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Mechanisms and moderators of behavioural couples therapy for alcohol and substance use disorders: an updated review of the literature

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Abstract

Introduction: Behavioural couples therapy (BCT) and alcohol behavioural couples therapy (ABCT) are couples-based interventions for substance use disorders (SUDs) that have been deemed a 'gold standard' treatment. Despite the substantial amount of promising research, there is a lack of research on the active components of treatment and treatment mechanisms and moderators. Since the most recent meta-analysis, a number of studies have been conducted that advance our understanding of the efficacy of BCT and ABCT.

Aims: The purpose of the present review was to provide an update on the current knowledge of these treatments and to investigate mediators and moderators of treatment.

Method: A systematic search strategy of relevant databases from 2008 to 2021 identified 20 relevant articles that were coded for relevant information including study design, treatment, outcomes, as well as mechanisms and moderators.

Results: The results indicated that BCT and ABCT are successful in reducing alcohol and substance use for both male and female clients, dual problem couples, and for reducing post-traumatic stress symptoms and intimate partner violence. The reviewed studies discussed a number of treatment mechanisms, with the most studied mechanism being relationship functioning. Moderators included relationship functioning and patient gender.

Conclusions: The results point to the need for additional research on active treatment components, mechanisms and moderators, in order to provide a more efficient and cost-effective treatment.

Keywords: alcohol; behavioural couples therapy; substance; systematic review

Introduction

Substance use disorders (SUDs) reflect continued use of a substance despite experiencing substance-related problems (American Psychiatric Association, 2013) and are often considered chronic health conditions due to their progressive course and high rates of relapse even after completion of treatment (National Institute on Drug Abuse, 2014). Intimate partners have been found to play a role in the development, maintenance and treatment outcomes of SUDs (Whisman *et al.*, 2006). Specifically, marital distress has been found to be associated with a 3.7-fold increased risk for developing a SUD (Whisman *et al.*, 2006). The association between relationship distress and SUDs has been described by researchers as 'reciprocally causal', meaning that substance use by one partner contributes to conflict in the relationship, and

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conflict in the relationship contributes to substance use. The maintenance of SUDs through intimate relationships poses a problem for individual-based treatments (Klostermann *et al.*, 2011). Due to this concern, couples-based interventions for SUDs, including behavioural couples therapy (BCT) and alcohol behavioural couples therapy (ABCT), were developed (e.g. McCrady *et al.*, 1986; O'Farrell *et al.*, 1985).

The two existing BCT protocols (BCT and ABCT) share many similarities in their goals and assumptions, including the role of reciprocal causality in maintaining substance use problems. Despite the theoretical similarities, some differences exist within the respective protocols. ABCT begins by focusing on individual skills for the individual with alcohol use disorder (AUD), whereas BCT starts with the couple recovery contract. Both protocols include activities to increase relationship satisfaction, communication skills, and problem-solving strategies (McCrady *et al.*, 2009; O'Farrell and Schei, 2011). Given the similarities in the treatments and their objectives, the two treatments and their outcomes have historically been reviewed concurrently (e.g. Ariss and Fairbairn, 2020; Klostermann *et al.*, 2011; Powers *et al.*, 2008). The individual protocols are further described below.

Behavioural couples therapy

BCT is a couple-based intervention for the treatment of SUDs (O'Farrell *et al.*, 1985). The treatment consists of 12–20 sessions with the substance user and their intimate partner. It includes substance-focused interventions and relationship-focused interventions in order to combat the maintaining factors of the disorder. The substance-focused interventions include a recovery contract and calendar in which the dyad records attendance at self-help meetings, drug urine results, and a daily trust discussion where the patient notes their intention to stay abstinent and the partner states their support for the partner's efforts. Additional substance-focused interventions include identifying and reducing partner behaviours that are enabling substance use, decreasing exposure to substances, and creating a plan for social gatherings (O'Farrell and Fals-Stewart, 2006). After several sessions that focus on building support for substance use recovery, the protocol begins to introduce strategies that focus upon improving the relationship. The assignments are designed to increase positive feelings, shared activities, and communication skills between the dyad (O'Farrell and Fals-Stewart, 2006). These behavioural relationship interventions are believed to stop reciprocal causality.

Alcohol behavioural couples therapy

Consistent with BCT, ABCT is a cognitive behavioural treatment that conceptualizes substance use as a reciprocal relationship between use and relationship functioning. The treatment combines three components: (1) cognitive behavioural therapy (CBT) to target substance use; (2) CBT to target partner's skills in supporting the substance user, and (3) couple therapy to increase relationship functioning (McCrady and Epstein, 2015). ABCT involves both partners throughout the treatment, with sessions lasting 90 minutes in length, and ranging between 12 and 20 sessions.

The CBT component consists of daily logs to monitor drinking; functional analysis of drinking behaviours; development of a plan to stop or reduce drinking; self-management planning; development of strategies to manage negative cognitions and affect; alternative coping strategies; and relapse prevention. The couple-specific interventions include increasing shared activities, increasing feedback about positive behaviours by the partner, developing communication skills about substance use problem solving, increasing problem-solving skills, and developing relapse prevention strategies as a couple.

Empirical evidence for BCT and ABCT

BCT and ABCT are considered gold standard treatments for substance use (Klostermann *et al.*, 2011). A meta-analysis by Powers and colleagues (2008) revealed that couples treatments are

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more effective for SUDs compared with individual-based treatment alone. This effect was found across multiple outcomes including frequency of use (Hedges' $g = 0.35$) as well as relationship satisfaction (Hedges' $g = 0.57$). Those in couple's treatment demonstrated significantly greater improvements in relationship satisfaction compared with individual treatment at post-treatment; however, frequency and consequences of use outcomes were not significantly different. At 6 months post-treatment, relationship satisfaction and frequency and consequences of use outcomes favoured the BCT intervention. Consistent with Powers *et al.* (2008), more recent systematic reviews support that BCT interventions are effective at reducing substance and alcohol use and relationship satisfaction (McCrady *et al.*, 2016; Meis *et al.*, 2013), with both gay and lesbian couples (Klostermann *et al.*, 2011), as well as intimate partner violence and children's psychosocial functioning (Ruff *et al.*, 2010). A meta-analysis by Ariss and Fairbairn (2020) found a significant advantage for BCT and other close-other involved interventions, compared with individual treatments, after removing studies by Fals-Stewart. This is an important result to note as the integrity of the data of Fals-Stewart has been questioned (Heisel, 2010), pointing to an important area of exploration for the efficacy of BCT.

