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Treatment Elements of Alcohol-Focused Behavioral Couples Therapy



Alcohol-Focused Behavioral Couple Therapy

Abstract

Alcohol Behavioral Couple Therapy (ABCT) has emerged over the last 30 years as a highly efficacious treatment for those with alcohol use disorders. This review highlights the historical and conceptual underpinnings of ABCT, as well as the specific treatment elements and structure. Proposed active ingredients, moderators, and mediators of treatment outcome are discussed. Efficacy is evaluated for reductions in identified patient drinking, improved relationship functioning, and reductions in intimate partner violence. Adaptations of ABCT for substances other than alcohol are described. Other adaptations, including brief interventions, interventions addressing PTSD and TBI along with alcohol use, and interventions deliverable via technology platforms are described. Additional cost-benefit and cost-effectiveness findings supporting the economic value of ABCT are noted. Future directions for research in this area include possible adaptations for female identified patients, non-traditional couples, LGBT partners and dyads involving non-intimate partner relationships. The development of more flexible models and enhanced dissemination strategies may improve clinical uptake and utility as well as increasing the feasibility of this treatment for integrated healthcare settings.

Description of Alcohol Behavioral Couple Therapy (ABCT)

Historical Roots

Concerns about the impact of alcohol on families and the engagement of families in alcohol treatment date back to the temperance movement in the 1800s (inspired in large part by women's concerns about the impact of male drinking in taverns on the family) and efforts in the late 1800s to engage families in treatment in early residential treatment programs for "dipsomania and inebriety" (McCrary, Owens, & Brovko, 2013). More contemporary family-focused treatment approaches began with efforts by caseworkers to assist women married to men with drinking problems (e.g., Baldwin, 1947) and the development of parallel therapy groups for husbands with alcohol use disorders (AUDs) and their wives (e.g., Gliedman, Rosenthal, Frank, & Nash, 1956; Pattison et al., 1965). Table 1 summarizes major characteristics of couple therapy studies for AUDs (see also Table S1 for a complete listing of early treatment studies). Many of these early approaches drew on psychodynamic principles, positing that marriage to a man with an AUD represented a neurotic resolution of

psychological conflicts by these wives, and that therapy, therefore, should focus on the woman's own psychological issues.

The application of family systems and behavioral models to the treatment of AUDs began in the late 1960s and early 1970s, when clinicians began to report the use of conjoint therapy for AUDs (e.g., Burton & Kaplan, 1968a). The earliest studies described family-systems based models with some cognitive-behavioral elements, and many reported comparisons of conjoint therapy to other approaches using non-randomized groups (e.g., comparing outcomes for men in treatment whose wives did or did not participate in sessions). Follow-ups varied widely in duration, from 6 to 39 months, and typically reported substantially more positive drinking outcomes for men whose wives participated in the treatment than those who did not, as well as improvements in relationship functioning (Burton & Kaplan, 1968a, 1968b; Gallant, Rich, Bey, & Terranova, 1970; Smith, 1967, 1969). By the mid-1970s, descriptions of behavioral approaches to conjoint therapy for AUDs began to appear in the literature, and controlled outcome studies of cognitive-behavioral approaches began in the late 1970s (e.g., McCrady et al., 1986; O'Farrell, Cutter, & Floyd, 1985).

Conceptual Model

Alcohol-focused Behavioral Couple Therapy (ABCT) is a cognitive-behavioral treatment model based on the assumption that multiple factors maintain the identified patient's (IP's) drinking, including individual, dyadic, familial, and other social/environmental variables. The ABCT model assumes a reciprocal relation between drinking and relationship functioning, and that interventions focused on both will be most effective. The model assumes that (a) external antecedents to drinking have a lawful relation to drinking, developed through repeated pairings with positive or negative reinforcers; (b) internal physiological, cognitive, and affective states mediate the association between external antecedents and drinking behavior; (c) expectancies about the reinforcing value of alcohol play an important role in determining subsequent drinking behavior; (d) drinking is maintained by its more immediate, positive consequences, which may be physiological, psychological, or interpersonal; and (e) negative consequences of drinking tend to be delayed and therefore have less impact on drinking behavior (see McCrady & Epstein, 2015).

Interventions in ABCT focus on familial antecedents and consequences of drinking. Familial antecedents may include typical family celebrations or daily rituals as well as familial attempts to influence the IP's drinking. Families in which alcohol problems are present often have evolved poor patterns of communication and problem solving and have developed a variety of relationship, sexual, financial, and child-rearing problems over time. All of these can serve as antecedents to further drinking.

Families inadvertently play a large role in both beneficial and aversive consequences of drinking. Some beneficial consequences include sharing of positive activities that include alcohol, caretaking when the IP has been drinking, or being particularly gentle and nonconfrontational during drinking episodes. Although these behaviors can be understood as normal reactions when a family member is sick or in a bad mood, such behavior in families with alcohol problems may serve to reinforce drinking. Families also provide a number of

aversive consequences for drinking, such as withdrawal and avoidance of the drinking member, negative verbal comments about the drinking (either during or after a drinking episode), and, in some families, physical violence directed at the drinking member. These aversive consequences may lead the drinker to avoid family interactions or attempt to hide the drinking, or may serve as cues to further drinking.

McCrary and Epstein's approach to ABCT combines three major components into an integrated treatment program (McCrary & Epstein, 2015) to affect the drinking and negative patterns of couple interactions. These include (a) cognitive behavior therapy (CBT) to target the IP's drinking; (b) CBT to enhance significant other (SO) skills to support change; and (c) behavioral couple therapy (BCT) to enhance relationship functioning. Other ABCT approaches (e.g., O'Farrell & Fals-Stewart¹, 2006) typically have focused primarily on the SO skills training and BCT aspects of ABCT, with the primary alcohol treatment provided in a separate program. To distinguish between ABCT and the O'Farrell and colleagues' treatment approach we have labeled their treatment as BCT-A for AUD populations, and BCT-D for other drug dependent populations throughout this paper.²

Treatment Elements

Table S2 provides an outline for ABCT. Specific treatment elements include:

CBT for drinking—Similar to other CBT approaches to AUDs (e.g., Epstein & McCrary, 2009), ABCT includes a number of strategies designed to help the IP decrease and/or stop drinking, including: (a) self-monitoring of drinking through daily logs; (b) functional analysis of drinking, including examination of antecedents to drinking, internal reactions to external antecedents (physiological, cognitive, and affective), the actual behavioral response to the antecedent (e.g., drinking, other response), and positive and negative consequences of the drinking; (c) development of a plan to reduce or stop drinking; (d) self-management planning; (e) development of strategies to manage negative cognitions and negative affect; (f) development of alternative behavioral coping strategies; and (g) relapse prevention.

CBT for partner coping

SO-focused interventions are similar to those developed in Unilateral Family Therapy (Thomas & Ager, 1993) and the Community Reinforcement and Family Training approach (Meyers, Smith, & Lash, 2005), and include: (a) self-monitoring through daily logs; (b) functional analysis of SO behaviors that might serve as antecedents or beneficial consequences of drinking; (c) self-management plans for behavior change; (d) skills training for coping with drinking-related situations and feelings; (e) skills training to provide positive support for IP behavior change; and (f) partner-focused relapse prevention.

BCT for relationship enhancement—Couple-focused interventions are similar to those provided in BCT for relationship distress (e.g., Epstein & Baucom, 2003), but also include specific alcohol-focused couple interventions. Couple interventions include: (a) increasing shared positive activities; (b) increasing observation and feedback about positive partner behaviors; (c) developing communication skills around alcohol-focused topics such as whether to keep alcohol in the house, or how to jointly manage situations in which the IP is offered alcoholic beverages; (d) increasing communication and problem-solving skills training; and (e) developing couple-focused relapse prevention strategies. O'Farrell and Fals-Stewart's approach (2006) also includes “sobriety contracts” that may include daily use of medications such as Antabuse.

