Curr Treat Options Psych (2020) 7:203–220
DOI 10.1007/s40501-020-00211-1

PTSD (SK Creech and LM Sippel, Section Editors)

Harnessing the Healing Power of Relationships in Trauma Recovery: a Systematic Review of Cognitive-Behavioral Conjoint Therapy for PTSD

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Published online: 10 June 2020

This article is part of the Topical Collection on *PTSD*

Keywords Posttraumatic stress disorder · PTSD · Cognitive behavioral conjoint therapy · Couple therapy · CBCT · Trauma

Abstract

Purpose The goal of this systematic review was to examine the empirical literature on cognitive-behavioral conjoint therapy for PTSD (CBCT). The aims were to (1) review the efficacy of CBCT for PTSD, relationship satisfaction, and related symptoms; (2) describe novel adaptations to the treatment; and (3) identify potential moderators and mediators of treatment outcomes. A systematic search of peer-reviewed publications was conducted across three databases (PsycINFO, PubMed, and SCOPUS). Relevant publications were rated by two authors using a validated checklist.

Findings Fourteen articles met inclusion criteria. Quality ratings ranged from "fair" to "good". The majority of studies were uncontrolled designs; no studies compared CBCT to an active control condition. Three studies adapted standard CBCT. Nearly all studies found improvements in patient- and partner-rated PTSD symptoms and patient depression, anxiety, and anger. Findings on relationship satisfaction and partner accommodation as outcomes were somewhat mixed. Baseline relationship satisfaction, partner accommodation, and social support moderated outcomes.

Summary Overall, CBCT has demonstrated initial efficacy for PTSD and comorbid problems. Future studies should examine moderators and mediators to answer how and for whom this treatment works. Controlled trials on novel adaptations to CBCT are also needed.

Introduction

Posttraumatic stress disorder (PTSD) is associated with a myriad of couple-level problems, including increased relationship discord, aggression, and intimacy problems [1, 2]. PTSD and relationship functioning have a reciprocal and synergistic influence on one another over time [3••, 4, 5, 6]. PTSD also has mutually exacerbating effects on the mental health of close others of those with PTSD (see [7] and [8]). As such, relational conceptualizations and treatments for these clinical issues have been offered, including cognitive-behavioral conjoint therapy for PTSD (CBCT) [9]. The aim of this systematic review was to describe the current evidence base for CBCT in improving PTSD, relationship satisfaction, and associated mental health problems.

Although existing evidence-based individual PTSD treatments are highly efficacious for improving PTSD and common comorbid symptoms, they do not appear to improve, and may even worsen, couple and family functioning [10, 11, 12]. Moreover, couple/family functioning significantly moderates responses to individual evidence-based treatments [13]. Given these findings, and that many individuals with PTSD desire inclusion of their loved ones in treatment [14], the last decade has seen an expansion of research to empirically test innovative couple and family interventions that improve outcomes beyond PTSD symptoms.

CBCT for PTSD [9] is a manualized therapy that is designed to improve both PTSD symptoms and enhance relationship functioning. It is composed of 15 sessions in three phases: (1) psychoeducation about PTSD, its impact on relationships, and increasing relational safety; (2) communication skills training and dyadic approach exercises to overcome behavioral and experiential avoidance; and (3) cognitive interventions to change problematic thoughts that are maintaining PTSD symptoms and relationship problems. Over the past 16 years since publication of the first pilot study [15], research on CBCT has grown and findings have paved the way for advances in the delivery of the treatment. To consolidate the literature on this treatment, the objective of this paper was to conduct a comprehensive systematic review of the evidence for CBCT. The aims were to (1) review the efficacy of CBCT for PTSD, relationship satisfaction, and related symptoms; (2) describe novel adaptations to the treatment; and (3) identify potential moderators and mediators of treatment outcomes. We conclude with a discussion of limitations of the extant literature and provide recommendations for future research.

Method

A systematic search of peer-reviewed publications was conducted across three databases (PsycINFO, PubMed, SCOPUS) in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement [16] in December 2019. The following search terms were used: ("trauma*" OR "posttraumatic stress" OR "post-traumatic stress" OR "post traumatic stress" OR "PTSD") AND ("couple" OR "conjoint" OR "romantic relationship" OR "intimate relationship" OR "partner" OR "dyad*" OR "close other" OR "significant other" OR "family member" OR "spouse" OR "caregiver") AND ("cognitive behavio* therapy" OR "cognitive-behavio*" OR "CBT" OR "trauma focused treatment" OR "trauma focused therapy" OR "trauma focused intervention" OR "CBCT" OR "Cognitive Behavio* Conjoint Therapy"). The search was limited to

articles published after the year 2003 when initial studies on CBCT began and restricted to title/abstract/keywords in SCOPUS. Additional potential studies were identified through screening reference lists of included articles and contacting authors of identified papers to find gray literature including articles that were recently submitted for publication.