Mechanisms and moderators of treatment

The most recent reviews of BCT interventions have been unable to draw conclusions regarding the mechanisms and moderators of treatment due to the paucity of research on these factors. Research has shown that there is a positive association between the use of dyadic behaviours (e.g. problem solving behaviours, social support) and drinking outcomes (McCrady *et al.*, 2002) and that improving the intimate relationship will improve drinking outcomes (O'Farrell *et al.*, 2004). In ABCT, four mechanisms of change have been proposed to lead to treatment outcomes: the alcohol user's motivation, the user's coping skills, the partner's support for the user, and the couple's interactions. McCrady and colleagues (2016) reviewed the research on the proposed mechanisms and found evidence that patient motivation impacts treatment outcomes but noted that partner behaviours did not predict substance use outcomes, and that there was contradictory evidence for the role of couple's interactions on outcomes. The current state of the literature on BCT and ABCT suggests that they are effective treatments for SUDs. However, treatment mechanisms and moderators associated with positive outcomes are not well understood. Furthermore, a number of studies have been completed since the publication of previous reviews that examine treatment mechanisms and moderators as well as various secondary outcomes. Consequently, an updated review of the literature is warranted.

Purpose

The purpose of the present paper is to provide an update on the state of couples-based behavioural interventions for substance use, in order to better understand mechanisms and moderators of treatment. The review concentrated on the following questions: What are the outcomes of BCT and ABCT since the Powers *et al.* (2008) review? Who benefits most from treatment? What are the mechanisms associated with successful outcomes? In order to answer these questions, a systematic review was conducted.

Method

A systematic literature search following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher *et al.*, 2009) was conducted for all eligible peer-reviewed studies from 2008 up to April 2021. This search sought to capture studies that examined therapeutic outcomes of BCT. Studies that were included in the review were empirical papers with quantitative outcomes published in English (see Fig. 1). Relevant studies were identified

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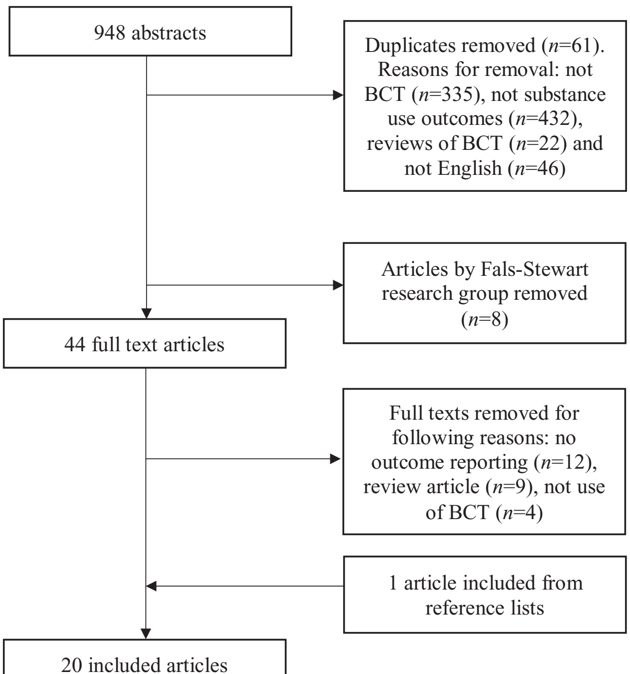

Figure 1. PRISMA flowchart.

through online searches of relevant databases (i.e. PsycINFO and PubMed). Search terms that were used to identify relevant literature included: (1) 'couple' OR 'marital' OR 'conjoint' OR 'significant other' and (2) 'therapy' OR 'treatment' and (3) 'alcohol' OR 'alcoholic' OR 'substance' OR 'drug'. In addition, references from selected articles were examined for other potentially eligible studies. Inclusion criteria were (1) studies had to be peer-reviewed; (2) studies had to be written in English; (3) the primary diagnosis for treatment was an AUD or SUD as assessed using the DSM-III (American Psychiatric Association, 1980), DSM-IV (American Psychiatric Association, 1994), DSM-IV-R (American Psychiatric Association, 2000), or DSM-5 (American Psychiatric Association, 2013); (4) the intervention was BCT or ABCT; and (5) studies measured therapeutic outcomes of the intervention. Two authors independently reviewed the abstracts and initial decisions were made on inclusion. Discrepancies of inclusion were resolved by the authors. Full articles were retrieved and reviewed to confirm inclusion and extract study information. After this final review, the full texts were retrieved and coded for relevant information (i.e. sample, intervention, method, outcomes, treatment mechanisms and moderators).

Studies were rated for overall quality using a rating system for randomized controlled trials (RCTs) and quasi-experimental studies. Ratings included whether treatment was randomly assigned, allocation and assessors blinded, treatment groups identical, number of loss to follow-up, outcome measures reliable, and appropriate use of statistics and trial design (e.g. power, assumptions, fidelity). Studies were found to be high ($n = 10$) and medium ($n = 10$) in their quality (see Table 1).

Results

The search strategy generated a total of 948 abstracts. Duplicates were removed and full texts of relevant abstracts were then reviewed. Articles were removed in this phase for the following reasons: the treatment studied was not couple-based behavioural treatment, the article did not

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Table 1. Summary of included articles

Reference (quality)	Sample	Intervention	Outcome measures	Results
Drapkin *et al*. (2015) Secondary analysis of McCrady *et al*. (2009) (medium)	102 women receiving either individual CBT for AUD or ABCT with male partner In ABCT, the male partner attended all sessions with the participant	20-session, abstinence-based, CBT program delivered in either couple or individual modality In ABCT, interventions to increase partner support and skills for abstinence and enhance relationship functioning were provided The average number of sessions attended was 14.88 (*SD* = 6.47) for the individual condition and 12.38 (*SD* = 6.38) for ABCT	PDD, drinking urge frequency and intensity	There were no differences between the two treatment groups in PDD, urge frequency or urge intensity sudden gains Because there were no differences between the two treatment groups, they were then combined for further analyses
Hallgren & McCrady (2016) Secondary analysis of four RCTs (McCrady *et al*., 1986; McCrady *et al*.,1999; McCrady *et al*., 2009: Epstein, 2009). (medium)	Heterosexual dyads from four RCTs of ABCT 218 dyads were included in the ABCT conditions of these studies, of which 188 had at least a first-treatment session (*n*=169) or mid-treatment session (*n*=115) that could be transcribed	12–20 sessions of ABCT with treatment goals focused on abstinence from alcohol and improved relationship functioning	Pronoun use, e.g. 'I, you, we'; percent days abstinent using TLFB post-treatment and self-monitoring cards during treatment; relationship distress, measured by the Areas of Change Questionnaire (ACQ; Margolin *et al*., 1983)	None of the language categories that were observed to be correlated with changes in PDA was significantly moderated by the patient's or significant other's (SO) gender The results found that only first-session patient 'we' and 'you' language significantly predicted changes in PDA during treatment weeks 1–7 and 9–12; when controlling for other language variables. Only first-session SO 'we' language significantly predicted changes in PDA at follow-up When further controlling for baseline relationship satisfaction, only first-session patient 'we' language emerged as a significant predictor of changes in drinking during treatment The results provide support for pronoun use as a pre-existing trait and not a mechanism of change in ABCT