Structure of Treatment

ABCT is a structured treatment, typically guided by a therapist manual and workbook for the couple. Assessment at the beginning includes a 2-hour conjoint semi-structured clinical interview and self-report questionnaires to determine whether the couple is a good candidate for ABCT and a short individual meeting with each partner to assess for intimate partner violence (IPV). Couples who are interested, willing, and able to attend treatment sessions together and who do not show significant levels of IPV are good candidates for ABCT. Daily self-monitoring by both partners is introduced in the first session and continues throughout the treatment.

ABCT is designed to include both partners in all treatment sessions, although recent research suggests that providing a combination of ABCT and individual CBT tended to yield better treatment attendance and comparable treatment outcomes (McCrary, Epstein, Hallgren, Cook, & Jensen, in press). Sessions typically are 90 minutes in length, and the model has been tested with varying lengths of treatment, ranging from 12-20 sessions. When present, both partners are actively engaged in all aspects of the treatment, providing information and feedback even during the more individually-focused interventions.

Efficacy Research

Table S1 provides a comprehensive overview of the efficacy research that laid the foundation for ABCT interventions for AUDs as well as studies specifically of the efficacy of ABCT. From 1956-1982, non-BCT group interventions for couples were tested with samples comprised primarily of male IPs and their female partners, with IP sample sizes ranging from nine to 183; follow-up periods ranged from none (post-treatment) to four years. From 1958-1969, several investigators conducted studies of group therapies designed to support wives of men with AUDs, again with a range of sample sizes (six to 80) and follow-up periods (post-treatment to six months). Studies of BCT for AUDs began in 1985 and continue today, again with mostly male IPs, and have produced promising results on both drinking and relationship outcomes, with sample sizes ranging from nine to 303 IPs and follow-up periods ranging from post-treatment to 30 months.

Overview of Outcomes of ABCT Research

Typically, ABCT research has focused on two desired outcomes: reduced IP drinking and improved relationship functioning between the partners (e.g., McCrady & Epstein, 2009; O'Farrell & Fals-Stewart, 2006). ABCT has been shown to positively impact both of those outcomes. Research has shown that ABCT benefits both male and female drinkers in intimate relationships in reducing drinking, reducing drinking severity, and improving the overall quality of the relationship (O'Farrell et al, 1997; McCrady et al., 1999). Additionally, certain IP or SO characteristics may be predictive of positive outcomes for couples in ABCT. Having an SO who is particularly supportive of the IP, and having an SO without a personal history of problematic alcohol use both are related to better ABCT outcomes (O'Farrell, Kleinke, Thompson & Cutter, 1986).

Foundational Research

As noted, initially most efforts to impact couples affected by AUDs focused on separate therapy groups for male IPs and their wives, or groups for wives whose husbands were in ongoing alcohol treatment (Gliedman et al., 1956; Igersheimer, 1959; MacDonald et al., 1958). This work focused on males who had problematic drinking, and were largely intended to help women cope with the effects that partner drinking had on their families. Although results were somewhat mixed, overall these early studies had promising findings. For example, Gliedman et al. (1959) showed reduced drinking and improved sexual adjustment over the 16 week treatment period in male IPs. Igersheimer (1959) showed improved emotional expression over the course of five months in treatment for wives of men with AUDs, illustrating that involving partners in treatment could be beneficial for couples in distress. This foundational work served a number of functions. These early studies demonstrated the feasibility of these interventions, examined their usefulness for couples struggling with AUDs, and formed the basis for developing and testing interventions that could help couples in distress.

Over the next few decades, interest in specific behavioral interventions began to expand. The focus began to shift to interventions specifically designed to effect change in couples rather than just the SO, and several early RCTs of couple therapy approaches reported positive results (e.g., Burton & Kaplan, 1968a; Cadogan, 1973; Corder, Corder, & Laidlaw, 1972; Hedberg & Campbell, 1972; McCrady, Paolino, Longabaugh, & Ross, 1979). Over time, couple therapy approaches drew more on cognitive-behavioral treatment approaches, both to alcohol problems and to relationship distress. Overall, ABCT and BCT-A have a strong research base supporting their efficacy (O'Farrell & Schein, 2011; McCrady, 2012; Epstein & McCrady, 1998) and have been shown to lead to greater improvements in abstinence in the IP and relationship functioning of the couple compared to individually-focused treatments; two research groups have provided the most sustained contributions to the ABCT/BCT-A literature and their work is reviewed in some detail.

McCrady has reported the results of several clinical trials of ABCT. In a small initial randomized clinical trial (RCT) of males and females with AUDs, McCrady and her colleagues (McCrady et al., 1986; McCrady, Noel, Stout, Abrams, & Nelson, 1991) tested the active ingredients of ABCT by comparing CBT with the spouse present (minimal spouse

involvement) to CBT with treatment focused on spouse coping (alcohol-focused spouse involvement, AFSI) and with ABCT. Outcomes 18 months post-treatment suggested that couples receiving ABCT showed greater improvements in relationship satisfaction and maintained positive changes in drinking better than couples in the comparison treatments. In a second RCT of males with AUDs and their partners, McCrady's group tested ABCT against ABCT enhanced either with relapse prevention (RP) interventions or with engagement with Alcoholics Anonymous and Alanon (McCrady et al., 1996, 1999; 2004). Drinking and relationship outcomes were comparable across the three treatments, but relapses were shorter in duration in the combined ABCT/RP treatment condition. McCrady and her colleagues also have tested ABCT in two studies with women with AUDs and their male partners (McCrady et al., 2009; McCrady et al., in press). The first of these RCTs (McCrady et al., 2009) compared ABCT to individual CBT, and found a higher percentage of abstinent days and a lower percentage of heavy drinking days in ABCT than individual CBT in the 12 months after treatment. The second study with women with AUDs (McCrady et al., in press) built on findings suggesting that women with AUDs often prefer individual treatment (McCrady, Epstein, Cook, Jensen, & Ladd, 2011) and used an RCT design to compare ABCT to a blend of ABCT and individual CBT sessions. Although the groups did not differ significantly on attendance or drinking outcomes, small to moderate effect sizes favored the blended treatment over stand-alone ABCT for this population.

In his studies of BCT-A, O'Farrell and colleagues (1985) found that in couples with a male IP, those assigned to the BCT-A condition rather than a no conjoint treatment control group or an interactional couple therapy group had fewer drinking days than either of the comparison groups. Additionally, couples receiving either interactional couple therapy or BCT-A also showed improved communication and marital adjustment, whereas the couples receiving no conjoint treatment did not. In a second study O'Farrell and his colleagues (O'Farrell, Choquette, Cutter, Brown, & McCourt, 1993; O'Farrell, Choquette, & Cutter, 1998) evaluated the effects of combining BCT-A with relapse prevention for couples with a male IP. After receiving 20 sessions of BCT-A, couples receiving an additional 15 RP sessions over the next year showed greater improvements in both alcohol use and relationship adjustment up to 18 months post-baseline. O'Farrell's findings, combined with McCrady's findings on ABCT plus RP, suggest that teaching couples specific tools to deal with potential relapse is helpful to couples with a male IP. O'Farrell and his colleagues also have tested BCT-A in samples of women with AUDs, and have found, compared to women receiving individual treatment that women receiving BCTA have been shown to have significantly reduced heavy drinking, more days of abstinence, and greater relationship satisfaction (Schumm et al., 2014).

RCTs from other research groups (see Table S1) also have reported better drinking outcomes for ABCT than comparison conditions (e.g., Bowers, 1990; Schumm et al., 2014, 2015; Walitzer & Derman, 2004). However, Vedel, Emmelkamp & Schippers (2008) found no differences in outcomes between ABCT and individual treatment, and Zweben (1988) found no differences in outcomes between a one-session advice and an eight-session conjoint treatment protocol.

Gender and ABCT Research

The majority of the research on AUDs in couples has focused on male IPs and their female partners, although research with female samples also has found that involving partners in treatment typically has led to reduced drinking and improved relationship functioning. There are several possible explanations for the overrepresentation of males in ABCT. First, the prevalence of AUDs is lower in women than men. Additionally, however, social mores continue to regard AUDs as an issue that affects only men and the greater stigma experienced by women with AUDs may affect their help-seeking. Also, male partners of women with AUDs may be more reluctant to engage in treatment, making it more difficult for women to access ABCT.