Study selection criteria

Two of the authors (K.W., I.S.) screened the articles to determine eligibility. Articles were excluded based on title, abstract, and full-text review screening. Papers were included if they were (1) empirical studies that reported aggregated outcomes, (2) delivered CBCT or variations of CBCT to the sample, and (3) delivered treatment to couples where one adult had a diagnosis of PTSD based on the Diagnostic and Statistical Manual of Mental Disorders [17, 18].

Data extraction

Study design, setting, sample size, intervention characteristics, target population, and baseline patient and partner characteristics were extracted from the included articles. Patient and partner-rated PTSD outcomes, relationship satisfaction, and other relevant secondary outcomes were also extracted.

Assessment of methodological quality of selected studies

The methodological quality of included studies was assessed by two raters using the Downs and Black Checklist [19]. Discrepancies in ratings were discussed until consensus was reached. The Checklist assesses items with the following subscales: reporting, external validity, internal validity, and power. A modified version of the power item was used to rate this item dichotomously [20]. Scores range from 0 to 28; higher scores indicate better study quality. Quality levels include excellent (26–28), good (20–25), fair (15–19), and poor (≤ 14) [21]. Psychometric properties, including test-retest reliability ($r = .88$), inter-rater reliability ($r = .75$), and internal consistency (Kruder-Richardson formula 20 = .89), of this instrument are good [19]. Initial percent agreement between the two raters was 89%.

Results

The search across databases resulted in a total of 686 identified studies, of which 40 were selected for full text screening. After screening, 14 articles met inclusion criteria [12, 15, 22, 23, 24••, 25, 26, 27, 28, 29, 30, 31, 32, 33•]. Seven of the 14 studies [22, 23, 24••, 25, 26, 28, 32] were secondary outcome papers that used data from the only published randomized controlled trial (RCT) on CBCT [12]. Figure 1 presents a flow diagram of the screening and selection process.

Methodological quality of selected studies

Table 1 presents quality ratings of the included studies. Ratings ranged from 15 to 25 (out of a maximum score of 28), indicating fair to good study quality. The majority of studies were uncontrolled designs and no published studies compared CBCT to an active control condition. All studies described the

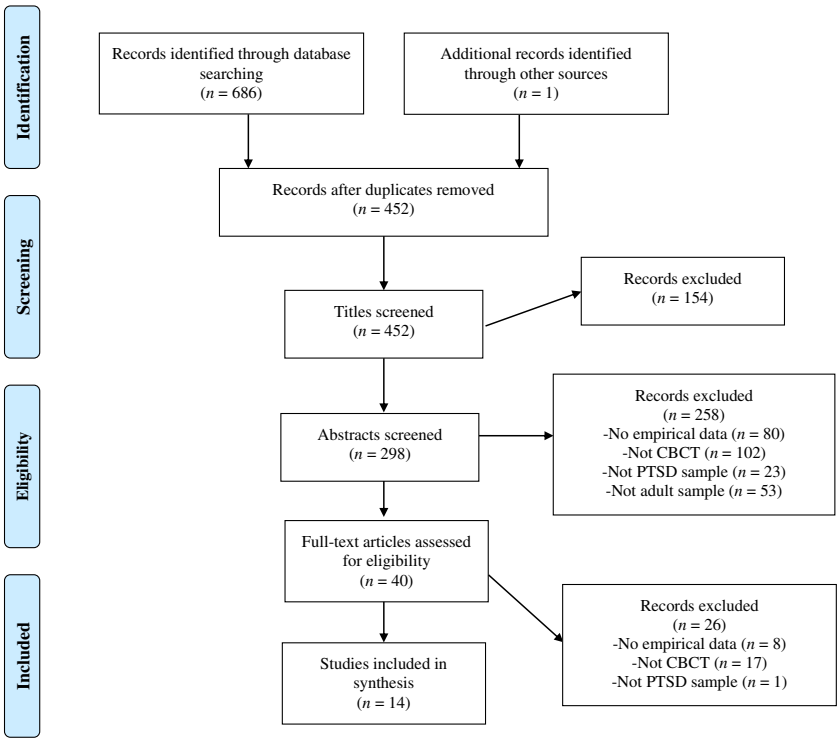

Fig. 1. PRISMA flow diagram of literature search.

intervention thoroughly, used psychometrically sound outcome measures, had consistent follow-up timing, and adjusted analyses for potential confounding variables. All studies but one [25] used intention-to-treat analyses. Notably, a priori power calculations were reported in one study [12].

Study and treatment characteristics

The characteristics of the included studies are presented in Table 1. All studies were conducted with adult intimate couples. The majority of studies ($n = 10$) included community samples; nine of these studies (all but Pukay-Martin et al. [27]) included a mix of heterosexual and same sex couples and primarily female patients with PTSD [12, 22, 23, 25, 26, 28, 30, 31, 32]. The remaining four studies [15, 29, 31, 33•] recruited from US military/veteran samples, all of which included heterosexual couples with male identified PTSD patients (Fredman et al. [33•] for exception).