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Table 1. (*Continued*)

Reference (quality)	Sample	Intervention	Outcome measures	Results
Hallgren *et al.* (2015) Secondary analysis of two RCTs (McCrady *et al.*, 1999; McCrady *et al.*, 2009). (medium)	90 males with AUDs, with 4401 daily urge recordings; 102 females with AUDs with, with 8011 daily urge recordings Participants who completed at least two sessions and provided daily urge recordings for at least one week were included (men's $n = 80$, women's $n = 101$)	Men's study involved couples (males with AUDs and their female partners) randomized to one of three ABCT conditions: standard ABCT, ABCT+RP, or ABCT+AA involvement Treatment was 17, 90-minute sessions, provided once per week Women's study involved heterosexual couples randomly assigned to either ABCT or ABIT. Both treatments were 20 sessions; ABCT sessions were 90 minutes and ABIT sessions were 60 minutes	Daily monitoring card of drinking urges and alcohol consumption in real time	There were no differences in participants' overall mean proportion of urges between conditions in the men's or women's study There were no differences in the overall number of drinking days during treatment between conditions in the men's study, $F_{2,77}$=1.53, p=0.22, or in the women's study t_{99}= 0.74, p=0.46
Kelley *et al.* (2016) (medium)	61 heterosexual couples in a stable relationship of which one or both partners had an AUD or SUD Couples were also required to have a child 18 years or younger ~60% of males and females identified as White	12 weekly conjoint sessions of BCT	DAS; Brief Child Abuse Potential Inventory; TLFB interview used to assess number of days abstinent	Attending more BCT sessions did not predict changes in child abuse potential Number of sessions attended had an indirect effect on child abuse potential through relationship satisfaction Days abstinent did not predict child abuse potential However, for fathers, number of days abstinent had an indirect effect on child abuse via relationship satisfaction. This indirect effect was not found for mothers
LaChance *et al.* (2015) (high)	49 heterosexual smokers (33 male) and their non-smoking partners 88% White	Participants randomized to BCT-S or ST. Both treatment conditions included seven weekly 60-min sessions and 8 weeks of nicotine replacement therapy	Smoking status, partner support, DAS	Smokers in BCT-S had more days abstinence from quit date through to 6-month follow-up, although the difference was not statistically significant BCT-S and ST did not differ on partner support at post-treatment Regression analyses revealed that 6-month abstinence was not related to post-treatment DAS scores, partner support, or treatment condition

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Table 1. (*Continued*)

Reference (quality)	Sample	Intervention	Outcome measures	Results
McCrady *et al.* (2009) (high)	102 women with AUD in heterosexual relationship of at least one year 95% White	Participants randomized to ABCT or ABIT. Both conditions included 20 sessions over 6 months. ABIT sessions were 60-min and ABCT sessions were 90-min The difference in number of sessions attended across conditions was trending, with greater attendance for those in ABIT than ABCT	PDA, PDH Measured over 6 months of treatment and 12-month follow-up Relationship functioning and the presence of Axis I and Axis II conditions at baseline were assessed as moderators	Greater increases in PDA and decreases in PDH were found for ABCT compared with ABIT during treatment Worse relationship functioning and the presence of an Axis II disorder at baseline were associated with greater increases in PDA for ABCT compared with ABIT Healthier relationship functioning at baseline was associated with greater decreases in PDH for ABCT compared with ABIT No significant differences in change in PDA or PDH between conditions over the follow-up period. However, those in the ABCT condition had a greater PDA and lower PDH at most follow-up points compared with ABIT
McCrady *et al.* (2016) (high)	59 women with AUDs and their male partners 20 women had a goal of abstinence at the beginning of treatment 95% White, mean age 46 years	Randomly assigned to 12 sessions of ABCT or to a blend of 5 individual CBT sessions and 7 sessions of ABCT (Blended-ABCT) Treatment groups did not differ on session attendance, homework completion, or treatment utilization post-treatment	PDD, PDH (daily drinking log), relationship satisfaction (DAS-7), self-efficacy, and sociotropy, the individuals' concerns with other's opinions	Treatment groups did not differ on drinking outcomes (PDD or PDH) or relationship satisfaction during or in the 12 months following treatment A small to moderate effect of Blended-ABCT over ABCT was found in the number of treatment sessions attended, and first- and second-half within treatment PDD and PDH Women lower in self-efficacy and sociotropy at baseline had a more positive response in blended-ABCT than ABCT Equivalence was found for relationship functioning at post-treatment, but not during treatment or at 6- and 12 month follow-ups

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Table 1. (*Continued*)

