

For patients' perceptions of ineffective arguing, there were significant and medium-to-large effect size reductions at both the 1- and 3-month follow-ups relative to baseline. There were non-significant and small changes in partners' perceptions by 1-month follow-up; by 3-month follow-up, changes were non-significant and small-to-medium.

TABLE 2

Pretreatment and Posttreatment Outcomes for Abbreviated, Intensive, Multi-Couple Group Cognitive-Behavioral Conjoint Therapy for Posttraumatic Stress Disorder (PTSD)

Outcome	Least squares mean (standard error)			Pretreatment/1-month posttreatment		Pretreatment/3-month posttreatment	
	Pretreatment	1-Month posttreatment	3-Month posttreatment	<i>t</i> (23)	<i>d</i> (95% CI)	<i>t</i> (23)	<i>d</i> (95% CI)
Ineffective arguing							
Patient	25.79 (1.40)	19.92 (1.70)	20.57 (1.82)	-3.40**	-.71 (-1.14, -0.28)	-3.76**	-.78 (-1.22, -0.35)
Partner	23.46 (1.69)	22.24 (2.00)	21.25 (1.65)	-0.60	-.13 (-0.56, 0.31)	-1.81†	-.38 (-0.81, 0.05)
Supportive dyadic coping by partner							
Patient	17.00 (0.78)	18.86 (0.85)	18.76 (0.83)	2.42*	.50 (0.07, 0.94)	2.11*	.44 (0.01, 0.87)
Partner	15.83 (1.23)	15.98 (1.18)	15.89 (1.39)	0.14	.03 (-0.40, 0.46)	0.06	.01 (-0.42, 0.44)
Joint dyadic coping							
Patient	14.96 (1.02)	16.78 (0.98)	17.14 (1.01)	1.94†	.40 (-0.03, 0.84)	2.72*	.57 (0.14, 1.00)
Partner	15.21 (1.24)	16.05 (1.20)	15.48 (1.17)	0.87	.18 (-0.25, 0.61)	0.25	.05 (-0.38, 0.48)
Partner accommodation—total							
Patient	—	—	—	—	—	—	—
Partner	36.46 (5.36)	27.58 (5.65)	23.89 (6.08)	-1.81†	-.38 (-0.81, 0.05)	-2.13*	-.44 (-0.88, -0.01)
Partner accommodation—frequency							
Patient	—	—	—	—	—	—	—
Partner	17.63 (2.48)	12.68 (2.78)	11.25 (2.91)	-1.89†	-.39 (-0.83, 0.04)	-2.28*	-.48 (-0.91, -0.04)
Partner accommodation—distress							
Patient	—	—	—	—	—	—	—
Partner	18.83 (3.03)	14.99 (3.13)	12.73 (3.24)	-1.52	-.32 (-0.75, 0.11)	-1.95†	-.42 (-0.84, 0.03)

Note. CI = confidence interval; *N* = 24 couples.

** *p* < .01.

* *p* < .05.

† *p* < .10.

Dyadic Coping

For supportive dyadic coping by partner, there were significant and small-to-medium or medium effect size increases in patients' perceptions of partners' behaviors by 1- and 3-month follow-up relative to baseline. In contrast, there were no changes in partners' perceptions of patients' behaviors (i.e., effect sizes were close to zero at both time points). For

joint dyadic coping, there was a non-significant, small-to-medium effect size increase in patients' perceptions by 1-month follow-up and a significant and medium effect size increase by 3-month follow-up relative to baseline. Changes in partners' perceptions were non-significant and small.

Partner Accommodation

For total partner accommodation, there was a non-significant, small effect size decrease by 1-month follow-up and a significant and small-to-medium effect size decrease by 3-month follow-up relative to baseline. For accommodation frequency, there was a non-significant, small effect size reduction by 1-month follow-up and a significant and small-to-medium effect size reduction by 3-month follow-up relative to baseline. For distress related to accommodation, changes were non-significant and small by 1-month follow-up and were non-significant and small-to-medium by 3-month follow-up relative to baseline.

DISCUSSION

This study examined secondary relational outcomes from an uncontrolled, within-group trial of AIM-CBCT for PTSD that previously demonstrated preliminary evidence for the safety and utility of the treatment for improving patients' PTSD and comorbid symptoms and partners' mental health and relationship satisfaction in active duty military and veteran couples (Fredman et al., 2020). As predicted, in this study, AIM-CBCT for PTSD was associated with improvements in multiple domains of relationship functioning that have clinical relevance to the relational context of PTSD according to the cognitive-behavioral interpersonal theory of PTSD, namely, couples' conflict management skills and dyadic coping and partners' accommodation of patients' PTSD symptoms.

In the parent study, partners reported significant improvements in relationship satisfaction, but patients did not, perhaps because patients began the study relatively satisfied, on average. This is in contrast to partners, who, on average, were in the relationally distressed range at baseline and, thus, had more room to improve (for more on this point, see Fredman et al., 2020). In this analysis, AIM-CBCT for PTSD was associated with significant reductions in *patients'* perceptions of couples' ineffective arguing. There were also significant increases in *patients'* perceptions of partners' supportive behaviors when they are stressed (supportive dyadic coping by partner) and how couples cope as a unit when both spouses are stressed (joint dyadic coping). By 3-month follow-up, partners reported no significant changes in couples' ineffective arguing, feeling supported by patients when they are stressed, or couples' joint dyadic coping. However, they reported significant reductions in accommodation.