As noted, seven studies utilized data from the Monson et al. RCT comparing CBCT to a waitlist condition [12]. This multisite study was conducted in both an outpatient US Veterans Affairs' hospital setting and a University-based clinical research center. Five studies were delivered in outpatient Veterans Affairs treatment settings [15, 29, 30] or a University research center [27, 31], and one [33•] was an intensive weekend-long multi-couple group retreat involving US active duty and veteran couples. With the exception of this multi-couple group [33•], all studies delivered treatment as prescribed in 15 sessions.

Table 1. Study quality ratings and sample characteristics

Study	QR	Sample type	Couples *N*	Dropout CBCT *n* (%); control *n* (%)	Pt sex *n* (% male) CBCT group	Pt age, *M* (*SD*); partner age, *M* (*SD*) for CBCT group
Fredman et al. [22]	23	Subsample from Monson et al. (2012)	39	6 (30); 3 (15)	7 (36.8)	39.7 (11.1); 40.1 (12.6)
Fredman et al. [33•]	21	Military/Veteran	24	0 (0)	23 (95.8)	40.5 (7.1); 38.7 (8.2)
Landy et al. [25]	20	Subsample from Monson et al. (2012)	14[a]	NR	1 (16.7)	42.2 (8.3); 44.9 (11.8)
Macdonald et al. [28]	23	Refer to Monson et al. (2012)				
Monson et al. [15]	18	Veteran	7	0 (0)	7 (100)	56 (NR); 51 (NR)
Monson et al. [30]	18	Veteran and Civilian	6	1 (14.3)	3 (50)	41.7 (13.1); 40.3 (12.8)
Monson et al. [12]	25	Veteran and Civilian	40	6 (30); 3 (15)	7 (35)	40.4 (11.3); 40.7 (12.5)
Pukay-Martin et al. [27]	15	Veteran and Civilian	7	1 (14.3)	3 (42.9)	45.9 (6.1); 44.9 (7.8)
Shnaider et al. [32]	23	Refer to Monson et al. (2012)[c]				
Shnaider et al. [26]	23	Subsample from Monson et al. (2012)	37	10 (27)	10 (27)	37.8 (11.2); 38.7 (11.5)
Shnaider et al. [24••]	23	Subsample from Monson et al. (2012)	36	6 (30); 3 (15)	6 (35.3)	39.9 (11)
Schumm et al. [29]	17	Veteran	6	0 (0)	6 (100)	37.2 (7.2); 35.5 (6.0)
Schumm et al. [31]	17	Veteran	9	4 (33.4)	9 (100)	42.2 (16.1); 39.3 (12.6)
Wagner et al. [23]	22	Refer to Monson et al. (2012)[b]				

Study	Sample type	Index trauma (%)	Baseline pt CAPS, *M* (*SD*); baseline pt PCL, *M* (*SD*)	Baseline partner PCL-C, *M* (*SD*)
Fredman et al. [22]	Subsample from Monson et al. (2012)	Adult sexual assault (21), childhood sexual assault (16), physical assault (16), motor vehicle collision (5), witness/learn about death/illness (10.5), combat (10.5), other (21)	70.3 (12.5); 51.1 (10.7)	NR
Fredman et al. [33•]	Military/Veteran	Post-9/11 combat (100)	34.3 (1.4); 48.8 (2.5)	42.4 (3.7)
Landy et al. [25]	Subsample from Monson et al. (2012)	NR	NR	NR
Macdonald et al. [28]	Refer to Monson et al. (2012)			
Monson et al. [15]	Veteran	Combat (100)	74.6 (20.8); 51.3 (11.2)	57.4 (14)
Monson et al. [30]	Veteran and Civilian		57.7 (8.3); 43.8 (8.8)	46.0 (19.2)

Table 1. (Continued)

Study	Sample type	Index trauma (%)	Baseline pt CAPS, *M* (*SD*); baseline pt PCL, *M* (*SD*)	Baseline partner PCL-C, *M* (*SD*)
		Combat (33.3), sexual assault (50), other (16.7)		
Monson et al. [12]	Veteran and Civilian	Adult sexual assault (20), child sexual assault (15), physical assault (20), motor vehicle collision (5), witnessing/learning about death/illness (10), combat (10), other (20)	69.5 (12.7); 50.3 (11)	44.5 (11.8)
Pukay-Martin et al. [27]	Veteran and Civilian	Childhood sexual assault (NR) childhood physical assault (NR), adult sexual assault (NR), combat (NR)	72.4 (16.4); 55 (12.6)	58.9 (9.9)
Shnaider et al. [32]	Refer to Monson et al. (2012)[c]			
Shnaider et al. [26]	Subsample from Monson et al. (2012)	Adult sexual assault (21.6), childhood sexual assault (21.6), physical assault (16.2), sudden death (10.8), accident (8.1), combat, (5.4), illness (2.7), other (13.5)	67 (19.4); 49 (12.9)	NR
Shnaider et al. [24••]	Subsample from Monson et al. (2012)	Adult sexual assault (23.5), child sexual assault (17.6), physical assault (11.8), accident (5.9), sudden death (11.8), combat (5.9), other (23.5)	71.4 (12.5)	–[b]
Schumm et al. [29]	Veteran	Combat (100)	69 (29.2); 58.5 (13.1)	46.2 (14.9)
Schumm et al. [31]	Veteran	Combat (77.8), sexual assault (11.1), witness death (11.1)	58.9 (17.6); 57.7 (13.2)	54.9 (14.3)
Wagner et al. [23]	Refer to Monson et al. (2012)[b]			