Reference (quality)	Sample	Intervention	Outcome measures	Results
McCrady *et al*. (2019) Secondary analysis of four RCTs of ABCT (McCrady *et al*., 2009; McCrady *et al*., 2016; Mccrady *et al.*, 1999; McCrady *et al*., 1986) (medium)	188 heterosexual dyads (86 male; 102 female patients) from four RCTs of ABCT that had at least a first-treatment session (n=169) or mid-treatment session (n=115) that could be transcribed Met criteria for alcohol abuse or dependence as assessed using the DSM-III, DSM-IV or DSM-IV-R 15% of male partners met criteria for AUD 91.5% White	Four RCTs of ABCT Three of the RCTs delivered treatment in conjoint format. In one of the RCTs, couples were randomly assigned to ABCT or a condition with a mix of ABCT and individual sessions	PDA assessed pre-, mid- and post-treatment and at follow-up Coded partner verbal behaviours and therapist behaviours in session 1 and mid-treatment	PDA increased from pre- to mid-treatment and mid- to post-treatment across trials but decreased following treatment Therapist behaviours were not a significant predictor of PDA or patient and partner behaviours Greater partner advice in session 1 predicted lower PDA at follow-up Greater patient sustain talk at mid-treatment was associated with lower PDA at post-treatment Greater patient contemptuousness directed towards their partner at the first and mid-treatment sessions were associated with lower PDA at follow-up Overall R^2 change was not significant
O'Farrell *et a*l. (2016b) (high)	101 patients with alcohol dependence in a heterosexual relationship in which their partner did not have a SUD >90% of sample were White; 30% of patients were women	Multi-couple, rolling admission G-BCT RCT compared outcomes of GBCT versus SBCT over a 1-year follow-up Patients randomized to either G-BCT plus 12-step-oriented IBT or S-BCT plus IBT Group BCT received the same sessions but in a different sequence	PDA, Inventory of Drug Use Consequences and DAS Outcome data collected at baseline, post-treatment, and quarterly for 1-year follow-up	G-BCT and S-BCT were not significantly different on PDF, they were also not statistically equivalent on PDA Turning to the equivalency test, findings did not support equivalency for PDA, drug use consequences, or relationship satisfaction
O'Farrell *et al*. (2017) (high)	61 drug-using women (74% opioid) and male partners 50% were dual using couples 87% White Women in both conditions attended an average of over 14 of 26 planned study therapy sessions	RCT comparing BCT+ plus 12-step oriented individual treatment (13 sessions each) and a control group that included 26, 12-step oriented individual treatment sessions	PDA, percentage days drug use, Inventory of Drug Use Consequences Relationship outcomes: DAS, and days separated Data were collected at baseline, post-treatment, and quarterly for 1-year follow-up	BCT+IBT showed a significant) large effect size (d=−.85) for substance- related problems. Treatments did not differ on PDA or percent days drug use. BCT+ IBT had significantly higher male-reported DAS and fewer days separated at 1-year follow-up There were no differences on percent days used or PDA. No differences in female relationship satisfaction

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Table 1. (*Continued*)

Reference (quality)	Sample	Intervention	Outcome measures	Results
O'Farrell et al. (2016a) Secondary data analysis from O'Farrell *et al.* (2004) (medium)	406 AUD patients (303 males and 103 females; 98.5% alcohol dependence, 1.5% alcohol abuse) and their heterosexual spouses >90% of sample was White 80% attended at least half of planned BCT sessions, and over 75% attended AA during the time when they were receiving BCT	20–22 sessions of BCT for patient and their heterosexual spouse	Alcohol problem severity, PDA, and the DAS Examined gender differences for measured outcomes Outcomes assessed pre- and post-BCT program, and at 6- and 12-month follow-up	Female and male patients did not differ on improvement and outcomes of abstinence and alcohol-related problems after BCT On the DAS, couples with male patients showed significant improvement at all time periods Female patient couples showed improvement only at 6-month follow-up Those with clinically significant relationship problems at baseline showed significant improvement at all time periods
Owens *et al.* (2013) Secondary analysis of McCrady *et al.* (2009) (medium)	101 women in a committed heterosexual relationship All women met current DSM-IV criteria for alcohol dependence or AUD 95% White	RCT comparing ABCT and ABIT 20-session provided over a maximum of 6 months	Women used daily self-monitoring cards to rate drinking urges and relationship satisfaction during treatment Multi-level modelling used to analyse relationships between urges and relationship satisfaction over treatment	Previous-day drinking urges did not predict daily relationship satisfaction. Relationship satisfaction did not change over the course of treatment. Relationship satisfaction did not predict drinking urges on subsequent days. Drinking urges were lower when relationship satisfaction was higher. Drinking urges decreased more steeply for those with higher levels of relationship satisfaction, and urges decreased less steeply for those with lower levels of relationship satisfaction

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Table 1. (*Continued*)

Reference (quality)	Sample	Intervention	Outcome measures	Results
Rotunda *et al*. (2008) (medium)	19 dually diagnosed male veterans (PTSD and substance use) and 19 veterans with SUD only; female non-using partners	BCT outcomes were compared across veterans with PTSD and SUD and veterans with SUD only About 80% of both groups took Antabuse and attended at least one 12-step meeting Both groups attended a high number of BCT sessions.	PTSD symptoms, alcohol severity and problems, DAS, CTS2, psychological distress as measured by the Symptom Checklist 90-Revised (SCL90R; Derogatis, 1983)	Repeated measures ANOVA indicated a significant main effect for time with non-significant effects for group and group by time interaction Change in outcome was similar for PTSD and non-PTSD clients including drinking, days abstinent, and negative consequences of drinking. Both groups had improved DAS scores, decreased CTS frequency of male to female violence and decreased psychological distress symptoms
Schumm *et al*. (2012) (medium)	Dual problem couples (n=20) and single problem couples in which only one partner had AUD (n=386) To be included in the study, both patient and partner agreed achieve mutual abstinence.	20–22 sessions of BCT for patient and their heterosexual spouse Compared BCT outcomes across dual and single problem couples	PDA defined as not in a hospital, jail, or halfway house and remained abstinent from alcohol and other drug Used growth curve modelling to examine treatment effects over time	Treatment groups did not differ significantly on PDA following BCT, with similar effect sizes
Schumm *et al*. (2014) (high)	Women with AUD (n=105) and their male partners without SUD >90% of sample was White	RCT comparing BCT+ plus 12-step oriented individual treatment (13 sessions each) and a control group that involved 26, 12-step oriented individual treatment sessions Women in both conditions attended an average of over 20 study therapy sessions	PDA, Inventory of Drug Use Consequences, the DAS, RHS, and the CTS2	BCT had higher PDA during treatment and during the 12-month follow-up BCT had significantly fewer substance-related problems in the last 9 months of the 12-month follow-up period On the DAS, the effect favouring BCT was greater for women with lower baseline DAS scores and for women who received less baseline non-study treatment No difference between treatment groups on relationship satisfaction as measured by the DAS or intimate partner violence Men in the BCT condition reported greater relationship happiness on the RHS compared with those whose partner received individual treatment

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Table 1. (*Continued*)