It is notable that patients reported significant improvements in couples' ineffective arguing, but partners did not. Although speculative, the disorder-specific nature of the treatment and differences in patient and partner roles may account for the difference in findings. In both the full and abbreviated versions of the CBCT for PTSD protocol, couples are provided with psychoeducation about the contribution of PTSD symptoms to difficulties with conflict management and communication (e.g., the role of hypervigilance and anger in perceived wrongdoing and verbal aggression, the link between avoidance and the inability to consider the other spouse's perspective). They also learn that couple-level impairments in conflict management can impede recovery from PTSD by reinforcing the patient's perception of interpersonal threat. Because it is the patient's disorder that is being addressed in treatment, improvements in ineffective arguing after learning PTSD-relevant conflict management and communication skills (e.g., time out to manage hyperarousal, sharing thoughts and feelings to combat couple-level avoidance of strong

emotions) may be more salient to patients than to partners. Future studies that use a larger sample and include both self-report and observational assessments of couples' communication during conflict will help to clarify the degree to which changes in subjective perceptions of ineffective arguing correspond with objective ratings of couples' conflict communication. Relating subjective and objective ratings of communication to both spouses' relationship satisfaction may also provide greater insight into the current study's discrepancy in effects between patients and partners for ineffective arguing as well as the discrepancy between constructs (i.e., ineffective arguing and relationship satisfaction) within reporters in the context of the larger study.

The finding that patients reported significant increases in partners' emotion- and problem-focused support behaviors toward them when they are stressed but partners did not may also be attributable to differences in their roles and how patients and partners interpret the term "stress" on the Dyadic Coping Inventory (Bodenmann, 2008). The same may apply to the finding that patients reported significant increases in couples' joint dyadic coping but partners did not. That is, although the treatment casts PTSD as a common enemy against which the couple is aligned, it is the patient's disorder that is being targeted through the couple's relationship. Thus, as the couple works together to address their shared goal of decreasing the role of PTSD in their relationship, the patient may experience this as (a) their partner's supporting them individually to manage their stress related to PTSD, and (b) the couple's working more effectively to support each other to address PTSD as a shared stressor. In contrast, partners may interpret the term "stress" more generally and not perceive changes in how patients support them in coping with individual stress that is unrelated to the PTSD (e.g., work) or how they cope with shared stress that is not focal to PTSD (e.g., finances, childrearing), given that those are not explicitly targeted in the treatment. It is possible that, among couples treated with the 15-session CBCT for PTSD protocol, partners may perceive increases in dyadic coping, as there would be more time and opportunities for couples to identify ways for patients and partners to mutually support each other vis-à-vis individual and shared stress generally. Future work that evaluates dyadic coping as an outcome for the full CBCT for PTSD protocol will be helpful in clarifying whether partners may benefit in this domain as well.

Partners' reports of significant decreases in accommodation by the 3-month follow-up in the present study correspond with previous findings from this sample that, by 3-month follow-up (but not at 1-month follow-up), partners perceived significant reductions in patients' PTSD symptoms as well as significant improvements in their own psychological distress and relationship satisfaction, relative to baseline (Fredman et al., 2020). In the parent study, improvements in patients' PTSD and comorbid symptoms were also larger at 3-month follow-up than at 1-month follow-up. Prior research has demonstrated that accommodation is a response to patients' PTSD symptoms (Allen et al., 2020). In this sample, couples' working together to address the impact of PTSD on their relationship may have potentiated improvements in patients' symptoms. As patients' symptoms continued to improve over the follow-up period, partners may have experienced reduced PTSD illness burden and felt less of a need to accommodate. This may have contributed to a virtuous cycle in which patient psychopathology was further improving and partner accommodation was further decreasing over time, which also may contribute to improvements in partners' mental health and relationship satisfaction. The design of the parent study precludes the ability to discern the directionality and temporal sequencing of effects. Future studies that use a larger sample with more assessments will help to clarify whether decreases in accommodation serve as a mechanism for improving partners' individual and relational well-being in the context of this and other formats of CBCT for PTSD.

Collectively, findings are promising with respect to improvements in relational domains beyond relationship satisfaction despite the brief, massed nature of the intervention and the fact that treatment was delivered to multiple couples at once, resulting in less therapist time for each individual couple. However, the study also has limitations. Data were collected in the context of a small, uncontrolled pilot study to test AIM-CBCT for PTSD as a safe and efficient format for treating PTSD and enhancing relationships. A randomized controlled trial with a larger sample is needed to establish the efficacy of AIM-CBCT for PTSD and permit causal inferences about its effects. A longer follow-up period (e.g., 6 months) also would add confidence in the durability of gains. In addition, although we accounted for interdependence between members of a couple through dyadic data analysis for ineffective arguing and dyadic coping, the small sample size precluded consideration of all potential sources of nesting, such as the interdependence of couples in a group. The small sample size also likely contributed to low power to detect significant changes in some small-to-medium-sized effects (e.g., partners' perceptions of ineffective arguing). Another limitation is the study's reliance on couples' self-reports of relational processes. Future studies should use multiple methods of measurement to decrease shared method variance. Finally, this sample consisted exclusively of mixed-gender active duty military and veteran couples, and almost all identified patients were male. Replication of results with samples that include same-sex couples and more female identified patients is needed to assess generalizability of the findings.

This study adds to the growing literature on the utility of couple-based interventions for PTSD and suggests that a brief, intensive, multi-couple group version of CBCT for PTSD is associated with improvements in multiple relationship domains. Continued work should expand on the current study to identify ways in which CBCT for PTSD and other couple therapies for PTSD can enhance multiple relational outcomes and the mechanisms by which the inclusion of intimate partners in treatment may potentiate gains in both partners' well-being. Doing this may offer the possibility of further innovations to improve the lives of couples and families affected by PTSD and its interpersonal sequelae.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Table S1. Bivariate Correlations among Ineffective Arguing, Supportive Dyadic Coping by Partner, Joint Dyadic Coping, and Partner Accommodation.