CBCT cognitive-behavioral conjoint therapy for PTSD, *CSI* Couple Satisfaction Index, *DAS* Dyadic Adjustment Scale, *NR* not reported, *CAPS* Clinician Administered PTSD Scale, *PCL* PTSD Checklist, *PCL-C* PTSD Checklist Collateral Version, *Pt* patient, *QR* quality rating, *Rel. sat.* relationship satisfaction

[a]Unequal number of patients ($n = 6$) and partners ($n = 8$) because some patients had children from previous relationships and only individuals with children younger than 18 were included

[b]Partner measures were not included in this study

[c]Only partner measures were included in this study

Modifications to treatment

Three studies made notable modifications or adaptations to the CBCT protocol. One study [31] integrated CBCT for PTSD with behavioral couples therapy for alcohol use disorder (AUD) [34] for those with comorbid PTSD-AUD. Couple treatment for PTSD-AUD (CTAP) keeps the core tenants of CBCT but adds a focus on substance use (e.g., psychoeducation on AUD, trust discussion, worksheets related to problematic substance use cognitions).

A second study tested a present-focused adaptation of CBCT for PTSD [27] in which the trauma-focused orientation was removed. Discussing trauma was not built into the treatment but not prohibited. The present-focused CBCT shifted the focus from trauma to here-and-now maladaptive thoughts. It did not target avoidance, but still retained the PTSD psychoeducation, communication skills, and relationship enhancement strategies.

Finally, a third study [33•] condensed CBCT for PTSD into an abbreviated, intensive, multi-couple group retreat delivered over a single weekend (AIM-CBCT for PTSD). This abbreviated version of CBCT aimed to deliver a mass dose of the intervention to increase engagement and retention and improve dropout. Couples received approximately 12 h of treatment over 2 days consisting of both individual and group sessions. AIM-CBCT included a relatively larger focus on the first two treatment phases (i.e., psychoeducation, satisfaction enhancement, and undermining avoidance). Unlike traditional CBCT for PTSD, couples were not explicitly instructed to challenge historical beliefs of the patient's trauma due to the condensed format. Rather the treatment emphasized the value of trauma-related disclosure to a supportive other along with guidance on how couples might apply skills aimed at increasing cognitive flexibility to adaptively discuss specific traumas.

Treatment outcomes

Treatment outcomes are summarized below and in Table 2.

PTSD

All seven studies that examined PTSD severity as a primary outcome used the Clinician-Administered PTSD Scale (CAPS [35] or CAPS-5 [36]) and a self-report measure, the PTSD Checklist (PCL [37] or PCL-5 [38]) [12, 15, 27, 29, 30, 31, 33•]. All but one reported significant pre- to posttreatment symptom improvements in clinician-, patient, and partner-rated PTSD symptoms. Monson and colleagues' pilot study found non-significant changes in veteran-rated PTSD symptoms but showed significant CAPS and partner-rated changes [15]. In Monson et al.'s RCT, there were significant between group effects; patients' PTSD symptoms decreased almost 3 times more within the CBCT condition than waitlist [12]. The two studies with follow-up assessments both showed sustained improvements for patients and partners at 3-month follow-up [12, 33•]. Across studies, with the exception of Schumm et al. [31] who did not report on diagnostic status at posttreatment, the average percentage of patients that no longer met PTSD diagnostic status at posttreatment was 66%.

Relationship satisfaction

Eight studies [12, 15, 26, 27, 29, 30, 31, 33•] reported on relationship satisfaction or adjustment using either the Dyadic Adjustment Scale (DAS) [39] or the Couple Satisfaction Index (CSI) [40]. Across studies, there was a range of patient and partner baseline relationship satisfaction scores at baseline because no studies used relationship distress as an inclusion criteria.

Findings on relationship satisfaction and adjustment were mixed within and across studies, with many reporting differences between patient and partner outcomes. Six studies found nonsignificant [15, 29, 30, 31, 33•] or marginally significant [27] changes in patient-rated relationship satisfaction. In Monson et al.'s RCT [12], patient-rated relationship satisfaction was significantly higher in CBCT than the waitlist condition at posttreatment and 3-month follow-up. For partners, three studies found significant [30, 27] or marginally significant [15] improvements in partners' relationship satisfaction from pre- to posttreatment. Fredman et al. found significant improvements in partners' relationship satisfaction at 3-month posttreatment [33•]. Two studies found no significant relationship satisfaction or adjustment improvements in partners [29, 31]. In Monson et al.'s RCT [12], there was no between-group effect for partner-rated relationship satisfaction across conditions [12].