Reference (quality)	Sample	Intervention	Outcome measures	Results
Schumm *et al.* (2009) Secondary analysis of O'Farrell & Fals-Stewart (2006) (medium)	103 female alcoholic patients in a heterosexual relationship Matched cases with non-alcoholic dyads to compare outcomes over time >90% White	20–22 sessions of BCT for patient and their heterosexual spouse Participants in the current study received, on average, 16.7 sessions of BCT 66% of patients took Antabuse and 72% of patients attended at least one 12-step meeting	CTS2, frequency of substance use and abstinence	Female-perpetrated aggression decreased significantly at 1- and 2-years post-treatment. Women who were remitted after BCT had aggression levels similar to the comparison sample Male aggression was significantly reduced except for year-1 prevalence and frequency of severe violence. Male aggression returned to level of matched controls when the female partner was remitted except for year-1 prevalence and frequency of verbal aggression. Reductions in IPV were found even among the relapsed group
Schumm *et al.* (2018) Secondary analysis of O'Farrell *et al.* (2017) (high)	61 drug-using women (74% opioid) and male partners 50% were dual using couples 87% White	RCT comparing BCT+ plus 12-step oriented individual treatment (13 sessions each) and a control group that included 26, 12-step oriented individual treatment sessions Treatment groups did not differ on AA or NA attendance 40% of the women in the present study attended <7 BCT sessions	The CTS2 was administered at baseline and 12-months after treatment (85% follow-up rate)	Psychological aggression frequency and female to male physical assault declined in both treatments. Male to female physical assault, sexual coercion, and injury did not decline in the BCT+IBT but was reduced in the IBT group
Schumm *et al.* (2019) Secondary analysis of O'Farrell *et al.* (2017) (high)	51 drug-abusing women who endorsed a lifetime PTSD Criterion A traumatic event and their male partners	Women were randomly assigned to either BCT plus 12-step-oriented individual based therapy (BCT+ IBT) or IBT Participants across conditions had a high participation in self-help groups during and after treatment (64.8–68.3%); no differences were found between treatment groups on self-help attendance	Self-help attendance, and The Post-traumatic Diagnostic Scale	IBT condition did not exhibit significant changes in PTSD severity BCT+IBT had significantly lower PTSD severity scores when compared with baseline except for the 6-month follow-up No significant changes across either condition in PTSD diagnosis BCT+IBT had significantly lower PTSD severity following treatment in comparison with those who received IBT

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Table 1. (*Continued*)

Reference (quality)	Sample	Intervention	Outcome measures	Results
Walitzer *et al*. (2013) (high)	64 male clients and female non-using partners Sample excluded individuals with substantial negative consequences as a result of drinking and those with recent severe domestic violence	Three conditions included: treatment for problem drinkers only, couple alcohol-focused treatment, or couple alcohol-focused treatment combined with BCT. All treatment was group-based	Alcohol consumption and conflict communication task Used hierarchical models and path analysis	Partner involved treatment led to decreases in negative statements and increased problem-solving statements The effect of partner involved treatment on post-treatment negative communication was significantly mediated by reduction of heavy drinking The effect of partner involvement on drinking outcomes was not mediated by reductions in negative communication
Worden *et al*. (2015) (high)	136 women with DSM-IV alcohol dependence and male partners	Randomized to either ABCT or blended ABCT, which consisted of 6 sessions of ABCT and 6 sessions of individual therapy Treatment conditions did not differ significantly in the number of treatment sessions attended	PDD, mean drinks per drinking day, Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)	Women in both treatment groups significantly decreased PDD and mean drinks per day, before treatment began Controlling for baseline PDD and treatment condition, pre-treatment changes in PDD predicted both within- treatment and post- treatment PDD Pre-treatment reductions in drinking did not vary by SOCRATES scores, which suggests pre-treatment reductions were independent of stage of change

AA, Alcoholics Anonymous; ACQ, Areas of Change Questionnaire; AUD, alcohol use disorder; ABCT, alcohol behavioral couples therapy; ABIT, alcohol behavioural individual therapy; BCT, behavioural couples therapy; CBT, cognitive behavioural therapy; DAS, dyadic adjustment scale; G-BCT, group behavioural couples therapy; IBT, individual based therapy; IPV, intimate partner violence; PDA, percent days abstinent; PDD, percent days drinking; PDH, percentage of heavy drinking days; PTSD, posttraumatic stress disorder; RCT, randomized control trial; RHS, relationship happiness scale; RP, relapse prevention; S-BCT, standard behavioural couples therapy; SCL-90-R, Symptom Checklist 90-Revised; SO, significant other; SOCRATES, Stages of Change Readiness and Treatment Eagerness Scale; ST, standard smoking cessation treatment; SUD, substance use disorder; TLFB, timeline followback.

focus on SUDs, or the article was a review of BCT or ABCT. Studies in which Fals-Stewart was a principal investigator were removed, due to questions that have been raised about the scientific integrity of this research (New York State Office of the Attorney General, 2010; $n = 8$). After this review, the full texts for 20 articles were coded for relevant information. The studies included were eight RCTs (LaChance *et al.*, 2015; McCrady *et al.*, 2009; McCrady *et al.*, 2016; O'Farrell *et al.*, 2016b; O'Farrell *et al.*, 2017; Schumm *et al.*, 2014; Walitzer *et al.*, 2013; Worden *et al.*, 2015), three quasi-experimental pre–post studies (Kelley *et al.*, 2016; Rotunda *et al.*, 2008; Schumm *et al.*, 2012), and nine studies completing secondary analyses of RCTs (Drapkin *et al.*, 2015; Hallgren and McCrady, 2016; Hallgren *et al.*, 2015; McCrady *et al.*, 2019; O'Farrell *et al.*, 2016a; Owens *et al.*, 2013; Schumm *et al.*, 2009; Schumm *et al.*, 2018; Schumm *et al.*, 2019). The RCTs explored a number of gaps within the BCT and ABCT literature including the use of the treatments across a number of diverse treatment populations, mechanisms and moderators of treatment, and various secondary outcomes. Studies are summarized in Table 1. Treatment efficacy studies included BCT for dual using couples, intimate partner violence, smoking cessation, and post-traumatic stress symptoms. Mechanisms and moderators of treatment included gender and relationship functioning.

Treatment efficacy

Dual-using couples

Schumm *et al.* (2012) compared outcomes of BCT for couples in which both partners had an AUD ($n = 20$) compared with couples in which only one partner had an AUD ($n = 386$). The intervention involved 20–22 BCT sessions for the couple. The investigators used growth curve modelling to examine the effect of the treatment over time. The results of the analysis indicated that treatment groups did not differ significantly on percent days absent (PDA) following BCT, with similar effect sizes. Additional support for this finding comes from an exploratory analysis of an RCT that compared the efficacy of BCT+IBT with IBT (individual based therapy) for female substance users, nearly half of which had a partner who also used substances (O'Farrell *et al.*, 2017). Participants in both treatment conditions demonstrated improvements in substance use and the results indicated that treatment response did not differ depending on dual problem couple status.