More recently, women have emerged as a population of interest in this area. Though more men suffer from AUDs than women, the consequences of problematic drinking behaviors disproportionately affect women. Women are more likely to die as a result of their drinking (Smith & Weisner, 2000), and are more likely to have severe medical problems as a result of their drinking. In addition, the reasons women drink may also differ from those of men. For example, women are more likely than men to drink as a result of discord and stress in their intimate relationships (McCrary, Epstein, Cook, Jensen & Hildebrandt, 2009), women are also more vulnerable to relapse by drinking with their partners (Connors, Maisto, & Zywiak, 1998), and women are more likely than men to drink to cope with negative emotions (Annis & Graham, 1995). By addressing these unique challenges, adaptations of ABCT for women might improve treatment entry and retention in ABCT, as well as improve treatment outcomes.

Effectiveness Research

Although there is a substantial body of ABCT efficacy research, there are no true effectiveness studies of ABCT. A number of studies (e.g., Vedel et al., 2008) have been conducted in real-world community treatment program studies, but because these studies have had strict study inclusion and exclusion criteria, relatively small sample sizes, and short follow-ups, they cannot be considered to be true effectiveness studies (Gartlehner, Hansen, Nissman, Lohr, & Carey, 2006).

Recently, the Veterans Administration Healthcare System initiated a program to disseminate BCT for alcohol and other substance use disorders in the VA system. Unfortunately, the program was discontinued because of changes in budget priorities within the VA system, resulting in very limited effectiveness data on the program. However, O'Farrell and colleagues (2015) reported on the initial phase of the VA BCT-A dissemination project, which included a three-day training workshop followed by a six month consultation phase to guide therapists in learning how to implement BCT. Beginning in 2012, 92 therapists were enrolled in the training program; 68 completed program requirements. Therapist ratings of the initial workshop phase of the training were very positive, indicating that the training was successful in providing a better understanding of BCT theory and strategies, and teaching them couple therapy skills. Subsequently, a non-randomized outcome study of the implementation of BCT-A in the VA setting was conducted with 40 patients with AUDs (80% of sample) or other substance use disorders. Days of drinking and drinking-related

consequences both decreased significantly from baseline to the end of treatment; SO relationship satisfaction increased significantly as well. No post-treatment follow-up data were reported, however. This preliminary implementation and effectiveness research project suggested the feasibility of training front-line clinicians in the use of BCT-A and potentially positive outcomes; it is unfortunate that the project was discontinued.

Process Research: Moderators, Active Ingredients, and Mediators

Examining moderators, active ingredients, and mediators in randomized clinical trials is valuable in elucidating for whom and under what circumstances treatments work and do not work, as well as *why* treatments work or do not work. Moderators are individual difference variables that may impact how a treatment works for different individuals or couples. Examining moderators is particularly important because knowledge of individual differences may allow clinicians to determine which treatment will be most effective for which clients, and for which clients other treatments should be sought. Active ingredients are the specific elements of a treatment that account for positive results. Active ingredients may be specific to one type of treatment or may be common to more than one treatment. Identifying active versus inactive or ineffective treatment elements may allow treatments to be streamlined. Mediators are client processes impacted by the active ingredients, which lead to desired behavior change. Examination of mediators allows for the identification of client processes that should be enhanced in treatment. The result of studying moderators, active ingredients, and mediators, potentially, is a more potent and efficient treatment. Process research for ABCT is still in its nascence, but there are a few moderators, active ingredients, and mediators that have been examined to date. More work is needed in this area.

For Whom ABCT Works or Does Not Work - Moderators

Psychopathology—ABCT may provide additional benefits to individuals with additional psychopathology (in DSM-IV terminology, both Axis I and Axis II disorders). For example, in a study of women with AUDs and their male partners, women with a co-morbid Axis I disorder receiving ABCT had a higher percentage of abstinent days at 18 months post-treatment than those receiving individual CBT. Similarly, women with co-morbid Axis II psychopathology who received ABCT reported a higher percentage of abstinent days at the end of treatment and a lower percentage of days of heavy drinking at 18-month follow-up than those who received individual CBT (McCrary et al., 2009). It was not clear, however, if there was an effect of ABCT on psychopathology itself or if this association was mediated through improvements in relationship stability and satisfaction.

Drinking severity—To date, no single study of ABCT has included participants with a wide range of drinking severity, thus precluding direct analyses of drinking severity as a potential moderator. However, although there is a paucity of direct studies of drinking severity as a moderator, findings from one study suggest indirectly that ABCT may be more efficacious for drinkers with more severe alcohol dependence. Walitzer and Dermen (2004) found that ABCT and alcohol-focused spouse involvement (AFSI) treatment both were more efficacious than CBT in drinking outcomes both at post-treatment and at follow-up in couples with a male problem drinker but, in contrast to McCrary et al. (1991), outcomes did

not differ between ABCT and AFSI. The authors concluded that the addition of relationship focused interventions in ABCT did not provide any additional benefit. It may be, however, that because the sample in Walitzer and Dermen's study only included problem drinkers and not alcohol dependent drinkers, the havoc that more severe alcohol dependence often wreaks on interpersonal relationships had not occurred in the relationships of this study sample.

Pre-treatment relationship satisfaction—McCrary et al. (2009b) found that women with higher relationship satisfaction at a baseline measurement had a lower percentage of heavy drinking days in ABCT treatment compared to individual CBT at 12-month post-treatment follow-up. The better baseline relationship functioning may allow ABCT to capitalize on the existing goodwill in the relationship, which allows both partners to focus on the aspects of the treatment related to reducing alcohol use. With more distressed couples, data suggest that more extended treatment may be more effective than standard ABCT or BCT-A. For example, O'Farrell et al. (1998), found that men with poorer relationship functioning had better drinking outcomes if they received BCT-A plus RP than BCT-A alone.

Proposed Active Ingredients

Four specific active therapist ingredients/interventions have been proposed for ABCT: (a) motivational enhancement; (b) drinker skills training; (c) partner skills training; (d) relationship enhancement. Of these, only partner skills training and relationship enhancement interventions have been studied. In addition, two active ingredients (adherence to the treatment manual, empathy) common to many treatments (not just ABCT) have been studied.

Dose-response relationship (amount of treatment)—ABCT appears to be as effective as control treatments in producing both positive drinking and relationship satisfaction outcomes, regardless of the number of treatment sessions (Powers, Vedel & Emmelkamp, 2008). In their randomized clinical trial of ABCT compared to individual CBT, McCrary et al. (2009) reported that participants in the CBT group attended significantly more treatment sessions than participants in ABCT, but women in ABCT evidenced better drinking outcomes. Findings such as these suggest, at least for women, that the dose-response relationship often seen in AUD treatment may not hold for ABCT, perhaps because addressing relationship functioning in addition to problematic alcohol use attenuates the need for more extensive treatment.

Therapist common factors—McCrary (2014) reported on a study in which ABCT therapy sessions were coded to examine time-ordered relations between therapist behaviors at the start of treatment, and drinking outcomes at three time points (mid-treatment, end of treatment, 6 months post-treatment). Therapist adherence to the ABCT treatment manual and a composite measure of common factors accounted for a significant but small percentage of IP drinking across the first half of treatment.

Partner skills training—O'Farrell et al. (1998) taught SOs how to reinforce IP use of Antabuse through the implementation of a daily sobriety contract, comparing the use of

Antabuse contracts for couples receiving BCT-A or BCT-A + RP. Those in the latter group used Antabuse contracts more in the first twelve months after treatment.