Depression

Seven studies reported the effects of CBCT on depression in patients [12, 22, 29, 30, 31, 32, 33•]. All but Schumm et al. [29] and Monson et al. [30] found significant improvements in patients' depression. Monson et al. [12] found greater improvements in patients' depression for CBCT relative to waitlist at posttreatment that were maintained at 3-month follow-up.

Four of the seven studies that examined depression in patients also examined depressive symptoms in partners [30, 31, 32, 33•]. Shnaider et al. found that 57.1% of partners had reliable and clinically significant change in depression at posttreatment that was maintained at 3-month follow-up [32]. Schumm et al. also found significant reductions in partners' depressive symptoms at posttreatment [31] and Fredman et al. [33•] found significant reductions at 3-month posttreatment. In contrast, Monson et al. [30] did not find an effect of partner depression.

Anxiety

All three studies that reported on anxiety as a secondary outcome found significant improvements in patients and/or partners [12, 15, 32, 33•]. In AIM-CBCT, patients showed significant improvements at 1- and 3-month posttreatment while partners showed significant improvements only at 3-month [33•]. Shnaider et al. found significant improvements in partner anxiety at posttreatment that was maintained at 3-month follow-up [32]. In Monson and colleagues' RCT, patients' general anxiety improved more in CBCT relative to waitlist; these improvements were maintained at 3-month follow-up [12].

Anger

Three studies assessed anger as a secondary outcome in patients or partners [12, 30, 32]. In Monson et al.'s uncontrolled trial, there was a non-significant but large decrease in patients' expressed anger [30]. In Monson et al.'s RCT, relative to the waitlist, patients had greater decreases in anger in CBCT than waitlist at posttreatment and follow-up [12]. For partners, there was a significant increase in anger expression in Monson et al.'s uncontrolled trial. Shnaider et al. found that among partners who scored above the clinical threshold for anger at baseline, only 8.3% had reliable changes in anger at posttreatment, and no change from posttreatment to 3-month follow-up [32].

Partner accommodation

Partner accommodation is defined as changing one's own behaviors to minimize distress and/or relationship conflict in relation to the patients' PTSD symptoms [41]. Partner accommodation was examined as an outcome in two studies [22, 27]. Partners reported reduced partner accommodation after receiving present-focused CBCT [27]. Fredman and colleagues did not observe a significant change in partner accommodation between CBCT and waitlist at posttreatment or follow-up [22].

Other outcomes

Wagner and colleagues reported that individuals receiving CBCT had significant increases in posttraumatic growth compared to waitlist at posttreatment and follow-up [23]. Improvements were also observed in all PTSD symptom clusters [28], maladaptive trauma-related cognitions [28], heavy alcohol consumption [31], and parenting competence [25].

Moderators

Three studies identified moderators of patient outcomes. In Fredman et al., partner accommodation moderated patient PTSD, depression, and relationship satisfaction outcomes [22]. Specifically, patients in the CBCT condition (but not waitlist) with high (but not low) levels of accommodation had significant decreases in PTSD and depression symptoms, and increased relationship satisfaction. Shnaider et al. showed that patients with higher levels of perceived social support from their significant others at pretreatment were especially likely to benefit from CBCT for PTSD [24••]. Shnaider et al. found that couples who were relationally distressed prior to treatment experienced larger improvements in relationship satisfaction by the end of treatment relative to those who were relationally satisfied. Neither patients' nor partners' baseline relationship satisfaction predicted treatment dropout or moderated patients' PTSD outcomes [26].

Discussion

This systematic review examined the current state of the empirical literature on CBCT for PTSD. To date, 14 empirical studies have evaluated CBCT, including one RCT [12] and seven uncontrolled trials. The first aim of this review was to examine the efficacy of CBCT in treating PTSD, relationship satisfaction, and