Intimate partner violence and child abuse

A secondary analysis by Schumm *et al.* (2009) studied the effect of BCT on intimate partner violence (IPV). The sample included 103 heterosexual couples, with a female patient and her male partner. This study used a matched cases design with non-using dyads to compare outcomes over time. Treatment consisted of 20–22 sessions of BCT with the dyad. The results of their analysis found that female-perpetrated aggression decreased significantly at 1- and 2-years post-treatment and that women who were abstinent after BCT had aggression levels similar to the non-using dyads. Male aggression was also reduced except for 1-year prevalence and frequency of severe violence. Reductions in IPV were found even among the relapsed group, highlighting the improved relational outcomes of BCT.

Another secondary analysis was completed by Schumm *et al.* (2018) examining BCT for female drug-users and their male partners. Fifty percent of the partners in the study also had a SUD. Treatment included BCT plus 12-step oriented individual treatment (13 sessions each). The results of the Revised Conflict Tactics Scale (Straus *et al.*, 1996) indicated that psychological aggression frequency and female to male physical assault declined in both treatments, with no significant differences between conditions. Male to female physical assault, sexual coercion, and injury did not decline in the BCT group but was reduced in the individual therapy.

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Importantly, 40% of the women in the study attended less than seven of the BCT sessions. The authors note that this is problematic because conflict resolution strategies are not introduced until session 7 of BCT (Schumm *et al*., 2018). Schumm and colleagues (2014) investigated the efficacy of BCT compared with IBT for 105 female patients with AUD and their male partners without a substance use diagnosis. Both BCT and IBT were found to lead to comparable improvements in male- and female-perpetrated IPV at 12-month follow-up.

Kelley and colleagues (2016) provided BCT to 61 heterosexual couples, of which one or both partners had an AUD or SUD. The couples were also required to have a child under the age of 18. The researchers were interested in examining the impact of BCT on child abuse potential, as measured by the Brief Child Abuse Potential Inventory (Ondersma *et al*., 2005). The results of the study found that attending more BCT sessions did not predict changes in child abuse potential. However, the number of sessions attended had an indirect effect on child abuse potential through relationship satisfaction, as measured by the Dyadic Adjustment Scale (DAS; Spanier, 1976). For fathers, improvements in abstinence were associated with greater relationship satisfaction which was in turn associated with reductions in child abuse. This effect was not found for mothers, which the authors speculate may be attributable to fewer mothers having a SUD in comparison with fathers.

Smoking cessation

LaChance and colleagues (2015) conducted a pilot RCT examining BCT for smoking cessation. Forty-nine current smokers and their non-smoking partners were randomized to either BCT-Smoking (BCT-S) or a standard smoking cessation treatment (ST). Both treatments included seven weekly therapy sessions and eight weeks of nicotine replacement therapy. The results of the study indicated that those in the BCT-S condition were abstinent more days (60.7 days) than the ST condition (50.3 days) at 6-month follow-up, but these differences were not significantly different. Furthermore, the conditions did not differ on partner support at post-treatment. The authors note that although this study does not provide support for BCT for smoking cessation, the study may have been under-powered to find a statistically significant effect.

Post-traumatic stress disorder

Rotunda and colleagues (2008) compared the outcomes after BCT of 19 veterans diagnosed with PTSD and SUD with 19 veterans with SUD only. The results of the evaluation found a significant main effect of time but no main effect of group or group-by-time interaction. This indicates that the change in outcomes was not significantly different between the SUD with comorbid PTSD and the SUD only conditions, including days abstinent, negative consequences of drinking, dyadic adjustment, frequency of male to female violence and decreased psychological distress symptoms.

Schumm and colleagues (2019) completed a secondary analysis of an RCT involving 51 women with a SUD who also endorsed a lifetime PTSD Criterion A traumatic event. The intervention conditions included BCT plus 12-step-oriented individual based therapy (BCT+IBT) or IBT only. The study assessed PTSD symptoms at baseline, post-treatment, and quarterly through the 1-year follow-up. Results indicated that those in the BCT+IBT had significantly lower PTSD severity scores compared with baseline, at all time points except for the 6-month follow-up. The IBT condition did not have significant changes in PTSD symptom severity. Furthermore, the BCT+IBT had significantly lower PTSD severity after treatment completion, compared with those who received IBT.

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Sudden gains and drinking urges

McCrady and colleagues (2009) employed an RCT with 102 women with AUD in a heterosexual relationship of at least one year. The participants were randomized to ABCT or alcohol behavioural individual therapy (ABIT). The treatments both included 20 sessions over 6 months, with the ABIT sessions being 60-minutes and the ABCT sessions being 90-minutes. Greater increases in PDA and decreases in percent days heavy drinking (PDH) were found for ABCT compared with ABIT during treatment. There were no significant differences in change in PDA or PDH between the conditions over the follow-up period.

Drapkin and colleagues (2015) completed a secondary analysis of the previously described study by McCrady and colleagues (2009) in order to examine outcomes related to sudden gains. The results of their study found that there were no differences between the two treatment groups in percent days drinking (PDD), urge frequency or urge intensity sudden gains. Hallgren *et al.* (2015) also completed a secondary analysis combining the participants of McCrady and colleagues (2009) along with a previous RCT by McCrady *et al.* (1999) that analysed ABCT outcomes of 90 males with AUDs and their female partners. The purpose of the secondary analysis was to examine drinking urges across the two RCTs. The results of the study indicated that there were no differences in participants' overall mean proportion of urges or number of drinking days between conditions in the men's study or women's study.

Adapted treatment delivery

McCrady and colleagues (2016) completed an RCT with 59 women with AUDs and their male partners. The treatment consisted of 12 sessions of ABCT or five individual CBT sessions with seven sessions of ABCT (Blended-ABCT). The results of their study found that the two treatment groups did not differ on primary outcomes including PDD, PDH, or relationship satisfaction during treatment or 12-months post-treatment. Furthermore, a small to moderate effect favoured Blended-ABCT in the number of treatment sessions attended, and within treatment PDD and PDH in the first and second half of treatment. In terms of treatment moderators, women lower in self-efficacy and sociotropy (women who were less driven by pleasing others) at baseline had a more positive response in blended-ABCT than ABCT.