Relationship enhancement—Studies have demonstrated that there may be a temporal relation between alcohol use and relationship satisfaction (Powers et al., 2008) in which relationship satisfaction gains occur before improvements in alcohol use or consequences of alcohol use. Such findings suggest that improved relationship functioning may facilitate improvements in drinking outcomes (Powers et al, 2008). However, studies of post-treatment drinking and relationship functioning have found a concurrent association but not a temporally ordered relation. Additionally, women reported attending more treatment sessions and were more engaged in treatment if they were in more satisfying relationships (Graff et al., 2009). Improvements in communication and problem solving both have been reported. Walitzer, Derman, Shyhalla and Kubiak (2013) observed improvements in both drinking and reductions in negative and harmful communication patterns. The improvements in communication appeared to also positively affect problem-solving for couples. Couples in a couples-focused alcohol treatment engaged in more collaborative problem-solving than couples in an individual-focused alcohol treatment condition (Walitzer et al, 2013).

Change is thought to occur through a number of pathways; not only is abstinence from alcohol actively rewarded by the non-drinking partner, but both partners also are encouraged to develop a deeper repertoire of shared enjoyable experiences and to actively work on improving communication patterns.

Proposed Mechanisms of Behavior Change - Mediators

Four mechanisms of behavior change have been proposed for ABCT (McCrary & Epstein, 2015): (a) IP motivation; (b) IP coping skills; (c) SO support; (d) couple interactions. A small body of research has addressed all but the impact of ABCT on IP coping skills.

IP motivation—Hunter-Reel, McCrary, and Hildebrandt (2009) proposed that pre-treatment social support from the SO and others may lead to better treatment outcomes by impacting IP motivation. In an empirical test of this hypothesis with a sample of women receiving either CBT or ABCT, Hunter-Reel, McCrary, Hilderbrand, & Epstein (2010) found that pre-treatment social support for not drinking from the SO and others predicted greater IP motivation at the end of treatment, which in turn predicted a lower percentage of drinking days six months post-treatment. Thus, female IP motivation mediated the relation between social support and drinking six months after treatment. This is clearly an important variable that warrants investigation in male IP samples. Given that alcohol use between partners is highly correlated (Leonard & Das Eiden, 1999; Leonard & Mudar, 2003; McLeod, 1993; Windle, 1997), it would be important to know if the direction of influence also holds for female SOs and male IPs, if couples demonstrating this benefit are discordant in the drinking to begin with, or if ABCT influences the drinking of both partners leading to improved outcomes for the IP.

SO support—Two studies have examined SO supportive behaviors as mediators of behavior change in ABCT. O'Farrell et al. (1998) found that greater use of the Antabuse

contract correlated with a higher percentage of abstinent days (for 12 months post-treatment) and better relationship adjustment (for six months post-treatment). In their research using coded ABCT sessions, McCrady et al. (2014) did not find that SO behaviors as a set (including SO support, giving of general or alcohol-specific information, or change and counter-change talk) predicted drinking outcomes, but did find that the specific behavior of giving information during mid-treatment predicted a greater percentage of abstinent days in the second half of treatment.

Couple interactions—The same two studies of SO support also examined couple interactions as mediators of behavior change in ABCT, but results are somewhat contradictory. O'Farrell et al. (1998) reported that greater use of couple interaction skills taught during treatment was associated with a higher percentage of abstinent days and better relationship adjustment throughout three years from the beginning of treatment. McCrady et al. (2014) found that lower levels of confrontation from the IP during mid-treatment predicted a lower percentage of abstinent days in the six months after treatment. Clearly, more research on couple level interactions as mediators of treatment outcome is needed.

Other Research

Research on ABCT also has included substances other than alcohol, including other drugs and nicotine. Additionally, new adaptations to the ABCT protocol have been, or are being investigated, including brief interventions for alcohol use, brief interventions for drug use, ABCT for military families, and adaptations using web and smartphone delivery platforms. There also is a small body of literature investigating areas such as the cost-effectiveness of ABCT.

ABCT for Other Substances

In a study of 80 married and/or cohabiting males seeking treatment for a primary substance of abuse other than alcohol, Fals-Stewart and colleagues (1996) found significantly greater improvements in both substance use and relationship adjustment in males randomized to the BCT-D condition versus the control (individual and group cognitive behavioral coping skills training) condition over the 12-month follow-up period post-treatment. Though group differences in relationship adjustment and dyadic functioning generally disappeared by the 6-month post-treatment follow-up, group differences in percent days abstinent from drugs continued to be significant out to the 9 and 12 month follow-up time-points.

Epstein et al. (2007) adapted the McCrady ABCT model for males with other SUDs. This treatment development study examined pre- to three month post-treatment effect sizes in a group of 24 male IPs receiving stand-alone BCT-D with their female SOs. Drug and alcohol use decreased, as did drug-related consequences, and the majority of male IPs showed a significant increase in relationship satisfaction.

Early research demonstrated that specific partner behaviors are supportive of efforts at smoking cessation (e.g., Cohen & Lichtenstein, 1990). Some research has examined the efficacy of BCT for smoking cessation. Results to date have not suggested a benefit over traditional individual-based treatment. In an early study, McIntyre-Linsolver, Lichtenstein,

and Mermelstein (1986) tested a couples-based behavioral approach to smoking cessation, finding no differential efficacy of the couple-based intervention. Similarly, LaChance and colleagues (2015) randomized 29 individuals smoking more-than-ten cigarettes a day into either a BCT condition consisting of seven conjoint therapy sessions and a subsequent eight weeks of nicotine replacement therapy, or a control condition consisting of seven individual sessions and eight weeks of nicotine replacement therapy. No significant differences in smoking cessation rates were found at the end of treatment, or at the three- and six-month follow-up time-points.

ABCT and Intimate Partner Violence

In addition to reducing substance use, BCT-A has been found to be of potential benefit to couples with a male IP with a history of intimate partner violence (IPV). In the 24 months after attending treatment, IPs who received BCT-A were shown to have fewer instances of IPV against their partners (O'Farrell, Murphy, Stephan, Fals-Stewart, & Murphy, 2004). Additionally, Schumm, O'Farrell, Murphy, and Fals-Stewart (2009) suggested that BCT-A appeared to be more effective than individual therapy at reducing both male-to-female and female-to-male physical and verbal aggression in couples with female partners with an AUD (Schumm, O'Farrell, Murphy, Fals-Stewart, 2009). A subsequent randomized clinical trial of BCT-A for women with alcohol dependence showed, however, that BCT and individual treatment were equally effective at reducing both male-to-female and female-to-male physical aggression (Schumm, O'Farrell, Hahler, Murphy & Muchowski, 2014). The authors did note, however, that baseline physical aggression was higher for individuals in the BCT group.

Secondary analyses by Fals-Stewart et al. (2002) also revealed a significant group difference in intimate partner violence (IPV) during the 12 months post-treatment. The percentage of couples endorsing at least one act of male-to-female physical aggression in the previous 12 months significantly decreased in the BCT-A condition from 43% at baseline to 17% at 12 months post-treatment. No such significant reduction was seen in the control condition (48% at baseline, 43% 12 months post-treatment). The group difference between these follow-up indicators of IPV was significant, and found to be mediated by frequency of drug use, frequency of heavy drinking, and relationship adjustment.

Adaptations of ABCT

Adaptations of ABCT and BCT-A interventions with treatment protocols using fewer than the traditional 12-15 sessions also have been investigated in recent years. A pilot study of a one-session brief family intervention (BFT) to encourage male drug abusers to attend aftercare post-detoxification showed a promising but non-significant improvement in treatment engagement over treatment as usual (TAU). The magnitude of this difference ($r = 0.40$) between the groups represents a medium effect size, and as such may be clinically meaningful (O'Farrell, Murphy, Alter, & Fals-Stewart, 2007). A similar study of the same one-session BFT intervention for patients in a detoxification unit for AUD showed a significant difference between the 24 patients in the BFT condition and the 21 patients in the TAU condition in terms of likelihood of entering aftercare post-detoxification. Ninety-two percent of BFT cases entered a continuing care program, whereas only 62% of TAU cases

entered continuing care (O'Farrell, Murphy, Alter, & Fals-Stewart, 2008). McCrady and colleagues currently are investigating a three-session brief family-involved treatment with grant support from the National Institute on Alcohol Abuse and Alcoholism (NIH Project Number: 5R34AA023304).