Table 2. Study outcome measures and findings

Study	Study design	Assessment schedule	Patient-reported outcome measures
Fredman et al. [22]	Secondary analysis of subsample from Monson et al. (2012)	Pre, mid, post, uncontrolled 3 m follow-up	PCL, CAPS, BDI-II, DAS
Fredman et al. [33•]	Uncontrolled pilot trial of intensive, multi-couple group retreat	Pre, 1 m, 3 m posttreatment	CAPS, PCL, CSI, PHQ-9, GAD-7, STAXI
Landy et al. [25]	Secondary analysis of subsample from Monson et al. (2012)	Pre, mid, post, uncontrolled 3 m follow-up	CAPS, PSCS
Macdonald et al. [28]	Secondary analysis of subsample from Monson et al. (2012)	Pre, mid, post, uncontrolled 3 m follow-up	CAPS, TRGI, PBRS-M
Monson et al. [15]	Uncontrolled trial	Pre and post	CAPS, PCL, DAS, BDI-II, STAI
Monson et al. [30]	Uncontrolled trial	Pre and post	CAPS, PCL, DAS, BDI-II, STAXI
Monson et al. [12]	RCT with waitlist condition	Pre, mid, post, uncontrolled 3 m follow-up	CAPS, PCL, BDI-II, DAS, STAI (State subscale), STAXI
Pukay-Martin et al. [27]	Uncontrolled trial of present-focused adaptation of CBCT	Pre and post	CAPS, CSI, PCL, SORTS
Shnaider et al. [32]	Secondary analysis of Monson et al. (2012)	Pre, mid, post, uncontrolled 3 m follow-up	–[b]
Shnaider et al. [26]	Secondary analysis of subsample from Monson et al. (2012)	Pre, mid, post, uncontrolled 3 m follow-up	CAPS, PCL, DAS
Shnaider et al. [24••]	Secondary analysis of subsample from Monson et al. 2012	Pre, mid, post, uncontrolled 3-month follow-up	CAPS, MSPSS
Schumm et al. [29]	Uncontrolled trial	Pre and post	CAPS, PCL, DAS, BDI-II
Schumm et al. [31]	Uncontrolled trial of CTAP	Pre and post	CAPS, PCL, DAS, BDI-II
Wagner et al. [23]	Secondary analysis of subsample from Monson et al. 2012	Pre, mid, post, uncontrolled 3 m follow-up	CAPS, PTGI, DAS

Study	Partner-reported outcome measures	Result summary
Fredman et al. [22]	SORTS	Partner accommodation levels did not change for either condition. Baseline partner accommodation moderated outcomes such that higher levels of partner accommodation were associated with greater improvements in clinician and patient-rated PTSD, and patient depression and relationship satisfaction for those in CBCT only.
Fredman et al. [33•]	PCL-C, CSI, GAD-7, STAXI	Improvements in clinician-, patient, and partner-rated PTSD and patient-reported depression, generalized anxiety, and anger at 1 m and 3 m. No improvements in patient

Table 2. (Continued)

Study	Partner-reported outcome measures	Result summary
		relationship satisfaction, but improvements in partner relationship satisfaction at 1 m and 3 m. Improvements in partner depression and anxiety at 3 m.
Landy et al. [25]	PSCS	Five of six patients had improvement on PTSD. Two partners reported improvements in parenting efficacy and one partner reported improvements in parenting competency. One patient improved in parenting satisfaction.
Macdonald et al. [28]	– [a]	Improvements in all patients' PTSD symptom clusters and patient's trauma-related beliefs (other than hindsight bias/responsibility) compared to waitlist. [a]
Monson et al. [15]	PCL-C, DAS	Improvements in clinician- and partner-rated, but not patient-rated, PTSD. Improvements in patient depression and anxiety. Marginally significant improvement in partner relationship satisfaction and no significant changes in patient relationship satisfaction.
Monson et al. [30]	PCL-C, DAS, BDI-II, STAXI	Improvements in clinician-, patient-, and partner-rated PTSD, partner relationship satisfaction, and partner anger expression.
Monson et al. [12]	PCL-C, DAS	Improvements in clinician-, patient-, and partner-rated PTSD, and patient relationship satisfaction, depression, anxiety, anger for CBCT only.
Pukay-Martin et al. [27]	PCL-C, CSI	Improvements in clinician-, partner-, and patient-rated PTSD, partner accommodation, and partner relationship satisfaction.
Shnaider et al. [32]	BDI-II, STAI (Anxiety subscale), STAXI	No improvements in any measures for partners from pre- to posttreatment except among those who were distressed at pretreatment. [b]
Shnaider et al. [26]	DAS	No significant effect of patient or partner pretreatment relationship distress on dropout or PTSD. Relationship distress moderated change in couple satisfaction, such that couples who were distressed at

Table 2. (Continued)

Study	Partner-reported outcome measures	Result summary
		pretreatment made greater gains in relationship satisfaction at posttreatment.
Shnaider et al. [24••]	– [a]	Social support from a significant other moderated PTSD outcome such that those with higher support at pretreatment had greater improvements in PTSD at posttreatment for those in CBCT only. Total, family, and friend social support not associated with PTSD outcomes.
Schumm et al. [29]	PCL-C, DAS	Improvements in clinician-, patient-, and partner- rated PTSD. No significant improvements in patient relationship satisfaction or depression. Marginally significant improvements in partner relationship satisfaction but not depression.
Schumm et al. [31]	PCL-C, DAS, BDI-II	Significant reductions in clinician-, patient- and partner-rated PTSD and depression. No significant improvements in patient or partner relationship satisfaction.
Wagner et al. [23]	– [a]	Improvements in patient posttraumatic growth for those in CBCT only. [a]