Worden *et al.* (2015) conducted an RCT with 136 women with DSM-IV alcohol dependence and their male partners. The dyads were randomized to either ABCT or blended ABCT, which consisted of six sessions of ABCT and six sessions of individual therapy. The purpose of the study was to analyse factors that led to sudden gains in treatment outcomes, as well as treatment mechanisms and moderators. The results indicated that both treatment groups significantly decreased their PDD and mean drinks per day before treatment began, with no differences found between the treatment groups. Furthermore, pre-treatment changes in PDD predicted both within-treatment and post-treatment PDD.

Another treatment adaptation that has been evaluated is delivering BCT in a multi-couple, rolling admission group format in addition to 12-step oriented individual treatment (O'Farrell *et al.*, 2016b). Individuals with AUD (n=101) and their non-using partners were randomized to either group BCT plus 12-step-oriented individual therapy or standard BCT plus individual therapy. The results indicated that group and standard BCT did not significantly differ on PDA; however, they were also not statistically equivalent. Results did not support equivalency for PDA, drug use consequences, or relationship satisfaction, favouring standard BCT.

Treatment moderators

Gender

A number of studies reported on the impact of gender on treatment outcomes. Schumm and colleagues (2014) examined BCT for 105 women with AUD and their male partners without

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substance use problems. The results indicated that the BCT group had higher PDA during treatment and at 12-month follow-up compared with the individual treatment group. Changes in relationship satisfaction were not found to differ for female or male participants, which may be attributable to relatively low relationship distress at baseline. However, compared with men whose partner received individual therapy, men in the BCT condition were found to report greater relationship satisfaction as measured by the relationship happiness scale (RHS; Smith and Meyers, 2004) over the follow-up period.

O'Farrell *et al*. (2016a) completed a secondary analysis of 406 AUD patients (303 males and 103 females) and their heterosexual spouses who received 20–22 sessions of BCT. For abstinence and alcohol-related problems, male and female users did not differ after BCT, with both groups having large effect sizes compared with baseline. Couples with male patients showed significant improvement on dyadic adjustment at all time periods. However, female patient couples improved on dyadic adjustment only at 6-month follow-up.

O'Farrell and colleagues (2017) conducted an RCT of BCT for 61 women with a SUD and their male partners, 50% of which were also problematic drug-users. The BCT condition showed significantly greater improvement on substance-related problems compared with the individual treatment condition. Like the previously described studies, the BCT condition also showed greater improvement on relationship outcomes for the male partner, with males reporting higher DAS scores, but these improvements were not observed for women.

Relationship functioning

Relationship functioning was also found to be a moderator of treatment outcomes. The previously described RCT by McCrady and colleagues (2009) found that worse relationship functioning at baseline was associated with greater increases in PDA for ABCT compared with ABIT. Conversely, healthier relationship functioning at baseline was associated with greater decreases in PDH for ABCT compared with ABIT. These results suggest that relationship functioning is a moderator of treatment; however, the direction of the relationship is inconclusive. Furthermore, Schumm and colleagues (2014) found that women in the BCT group with lower dyadic adjustment scores at baseline had greater improvements in dyadic adjustment post-treatment. The authors suggest that women with greater relationship distress may benefit most from a couple-based treatment like BCT, as they have more room for improvement. O'Farrell and colleagues (2016a) analysed couples with significant relationship problems at baseline and also found that these couples showed significant improvement across time periods with medium effect sizes compared with baseline.

Treatment mechanisms

Hallgren and McCrady (2016) completed a secondary analysis from four previous RCTs of ABCT, which included 218 dyads (Epstein, 2009; McCrady *et al*., 1986; McCrady *et al*., 1999; McCrady *et al*., 2009). The purpose of the study was to examine the impact of pronoun use (e.g. 'I, you, we') on ABCT outcomes, with the hypothesis that more 'we' pronoun usage and fewer 'I' and 'you' pronoun usage would predict improvements in treatment. The results indicated that only first-session identified patient (IP) 'we' language and first-session IP 'you' language predicted changes in percent days abstinent during treatment weeks 1–7 and 9–12; and only first-session partner 'we' language significantly predicted changes in PDA at follow-up. When controlling for baseline relationship satisfaction, only first-session IP 'we' language was a significant predictor of changes in drinking during treatment. Counter to their predictions, the authors suggest that greater use of 'we' language is not a mechanism of change in treatment or a useful behaviour to target in treatment. Rather, it is indicative of a collaborative approach in the relationship.

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A secondary analysis completed by Owens and colleagues (2013) used multi-level modelling to analyse relationships between urges and relationship satisfaction over treatment for 101 women with AUD and their partners. The results indicated that previous day drinking urges did not predict relationship satisfaction, nor did relationship satisfaction predict drinking urges on subsequent days. Nonetheless, drinking urges decreased more steeply for those with higher levels of relationship satisfaction, and urges decreased less steeply for those with lower levels of relationship satisfaction, providing additional support for relationship satisfaction as a treatment moderator.

McCrady and colleagues (2009) conducted a secondary analysis of four RCTs (McCrady *et al.*, 2009; McCrady *et al.*, 2016; Mccrady *et al.,* 1999; McCrady *et al.*, 1986) that included 188 dyads. The purpose of the study was to analyse the language used by the dyad, therapist behaviours, and test whether active ingredients of ABCT lead to alcohol use outcomes. Session 1 and mid-treatment partner verbal behaviours as well as therapist behaviours were coded by the researchers. The results indicated few significant predictors of treatment outcomes. In particular, greater partner advice giving in session 1 predicted lower PDA at follow-up; greater patient sustain talk at mid-treatment predicted lower PDA at post-treatment. Lastly, greater patient contemptuousness towards their partner at the first and mid-treatment sessions were associated with lower PDA at follow-up.

Walitzer *et al.* (2013) conducted a secondary analysis of an RCT with 64 male problem drinkers and their female non-using partners. The results of their study found that couples treatment led to decreases in negative statements and increased problem-solving statements from baseline to post-treatment. The effect of the couple's treatment on post-treatment negative communication was significantly mediated by reduction of heavy drinking. However, the effect of partner involvement on drinking outcomes was not mediated by reductions in negative communication. The findings suggest that reductions in heavy drinking during treatment contributes to improved relationship functioning.

Discussion

The current review identified 20 published papers since the Powers *et al.* (2008) review that address a number of identified gaps in the BCT and ABCT literature. Treatments were found to lead to significant improvements for alcohol and substance users, dual-using couples, those with concurrent PTSD, both males and females, and for reducing female to male perpetrated IPV. In contrast, BCT was not more effective than standard smoking cessation treatment, was less effective when delivered in a group format, and had mixed results for relationship satisfaction, with an interaction present across gender. This review provides on update on our understanding of treatment moderators and mechanisms, a limitation of the literature that has been consistently documented (Ruff *et al.*, 2010).