Additional ongoing research points to novel and innovative adaptations of the ABCT protocol. Epstein and colleagues are currently investigating an adaptation of ABCT for post-deployment military personnel. This adaptation includes new modules specifically addressing Post-Traumatic Stress Disorder (PTSD), Traumatic Brain Injury (TBI), depression, and intimate partner violence (NIH Project Number: 5R34AA023027). Smelson and colleagues are testing a couple-based program for alcohol risk reduction in the National Guard and are adapting the ABCT protocol to be deliverable via telehealth (NIH Project Number 1R34AA023589).

Adaptations for other technologies also are being investigated. Woodall and colleagues are adapting the core concepts and content of ABCT to be deliverable to DWI offenders and their families via a smartphone application (NIH Project Number 1R41AA022850-01A1). Additionally, a recent study of a web-based coping skills program for women who have partners with an AUD resulted in significantly higher coping skills, significantly fewer depressive symptoms, and significantly lower situational anger when compared to wait-list controls (Rychtarik, McGillicuddy, & Barrick, 2015).

Economic Research

Cost-benefit and cost effectiveness analyses of BCT-A and its derivations generally have been supportive of the economic value of BCT-A. O'Farrell and colleagues (1996) found cost savings in one-year healthcare utilization that were five times greater than the cost of delivering BCT-A to AUD-diagnosed veterans. The delivery of a more intensive BCT-A plus relapse prevention protocol resulted in a higher number of days abstinent; however, the increased cost of delivering the more intensive protocol made BCT-A alone the more cost-effective intervention. A cost outcomes analysis of BCT-D delivered to polysubstance-abusing males found increased cost savings for BCT-D participants than for participants in an individual-based therapy (IBT) condition. The costs of delivering both interventions were equivalent; however, the reduction in total social costs (public assistance costs, justice system utilization costs, substance abuse treatment costs) was, on average, \$6,600 in the BCT-D condition and only \$1,900 in the IBT condition (Fals-Stewart, O'Farrell, & Birchler, 1997).

Future Directions

ABCT Efficacy and Effectiveness Research

There is no doubt that the picture of a "typical" couple has changed. Historically, empirical research on ABCT focused on a fairly specific demographic: heterosexual, non-Hispanic white dyads. As noted, the initial focus was on male IPs; this gave way to exploration of ABCT with female IPs. More recently, other populations of interest have emerged. The demographics of the United States are changing, and as such, culturally sensitive

interventions continue to be an important area of research. The U.S. population is anticipated to continue to grow; by 2044, it is estimated that over half of all Americans will belong to a minority culture (U.S. Census, 2014). Different cultures have different customs, experiences, and expectations, not just around marriage and intimacy, but also around drinking, the role and effects of alcohol consumption, and help-seeking. The importance of linguistic conventions should be considered as well. Patterns of communication can vary tremendously in different cultures, and conventional ABCT approaches may promote a specific type of communication and couple-based problem-solving that is inconsistent with the mores of some cultures. Future ABCT research should address the greater cultural and racial diversity of contemporary couples.

Future research also should be expanded to include diversity of sexual orientations. This may be of particular importance as it has been shown that, relative to the general population, gay, lesbian and transgender individuals have higher rates of substance use issues, and that heavy use is more likely to persist over time (Centers for Disease Control, 2015). To date, there is a paucity of research testing the efficacy of BCT for gay and lesbian couples. A single study assessing the utility of inviting the SO of LGBT clients to attend at least one substance abuse treatment session found an association between partner attendance and higher abstinence rates, greater treatment satisfaction, and increased program completion (Senreich, 2010).

To date, ABCT research has not moved from the efficacy to effectiveness stage. Given the consistently positive findings for treatment efficacy, models are needed to adapt ABCT to enhance uptake in real-world treatment settings, and to test the effectiveness of the treatment in these settings. Given that a minority of clinical programs uses ABCT in any form (e.g., Forcehimes et al., 2010), research to identify and address barriers to utilization is needed as well.

ABCT Process Research

Process research on ABCT is in its nascence, and there are several moderating and mediating variables and proposed active ingredients that remain unexplored. For example, although there has been some investigation of the moderation of relationship satisfaction on treatment outcomes, relationship stability has remained completely unexplored. Although the influence of relationship satisfaction on stability appears straightforward, the association between relationship satisfaction and stability is actually influenced by a variety of factors, and satisfaction accounts for only 8% of the variance in stability for men and 18% of the variance in stability for women (Karney & Bradbury, 1995). Also unexamined are the influence of race/ethnicity, age, and length of the relationship as moderators of response to ABCT. Previous research has shown that non-Hispanic White couples report relationship satisfaction as a main reason for dissolution, while African-American couples report other factors such as substance use, infidelity, and spending money as reasons for dissolution (Amato & Rogers, 1997). Moderating factors such as these may play important roles in determining which couples choose ABCT and which couples benefit most from ABCT.

Future research also should further explore proposed active ingredients and mechanisms of change of ABCT. For example, do improvements in relationship functioning and alcohol use

occur through motivational enhancement, IP or SO skills training, or a combination of those variables? In addition, are improvements in IP and SO coping skills active treatment ingredients? Lastly, are SO support and engagement necessary in the beginning stages of treatment for ABCT to be effective, or does ABCT improve SO support and engagement through active ingredients such as relationship enhancement?

Other Research

Because several adaptations of ABCT currently are underway, the results of these studies will provide important guides for future research. In addition to needs in efficacy, effectiveness, and process research, several other future directions would be important to explore. First, additional research is necessary to confirm the promising preliminary findings supporting efficacy for substances other than alcohol, and beneficial reductions in intimate partner violence. Second, with the high rates of co-occurrence of other psychiatric disorders with AUDs or other SUDs, conjoint models that are explicit in addressing alcohol and drug use along with other disorders are needed. Third, the integration of conjoint models into AUD treatment in primary care settings is largely unexplored. With the increasing trend toward health care homes to address both medical and behavioral health needs, development and testing of adapted ABCT models in these integrated healthcare settings would be of value. Fourth, although O'Farrell's model provides explicitly for behavioral contracts to support use of alcohol treatment-specific medications (e.g., Antabuse), the integration of medications into ABCT is largely unexplored.

Summary and Conclusions

ABCT is a conjoint approach to alcohol treatment with a clear conceptual base and good empirical support for the efficacy of the treatment. Despite these strengths, the uptake of ABCT in clinical practice has been limited, and the development of dissemination strategies and more flexible models applicable to a broader range of populations are clear directions for the future.



Table 1**Major Characteristics of Couple Therapy Studies for Alcohol Use Disorders**

Therapy Type	Number of Studies	Number of Participants	Years Conducted	Relationship Outcome Evaluated & Improved?	
				Yes	No
Non-Behavioral Couple Treatment	12	565	1956 - 1982	4	7
Group Treatment for Wives Only	4	159	1958 - 1969		4
Behavioral Couples Therapy	24	1186	1985 - present	15	3
					6



Typology of Couples Entering Alcohol Behavioral Couple Therapy: An Empirical Approach and Test of Predictive Validity on Treatment Response

Abstract

The current study aimed to examine whether classification of couples in which one partner has an alcohol problem is similar to that reported in the general couples literature. Typologies of couples seeking Alcohol Behavioral Couple Therapy (ABCT) were developed via hierarchical cluster analysis using behavioral codes of couple interactions during their first ABCT session. Four couples types based on in-session behavior were established reliably, labeled Avoider, Validator, Hostile, and Ambivalent-Detached. These couple types resembled couples types found in previous research. Couple type was associated with baseline relationship satisfaction, but not alcohol use. Results suggest heterogeneity in couples with alcohol problems presenting to treatment; further study is needed to investigate the function of alcohol within these different types.