BDI-II Beck Depression Inventory, *CAPS* Clinician-Administered PTSD Scale, *CBCT* cognitive-behavioral conjoint therapy for PTSD, *CSI* Couple Satisfaction Index, *CTAP* couple treatment for PTSD-alcohol use disorder, *DAS* Dyadic Adjustment Scale, *GAD-7* General Anxiety Disorder-7, *ITT* intent-to-treat analyses, *m* month, *MSPSS* Multidimensional Scale of Perceived Social Support, *PBRS-M* Personal Beliefs and Reactions Scale-Modified, *PCL* PTSD Checklist, *PCL-C* PTSD Checklist Collateral Version, *PHQ-9* Patient Health Questionnaire-9, *PTGI* Posttraumatic Growth Inventory, *PSCS* Parenting Sense of Competence Scale, *RCT* randomized controlled trial, *SORTS* Significant Others' Responses to Trauma Scale, *STAI* State-Trait Anxiety Inventory, *STAXI* State-Trait Anger Expression Inventory, *TRGI* Trauma-Related Guilt Inventory

[a]Partner measures were not included in this study

[b]Only partner measures were included in this study

secondary outcomes. Nearly all studies that examined these outcomes found that CBCT significantly improved patient-rated PTSD, depression, and anxiety. Improvements were also found for patients' maladaptive trauma-related cognitions, various PTSD symptom clusters, posttraumatic growth, and parenting competence. Findings were mixed for patient anger. Notably, partners were not recruited based on clinical symptoms but studies that examined these outcomes in partners generally found symptom improvements. Patient and partner results were replicated in community and military samples with diverse trauma profiles. The findings on patient- and partner-rated relationship satisfaction and partner accommodation as outcomes were mixed. This makes sense in light of the potential ceiling effect with couples who are not relationally distressed or engaging in accommodation. Consistent with this notion, those with higher baseline relational distress had greater improvements in relationship satisfaction. Regarding potential moderators of PTSD outcomes, higher baseline partner accommodation and patient perceived social support from their partners was associated with better PTSD outcomes. However, neither partner nor patient baseline relationship satisfaction predicted treatment dropout or patient PTSD outcomes.

Notably, none of the reviewed studies compared CBCT to an active control, examined treatment mediators, or used dismantling or component analysis to examine active ingredients of the treatment. Across studies, drop-out rates from CBCT range from 0% [33] to 27% [42] compared to 0% to 51% in individual trauma-focused treatments [43]. Monson and colleagues recently completed a RCT of CBCT versus prolonged exposure (PE) [42] with US active duty service members and veterans and their intimate partners. Results have not yet been published, but, of note, 66% of those randomized to PE, versus 27% of those assigned to CBCT, dropped out of treatment. This finding speaks to patient preferences for a couple-based treatment when presenting for a study with a couple therapy arm. In addition, there were significantly greater treatment effects for CBCT for PTSD versus PE for both PTSD and relationship satisfaction in the intent-to-treat sample.

The second aim of this review was to identify and review the state of the research on modifications, adaptations, and innovations of CBCT. Several innovations have emerged in recent years that are geared toward increasing treatment efficiency, scalability, and reach to a wider range of clinical populations. First, as reviewed above, present-centered [27] and AUD adaptations [31] have been tested. Both have shown improvements in PTSD and relationship satisfaction similar to the standard protocol, with improvements in problematic alcohol use in the AUD adaptation. Fredman et al. tested AIM-CBCT, an abbreviated, intensive, multi-couple group version of CBCT for PTSD that consisted primarily of the first seven sessions of CBCT for PTSD delivered over a single weekend [33•]. A notable finding of this study was that there was 100% retention. There were also significant and large reductions in patients' PTSD, significant and moderate-to-large reductions in comorbid symptoms by 3-month posttreatment and significant improvements in partners' depressive and anxiety symptoms and relationship satisfaction. This study suggests that a massed dose delivery method may hold promise as an efficient and effective treatment option for PTSD and relationship satisfaction. Future research should compare the efficacy of standard CBCT to AIM-CBCT and examine moderators to facilitate our understanding of the types of couples that may be better suited for massed dosed treatments.

There are also several other studies of the original CBCT and adaptations of it ongoing and not included in this review. Luedtke et al. recently published a case study of an Iraqi Freedom male veteran and his wife who received mindfulness-based CBCT delivered in a weekend group retreat followed by nine individual couple sessions [44]. The couple reported significant improvements in PTSD, including loss of clinician- and patient-rated PTSD diagnostic status, as well as improvements in the couple's relationship satisfaction. The case report also provided preliminary evidence for acceptability of the condensed retreat + individual delivery method, including positive feedback from patients and drop-out rates lower than other trauma-focused therapies [43]. Morland and colleagues recently published a protocol report of an RCT that compares an abbreviated 8-session version of CBCT delivered in an office setting, versus this version delivered into the home via video teleconferencing, and an office-based family education control condition [45]. The trial is ongoing, and results have important implications for clinical practice in terms of whether CBCT can be delivered in an abbreviated, remote-delivery format. Gilman, Chard, and Monson integrated Parent management training with CBCT (CBCT + PMT) and tested this integrated treatment against CBCT only. They found that CBCT + PMT was superior in improving child outcomes than CBCT alone, but there were no differences between the two treatments in PTSD and intimate relationship outcomes [46]. Finally, Wagner et al. published a case example of MDMA-facilitated CBCT delivered to a heterosexual couple in which one partner had a childhood sexual abuse history [47]. This case came from a small recently completed ($N = 6$ couples) uncontrolled pilot study (Monson et al. [48•]). Taken together, these findings highlight the potential of this intervention to treat a wider range of trauma-related psychopathology in scalable and alternatively delivered formats.