Efficacy of BCT and ABCT

Consistent with past reviews (Meis *et al.*, 2013; Powers *et al.*, 2008), the literature reviewed supports the contention that couple's treatment for substance abuse leads to better outcomes than individual treatment (e.g. McCrady *et al.*, 2009; Schumm *et al.*, 2014). However, there is evidence that participants with substance abuse problems, in particular female participants, prefer individual treatment over couple's treatments. For example, when provided the choice between couples and individual treatment the large majority of women with an AUD preferred individual treatment for reasons including wanting to work on their own problems, lack of perceived support from their partner, and logistical concerns (McCrady *et al.*, 2011). To improve treatment engagement, McCrady and colleagues investigated the efficacy of a blended ABCT that consisted of five individual sessions and seven couple sessions.

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Interestingly, improvements in drinking outcomes and relationship satisfaction for blended ABCT were found to be comparable to ABCT (McCrady *et al.*, 2016; Worden *et al.*, 2015). Nonetheless, these findings support that the inclusion of individual sessions may be particularly beneficial for some individuals. Further research is needed on moderators of treatment to understand who would benefit more from a blended treatment or individual treatment than couple treatment.

Treatment mechanisms

The posited mechanisms of treatment for BCT include the reciprocal nature of relationship functioning and substance use, the alcohol user's motivation, the user's coping skills, the partner's support for the user, and the couple's interactions. The most consistently hypothesized mechanism in behavioural couples' treatment is the reciprocal role of relationship functioning and substance use. Owens and colleagues (2013) did not find a causal relationship between relationship satisfaction and drinking urges; however, Walitzer and colleagues (2013) found that reductions in heavy drinking during treatment contributed to improved relationship functioning. McCrady and colleagues (2019) found that greater partner advice giving, greater patient sustain talk, and greater patient contemptuousness towards partner predicted lower PDA. It is evident that the couple's interactions have a mechanistic effect on therapeutic outcomes, although the constructs and direction of the relationship remains to be studied, such as whether improved relationship functioning leads to substance use outcomes, or vice versa.

Relationship distress as treatment moderator

Four studies assessed the role of pre-treatment relationship distress as a moderator of treatment, although with different treatment effects. Two studies indicated that women with lower dyadic adjustment scores (Schumm *et al.*, 2015) and more significant relationship problems (O'Farrell *et al.*, 2016a) at baseline showed greater improvements post-treatment. Furthermore, McCrady and colleagues (2009) found evidence to suggest that couples with both poor and healthy relationship functioning demonstrate improvements in drinking, albeit on inverse treatment outcomes (PDA and PDH). We recommend future research to examine different types of relationship distress in order to understand these different treatment outcomes.

Relationship distress and gender

A number of the studies reviewed discussed an interaction between improvements in relationship distress and gender (O'Farrell *et al.*, 2016a; O'Farrell *et al.*, 2017; Schumm *et al.*, 2015). The results suggested that BCT is effective for reducing substance use outcomes for both men and women but have mixed findings for relationship satisfaction for women patients. The results of the review found that women patients have less improvements than both male partners and male users. Future research needs to examine why improvements in relationship satisfaction may be dependent on gender, including variables such as gender of the user, substance being abused, and baseline distress (O'Farrell *et al.*, 2017).

Limitations and future directions

The present review exhibits a number of strengths including a systematic search strategy, examination of mechanisms and active treatment components, and recommendations for future study. Despite these strengths, limitations exist. The purpose of the present paper was to develop an understanding of the mechanisms and moderators of treatment. The lack of research in these areas is a significant problem for the field, in that research of BCTs has

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spanned over 20 years and has included over a dozen RCTs. Due to the lack of studies on mediators and moderators, a quantitative approach was not possible for the present review. Nonetheless, the narrative approach taken allows for hypotheses to be generated that can be tested through future quantitative studies and meta-analytic approaches.

The studies reviewed ranged from high to medium in their quality, across both RCT designs, quasi-experimental studies, and secondary analyses. The high quality RCT data highlights the quality of the evidence in the field; however, high quality evidence of moderators and mechanisms of treatment is needed. The variability in outcome measures used across studies makes it difficult to draw conclusions on specific treatment outcomes (e.g. percent days drinking, percent days heavy drinking, percent days abstinent). Further research is needed to examine *how, why, and for whom* BCT is effective, as varying outcomes are found across these measures.

Few studies discussed the active treatment components of BCT, but many noted it as a limitation of current research. Furthermore, almost all studies of BCT were completed in conjunction with an individual 12-step focused treatment. A recent Cochrane review notes the effectiveness of 12-step oriented treatment on substance use outcomes as an evidence-based treatment (Kelly *et al*., 2020). It is possible that the treatment mechanisms and outcomes occur due to the combination of both the 12-step modality and BCT. This could be especially true for partners who may be attending Al-Anon groups. In order to understand the active components and treatment mechanisms associated with BCT, it is necessary to dismantle these treatments in future clinical trials.

Further understanding of treatment mechanisms and moderators may assist in understanding active treatment components and treatment allocation. Qualitative studies may be a particularly useful methodology in unpacking what the experiences are of couples who are in treatment in order to better understand treatment mechanisms. As previously suggested by Walitzer and colleagues (2013), researchers may be studying the wrong mechanisms altogether. Lastly, the studies reviewed in this paper included samples consisting of primarily heterosexual couples and a female substance user, which may limit the generalizability of the findings.

Conclusion

The present review provides an important update on BCT and ABCT research since the Powers *et al*. (2008) review. A gap still remains in the literature on the mechanisms and active components of the treatment. It is recommended that future studies dismantle the components of these treatments in order to understand the active components of treatment. Furthermore, researchers need to hypothesize and test treatment mechanisms and moderators, as well as employ qualitative studies to better understand what changes occur during treatment and how these changes affect treatment outcomes.

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Conceptualization (supporting), Data curation (equal), Formal analysis (equal), Writing – original draft (equal), Writing – review & editing (equal); **Jeremiah Schumm:** Conceptualization (supporting), Formal analysis (supporting), Supervision (equal), Writing – original draft (supporting), Writing – review & editing (equal); **Candice Monson:** Conceptualization (supporting), Formal analysis (supporting), Supervision (equal), Writing – original draft (supporting), Writing – review & editing (equal).

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