Introduction

Classification of couples into subtypes based on their presentation across a variety of characteristics (e.g., communication style, problem-solving skills) has considerable potential clinical utility for both treatment planning and the prediction of treatment outcomes. However, there are several gaps in the literature on couple subtypes. First, research has not examined whether couple typology at the start of treatment predicts treatment response. Second, although some typologies have been derived from observational data about couple interactions, these data have come from assessment of couples during an experimental task, not therapy (e.g., Gottman, 1993; Sevier, Eldridge, Jones, Doss, & Christensen, 2008). Finally, in couples where one partner meets criteria for an alcohol use disorder (AUD), evidence suggests that the presentation of such couples differs from non-alcoholic couples. For example, alcoholic couples are likely to exhibit greater levels of negative behaviors (i.e., be more critical and disagreeable) than non-alcoholic couples (Jacob & Krahn, 1988). However, it is unclear whether such differences are attributable to the presence of distress in these couples or are unique to alcoholic couples. The aim of the current study was to expand the literature examining couple typologies to couples seeking treatment for the alcohol problem of one partner.

Alcohol Behavioral Couple Therapy

Behavioral couple therapy (BCT) for alcohol problems has garnered considerable empirical support regarding its effectiveness over more traditional, individual-focused treatment approaches. A significant body of research has shown that BCT produces greater reductions in identified patient drinking when compared to individual treatment (O'Farrell & Clements, 2012; Powers, Vedel, & Emmelkamp, 2008). Although BCT for alcohol problems has strong empirical support, O'Farrell (in O'Farrell & Clements, 2012) has pointed out that such studies have not been conducted in marital and family therapy (MFT) clinical practice settings. The current study examined whether classifications of couples in the general couples literature apply to couples entering alcohol treatment with the goal of providing information for MFT clinicians and researchers regarding couples where one partner has a problem with alcohol.

Alcohol Behavioral Couple Therapy (ABCT) is an adaptation of general BCT principles and posits drinking occurs within the interactional context of intimate relationships. Partners may behave in ways that reinforce drinking behavior, by either providing positive consequences for drinking (e.g., increased intimacy during intoxication) or protecting the drinker from negative consequences (e.g., the significant other calling in sick to work for his or her hungover spouse). Thus, much like the perspective of BCT on general relationship distress, the theory behind ABCT is that increasing the overall rate of positive reinforcement in a couple will serve to reduce the reliance on alcohol and break established patterns of reinforcement for drinking. To date no ABCT studies have examined the presentation of couples based on observation of couple communication and interaction. One strategy for capturing clinically useful information employed in the general couples research has been to define typologies of relationships.

Couple Typology Research

As the measurement of couple interactions often results in a multitude of variables and constructs (see Heyman, 2001), some researchers have suggested utilizing classification methods that use a couple-oriented approach rather than a variable-oriented as a promising strategy for bridging gaps among theory, research, and practice (Olson, 1981). Fisher & Ransom (1995) extended Olson's ideas, arguing that typologies of couples are underappreciated as such classifications provide ways to integrate a variety of information into clinically useful descriptions. In a nonclinical community sample, Gottman (1993) identified distinct couple types based on positive and negative behavioral data collected during a laboratory interaction task. Couples labeled as volatile, validator, or avoider were more stable (i.e. less likely to have divorced or considered divorce after four years) than hostile and hostile-detached couples. Although differences in affect expression were found between hostile and hostile-detached couples, these distinctions were not thought to be as important as differences among stable couples. The three types of stable couples were differentiated by their expression of positive and negative affect during their interactions. Although maintaining a greater ratio of positive to negative behaviors overall compared to unstable couples, volatile couples expressed high levels of both positive and negative affect, validator couples expressed moderate levels of positive and negative affect, and avoider couples expressed low levels of both positive and negative affect.

A number of other investigations into typologies of marital couples have resulted in conceptually similar groups of couples (e.g., Fisher & Ransom, 1995; Fowers & Olson, 1992; Lavee & Olson, 1993; Olson & Fowers, 1993). Such studies have used behavioral observation data, self-report surveys, collateral reports, or combinations of such data sources. Additionally, the analytic strategies range across studies with a number of different strategies used, including cluster analysis (the most common), examination of slopes of linear regression analyses, and latent class analysis. Of note, much of this research has been conducted in predominantly non-Hispanic White samples, thus the generalizability of such typologies to other racial/ethnic groups may be limited. Keeping that in mind, this diverse body of evidence has led some researchers to note “that different researchers using vastly different methods have produced results that generally converge on a similar profile of the different types of naturally occurring marriages” (Givertz, Segrin, & Hanzal, 2009, p. 561). To date, couple typologies have been explored in naturalistic rather than treatment studies. The current study examined the concurrent and predictive validity of couple typologies in a sample of treatment-seeking couples. As the first study of couple types in a treatment setting, such an examination could expand the utility of couple typologies in the therapeutic milieu and explore whether couples dealing with an alcohol problem fall into similar couple types or are restricted to the more distressed couple types.

Study Aims & Hypotheses

The primary aim of the current study was to examine whether typologies observed in couples more generally emerge based on observation of in-session behavior of couples presenting for their first session of ABCT. It was hypothesized that four couple typologies would emerge mirroring previous findings from the general couples literature, specifically Gottman's (1993) couple types based on observational data of couple interactions. These types were: validator, volatile, avoider, and hostile couples. It was predicted that high levels of positive behavior, low-to-moderate levels of negative behavior, and high relationship satisfaction would characterize validator couples. High levels of positive behavior, moderate-to-high levels of negative behavior, and moderate-to-high relationship satisfaction would characterize volatile couples. Moderate-to-low levels of positive behavior, low levels of negative behaviors, and moderate relationship satisfaction would characterize avoider couples. Hostile couples were expected to show low levels of positive behavior, high levels of negative behavior, and low levels of relationship satisfaction.

Additionally, such an investigation can add to the research on response to ABCT. Thus, a second aim of the current study was to examine the predictive power of couple typology based on in-session behavior on treatment outcome. Based on the hypothesized links between relationship satisfaction and alcohol use posited by ABCT and previous evidence that couple types are differentiated in terms of relationship satisfaction, it was hypothesized that couple typology would predict changes in alcohol use within-treatment and post-treatment.

Method

Participants

Behavioral data were coded from therapy sessions from four previously conducted randomized controlled trials (RCTs) examining the efficacy of ABCT; study design and data collection were similar across studies. Of the 188 identified patients (IPs) with a drinking problem and their significant others (SOs) from these four RCTs, the current sample consisted of 169 couples for whom in-session behavioral data from the first treatment session were available. Across studies, inclusion criteria were: (a) IP currently in a committed heterosexual relationship, (b) SO willing to participate in treatment, and (c) IP met current drinking problem criteria as defined by the study. Exclusion criteria were: (a) IP or SO dependent on drugs other than alcohol, (b) evidence of psychosis, or (c) evidence of significant cognitive impairment. Additional information on the inclusion/exclusion criteria by study can be found in the original reports (McCrary et al., 1986, 1999, 2009). IPs were 42.6% male ($n = 72$) with a mean (SD) age of 44.6 (10.2) years. IPs had 14.3 (2.8) mean (SD) years of education and reported a mean (SD) length of drinking problem of 14.0 (10.2) years. SO mean (SD) age was 45.0 (11.3) years with a mean (SD) of 14.6 (2.4) years of education. The sample was predominantly White (91.1% of IPs and 79.3% of SOs); 4.1% of IPs and 3.6% of SOs were African American, 1.8% of IPs and 3.0% of SOs were American Indian/Alaskan Native, and less than 1% of both IPs and SOs identified as Hispanic/Latino or Asian American. Most (85.8%) couples were married, 8.3% were not married but living together, 3.6% were committed but not living together, and 1.2% were separated. In the 90 days prior to the baseline assessment, IPs reported drinking on 66.7% of days. Follow-up rates for 3-, 6-, 9-, and 12-months were 95.3%, 56.8%, 84.0%, and 82.2%, respectively. Follow-up data were anchored to the date of first treatment session. Length of treatment varied by original study, however all but seven participants completed treatment within six months; thus, the 6-month assessment represents the post-treatment time point for the majority of the sample. The 3-month assessment provides within-treatment data.

Measures

Baseline measures—Basic demographic information was collected at baseline and standardized across all studies. Data for both IPs and SOs included age, gender, race/ethnicity, education, and relationship status.