Limitations and future directions

As noted, several limitations of the studies reviewed in this systematic review limit the conclusions that can be drawn. First, 7 of the 14 studies were secondary analyses drawn from Monson et al.'s waitlist controlled RCT. As such, the diversity of settings in which CBCT for PTSD has been empirically tested is limited [12]. Moreover, all of the studies were conducted in North America, with a majority in the United States. However, relationship (e.g., satisfaction, beliefs around marriage, divorce rates) and trauma-related factors (e.g., exposure to trauma, manifestation of trauma symptoms) may differ across cultures and necessitate unique culture-dependent adaptations [49•]. At present, Freedman and colleagues are conducting a study to adapt and implement CBCT in Israel. To our knowledge, this is the only study of cross-cultural implementation of CBCT, making this an important future direction.

The quality of the studies ranged from fair to good, suggesting that there is room for improvement in future study methodology. There has only been one head-to-head comparison of CBCT versus an individual, evidence-based treatment for PTSD. As Monson and colleagues note, there are issues with achieving equipoise in trials of couple/family versus individual therapies for a range of disorders, including PTSD, because those presenting for such trials with a loved one willing to participate in treatment are likely to prefer randomization to the

couple/family-based treatment [14]. The best comparison conditions are likely to include a couple/family-based intervention such as Pukay-Martin and colleague's [27] present-centered version of CBCT or Morland et al. [45] PTSD Family Education intervention. With this in mind, the effect size improvements for PTSD, comorbid symptoms, and patient-reported relationship satisfaction reported in the Monson et al. [12] waitlist controlled trial were on par or better than effects found in gold standard individual treatments for PTSD [50, 51] or couple treatments for relationship distress [52]. Finally, the majority of studies were conducted by study teams led by the treatment developers (Monson and Fredman), raising the question of allegiance effects. Future studies that involve collaborations with non-allegiant investigators are needed [53].

There is evidence of treatment moderators of CBCT in PTSD outcomes, including pretreatment partner social support and partner accommodation. Like other PTSD treatments, greater social support at baseline predicted better PTSD outcomes and those couples in which partners are higher on partner accommodation might be especially good candidates for CBCT. However, several important moderators have not yet been examined, including differences in the treatment across patient and partner gender, relationship type (intimate vs. nonintimate, same vs. opposite sex), or trauma (interpersonal vs. noninterpersonal), all of which are known moderators of various trauma-related and relationship outcomes [7].

Questions regarding the active ingredients and mechanisms of change are also currently unanswered. With regard to treatment mechanisms, one study outside of this review [54] examined the UNSTUCK technique, a cognitive change strategy utilized in phase 3 of CBCT to challenge trauma-related beliefs. Results of this treatment analog study indicated that the UNSTUCK technique was superior to the mainstay cognitive change strategy (i.e., identifying cognitive errors and replacing them with alternative thoughts) in producing emotional and cognitive changes. In Pukay-Martin et al.'s [27] present-centered version of CBCT for PTSD, there were significant improvements in patients' PTSD symptoms and partners' relationship satisfaction and accommodation of PTSD symptoms [27]. As such, the present-centered version of CBCT may be a viable alternative and raises the question of how necessary the emphasis on historical trauma-related beliefs is to PTSD and relationship satisfaction outcomes. Dismantling or component analysis studies would help shed light on the active ingredients of the treatment that can currently only be hypothesized.

The present review has a number of notable strengths including a comprehensive search strategy across multiple databases, identification of gray literature by finding articles that are currently in press, quality ratings of studies using a validated measure, examination of a range of outcome variables, as well as inclusion of recent studies of novel adaptations to CBCT. Limitations include not accounting for publication bias, effect size comparisons, or moderation analyses across studies. A meta-analytic review that includes studies nearing completion and/or publication is needed.

Conclusion

In the last decade, there has been a proliferation of empirical research on CBCT that has witnessed the development of novel innovations in content and

delivery methods. En masse, the extant treatment outcome literature shows initial promise in addressing both PTSD and relationship satisfaction for patients and their partners. It has also demonstrated efficacy for a range of related clinical and interpersonal outcomes, documenting its ability to address a wider range of trauma-related symptomatology. Several innovative adaptations have undergone various levels of empirical testing. Further research to examine moderators and active ingredients of the treatment with studies of greater methodological rigor would help to fine tune our understanding of how and for whom this treatment works.

Funding information

Dr. Candice Monson has funding from the Canadian Institutes of Health Research through Foundation Grant CIHR-IRSC:0525007697. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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