Baseline relationship satisfaction was assessed with the Areas of Change Questionnaire (ACQ; Margolin, Talovic, & Weinstein, 1983). The ACQ measures each partner's desired change in the relationship across 34 areas of couple functioning. The ACQ has good reported reliability, as well as discriminative and predictive validity (reviewed in Fals-Stewart, Schafer, & Birchler, 1993). The ACQ demonstrated strong internal reliability in the current sample, Cronbach's $\alpha = .86$. Scores can range from zero to 102, with higher scores indicating less marital satisfaction. Only IP scores were used because SO scores were not available for all studies.

Baseline IP alcohol use was assessed using the 90-Day Timeline Followback (TLFB; Sobell et al., 1979), an assessment technique to obtain estimates of daily drinking over a specified

period of time. For the current study, data were anchored to the 90 days prior to the IP's most recent drinking day before the baseline assessment. Using information gathered from the TLFB, percent days abstinent (PDA) was calculated. The TLFB has been shown to have high inter-rater reliability and excellent validity in multiple populations (Green et al., 2008).

In-session behavior was measured using the System for Coding Couples' Interactions in Therapy – Alcohol (SCCIT-A), a modified version of the Motivational Interviewing with Significant Others (MISO) coding system (Apodaca, Manuel, Moyers, & Amrhein, 2007). The full coding manual is available at <http://casaa.unm.edu/download/SCCIT-A.pdf>. This coding system was designed to capture in-session verbal behavior of the IP and the SO at both the behavior count and global level. Global codes capture the overall impression of the IP and SO interaction on a five point Likert scale, while mutually exclusive behavior codes are assigned to individual units of speech (a unit of speech is defined as a verbal utterance consisting of a single thought/concept). For a more detailed description of the development and codes of the SCCIT-A, see Owens, McCrady, Borders, Brovko, & Pearson (in press). Using a conceptually-driven deductive approach, the SCCIT-A behavior code data for each partner were collapsed into three variables describing positive, negative, and neutral verbal behavior. The assignment of behavior codes into superordinate categories was based on empirical and theorized support for the role of such behavior on treatment outcome (e.g., the SCCIT-A Contempt behavior code was classified as a negative global verbal behavior based on literature documenting the detrimental effect contempt and disdain play in the stability of relationship, e.g., Gottman, 1993; the SCCIT-A Change Talk behavior code was classified as a positive verbal behavior based literature suggesting that such language may be a mechanism of change in alcohol treatment, e.g., Moyers et al., 2009). The four global codes were: (a) General Support, which captured partners' overall support related to non-alcohol-related goals/concerns, (b) Alcohol-Specific Support, which captured SO's overall support related to IP's alcohol-related goals/concerns, (c) Collaboration, which captured how well partners problem-solve and communicate, and (d) Contempt, which captured partners' criticism and/or warmth based on the degree to which partners express disdain, disgust, resentment, and/or sarcasm towards one another.

Eleven percent of sessions ($n = 19$) were coded by all six coders. Interrater reliability was assessed using two-way, single-measures absolute-agreement intraclass correlation coefficients as a conservative estimate of reliability that allows for greater generalizability across raters (ICCs; Hallgren, 2012; Shrout & Fleiss, 1979). According to guidelines suggested by Cicchetti (1994; Cicchetti & Sparrow, 1981), the majority of ICCs fell in the fair to good range (all but one reliability estimate fell above a poor rating of less than .4, with five greater than .6). The only ICC falling in the poor range was for Alcohol-Specific Support. Thus, overall the coding of observed behavior was adequately reliable except for Alcohol-Specific Support. Conclusions based on the Alcohol-Specific Support code should be made cautiously as the poor reliability suggests that this code may not have been coded consistently across different raters. As the single-measures ICC establishes coders as interchangeable (Hallgren, 2012), for sessions coded by all raters one rater's scores were selected randomly to be included in the final dataset. This strategy also ensured the source of each session rating was from a single coder (versus averaged ratings for reliability sessions and single coder ratings for the remaining sessions).

Follow-up measures—Due to lack of consistent measures across studies, relationship satisfaction was not assessed at follow-up. Alcohol use during and after treatment was assessed using two methods: daily self-monitoring logs and the TLFB. Overall, 80% of follow-up data came from the TLFB and 20% from daily self-monitoring logs. For the daily self-monitoring logs, IPs were instructed to record their drinking on each day (if any); SOs completed similar logs recording IP drinking. Within-treatment variables (3-month follow-up) were computed using an iterative process based on what data were available. First, weekly PDA was computed based on IP self-monitoring cards, but if IP cards were absent then SO data were used if available. The amount of SO data used was minimal (less than 1% of follow-up data). In the event that no self-monitoring data existed, retrospectively collected TLFB data were used. Consistent with previous studies, a weekly PDA value was computed when data for at least 70% of days were available for that week; if less than 70% of the data were present for that week it was coded as missing (McCrary et al., 2009). All post-treatment outcomes were assessed with the TLFB. PDA variables were arcsine transformed to address violations of normality.

Procedure

The research design was similar across the four original RCTs. Specific details for three of the individual RCTs can be found in the original reports (McCrary et al., 1986, 1999, 2009); results for the final study have not yet been published. All studies were reviewed and approved by the appropriate IRB at the institution where the research was conducted. All participants were recruited from the community in one of two northeastern states. After eligibility was determined, baseline data were collected and couples then were randomized to treatment condition. All treatments were manual-guided. Fidelity checks were performed for three of the four original studies; treatment fidelity and adherence was determined to be acceptable (McCrary et al., 1999, 2009). Therapists in all studies were master's level clinicians, doctoral level clinicians, or advanced graduate students; preliminary analyses suggested no differences in outcomes between therapists by study. All treatments used similar techniques and the core treatment was consistent across the four studies. This included several individual CBT elements (e.g., functional analysis, coping with alcohol-related thoughts and urges), several adapted CBT elements directed toward the partner (e.g., partner functional analysis, role in drink refusal situations), and several BCT techniques (e.g., reciprocity enhancement, communication skills). The structure for the first session was similar across all studies, consisting of rapport building, introduction to and orientation to ABCT framework, rationale for couple treatment for alcohol problems, and description of treatment requirements that included teaching couple to complete self-monitoring cards. Feedback from the baseline assessment also was provided to couples; this ranged from informal to formal feedback across studies. SOs always were present during the first session.

Coder Training—Prior to beginning study coding, six psychology graduate students were trained on the coding system until acceptable reliability was reached (i.e. when the ICC calculated across all global codes and the ICC calculated across all behavior codes was greater than or equal to .6 across all coders). Four coders had a master's degree in psychology at the time of coding, five coders were female. During the study, one coder left the study and another graduate student joined the study. The new coder did not begin coding

study sessions until she reached proficiency, which was determined when ICCs using ratings from the new coder and the five original coders did not significantly differ from ICCs calculated using only the original five coders' ratings. To address issues of coder drift, all coders and the principal investigator of the study met on a weekly basis to review ongoing coder reliability and procedures. Additional information on the coding procedures is available in Owens et al. (in press).

Analytic Plan

All analyses were completed using SPSS 12 (SPSS Inc., 2003). First, the raw behavior data were preprocessed. Because the total number of IP and SO utterances varied across sessions, proportions of positive, negative, and neutral behavior codes were calculated separately for the IP and SO (i.e., the sum of the proportions equaled 1) to control for the total number of utterances. IP and SO codes then were combined to calculate a single couple score, which moved the level of measurement from the individual to the couple (Lavee & Olson, 1993). There are different approaches to addressing data within couples; the current study aimed to describe *couples*, thus measurement at the couple level of analysis was adopted rather than at the individual partner level. Specifically, a strategy that has been used previously in the literature on couple types was utilized (Cohen, Geron, & Farchi, 2010; Lavee & Olson, 1993). The following formula from Lavee & Olson (1993) was used to aggregate partners' codes into a couple code:

$$C = \frac{(IP+SO)}{2} + \frac{k * |IP - SO|}{2}$$

where C = couple score. This formula was selected as it captures both location of the couple on a given scale (the first part of the formula, which provides the mean score of the two partners) and discrepancy between partners (the second part of the formula, which provides information on the discrepancy between IP and SO scores). For the current study, *k* was set to 0.5, replicating the weight chosen by Lavee & Olson (1993). Ultimately, seven variables reflecting couple behavior were drawn from specific behavior codes (positive, negative, and neutral) and global codes (general support, alcohol-specific support, collaboration, and contempt). These variables were selected based on the theoretical and empirical grounds. Beyond including variables that are similar to those used in previous research and that would allow meaningful interpretation, the number of variables selected meets a general guideline put forth by Formann (1984) for the recommendation of a sample size of at least 2^m , where *m* equals the number of clustering variables (in Mooi & Sarstedt, 2011). The current study met this recommendation ($n = 169$, $2^7 = 128$). Also, a high degree of collinearity between clustering variables ($r > 0.9$) will lead to similar characteristics being overrepresented in the final solution (Mooi & Sarstedt, 2011); the selected variables did not violate this condition.

Basic descriptive information on the behavior and global codes is provided in Table 1. Of note, IP and SO scores were significantly correlated (all $ps < .001$) for the six variables aggregated in this way, ranging from $r = .30$ (general support) to $r = .67$ (contempt). As data

for alcohol-specific support only exist for the SO, this code reflects the SO's support for sobriety and treatment rather than a couple score.

To test whether couples seeking ABCT formed distinct types based on their clinical presentation into groups similar to those found in community couples, a cluster analysis was conducted using the seven in-session behavior variables described. All variables entered into the cluster analysis were transformed to z-scores and Winsorized (Dixon, 1960; values greater than ± 3 were set to 3) as cluster analysis strategies are susceptible to outliers and variables with different scales (Borgen & Barnett, 1987). Less than three percent of cases for any given variable were changed due to Winsorization (with an average of less than two cases being altered per variable). Squared Euclidean distance was used to derive a proximity measure among cases/clusters. To minimize within group differences and maximize between group differences, Ward's (1963) method was selected as the clustering algorithm.

A two-phase cluster analysis strategy was utilized to establish the number of clusters. First, a hierarchical cluster analysis was conducted to examine possible cluster solutions of the data. Then a K-means cluster analysis was used to determine group membership of individual couples based on the number of clusters established *a priori* during the hierarchical analysis. This analytic plan was chosen for two reasons: (a) utilization of hierarchical and K-means techniques (as opposed to either one alone) enhances the likelihood of establishing meaningful couple classifications that reliably reflect the underlying data structure (Garson, 2012; Mooi & Sarstedt, 2011) and (b) this strategy is similar to those used in previous research on couple typologies using cluster analysis (e.g., Fisher & Ransom, 1995; Fowers & Olson, 1992; Lavee & Olson, 1993). Based on previous literature, solutions of 3-6 clusters were considered for the hierarchical cluster analysis. To evaluate the quality of fit of the various cluster solutions for the data, a number of recommended criteria were examined, including: (a) number of cases within a cluster, (b) examination of the hierarchical dendrogram, and (c) tests of multivariate effects (Funk, Ives & Dennis, 2006; Rapkin & Luke, 1993). Having established the number of clusters, a K-means cluster analysis was utilized to test the stability and validity of the cluster and establish group membership of each individual couple. Once an acceptable cluster structure had been determined and cluster membership of each couple was established, profile interpretation of the clustering variables was compared descriptively to couple types found by Gottman (1993).

To test whether couple typology predicted alcohol outcome during and after treatment, typology was entered into a multilevel modeling framework as a level-2 predictor variable. Data from the four follow-up assessments of alcohol use were structured such that time points were nested within couples. To control for baseline IP alcohol use and relationship satisfaction, they were entered as level-1 predictor variables. Additionally, as outcome varied significantly by original study, original study was entered as a covariate (i.e., level-2 variable). Time also was entered into the framework and the interaction between couple type and time was examined to determine whether response to treatment over time varied by couple type.

Results

Hierarchical Cluster Analysis

Based on comparisons of 3- to 6-cluster solutions, the smallest cluster size dropped significantly from the 3- to 4-cluster solution, and then remained relatively stable (Table 2). Additionally, examination of the estimate of variance of the multivariate distribution (as measured by 1-Wilks' Lambda; Funk et al., 2006) revealed a jump from the 3- to 4-cluster solutions with a modest increase for each subsequent solution. A similar pattern was observed for Roy's Largest Root, which indicates whether one cluster group is very different from the others (Funk et al., 2006). Finally, visual examination of the dendrogram suggested that a 4- or 6-cluster solution best described the data. Integrating these findings, a 4-cluster solution was selected as appropriate and adequate for the current sample.

K-means Cluster Analysis—K-means cluster analysis indicated a viable 4-cluster solution. Cluster means for the seven clustering variables from the MISO codes are provided in Table 3. Relative to the full sample, couples in cluster 1 ($n = 75$) were characterized by a moderate absence of valenced behavior, slightly higher General Support, slightly lower Alcohol-Specific Support, moderately elevated levels of Collaboration, and moderately lower levels of Contempt (i.e., they were warmer towards one another). The ratio of positive to negative behavior in these couples was 2-to-1. These couples most closely resemble Gottman's (1993) avoider couples. Couples in cluster 2 ($n = 34$) exhibited high levels of positive utterances, moderately low levels of negative utterances, high levels of both General and Alcohol-Specific Support, high levels of Collaboration, and low levels of Contempt. The ratio of positive to negative behavior in these couples was 5-to-1. These couples resemble the validator couples described by Gottman. Couples in cluster 3 ($n = 10$) were characterized by moderate levels of positive utterances, extremely high levels of negative utterances, low levels of General Support, slightly elevated Alcohol-Specific Support, little Collaboration, and high levels of Contempt. The ratio of positive to negative behavior was 1-to-2; these were the only couples to display greater rates of negative behavior than positive behavior. These couples most closely presented like Gottman's hostile couples. Finally, the couples in cluster 4 ($n = 50$) displayed slightly elevated levels of both positive and negative behaviors, low levels of General and Alcohol-Specific Support, moderately low levels of Collaboration, and moderately high levels of Contempt. The ratio of positive to negative behavior in these couples was a bit under 2-to-1. Although sharing some similarities to Gottman's volatile couples in demonstrating elevated levels of both positive and negative behaviors, this group of couples was dissimilar from Gottman's volatile couples by showing less warmth and collaboration and thus were labeled as ambivalent-detached. Overall, the results of the current study largely replicated Gottman's previous findings, both in terms of the number of couple types and the description of those couple types.

Concurrent Validity of Couple Types—As the clustering techniques used in the current analysis were chosen to maximize the distance among clusters of the data, it was expected that the clusters would differ significantly on the original clustering variables as was observed (Table 3). However, the ACQ, as a measure of relationship satisfaction, was not included in the clustering analysis. This variable also differed significantly by cluster.

Pairwise contrast tests indicated that validator and avoider couples had significantly greater relationship satisfaction than hostile and ambivalent-detached couples. Clusters of couples did not differ significantly on baseline PDA.

Testing the Effect of Couple Type on Alcohol Outcome—Controlling for baseline ACQ, PDA, and original study, a multilevel regression model testing the main effect of couple type on PDA during the follow-up time period was examined. Baseline PDA and original study were significant predictors of PDA during the follow-up (Table 4); couple type was nonsignificant. Thus, couple type was not a significant predictor of treatment response in terms of alcohol use outcome. Couple type also failed to reach significance when modeled over time (i.e., treatment response trajectory did not vary by couple type)¹.

Discussion

The current study was the first to examine the clinical presentation of treatment-seeking couples in which one partner had a problem with alcohol with the primary aim of classifying couples into distinct and meaningful types based on observed behavior during an initial treatment session. The results of the current study supported the hypothesis that couples could be reliably classified into four types consistent with previous findings. Overall, avoider couples appeared to express little valenced affect and were relatively satisfied with the quality of their relationship. They appeared to work well together, perhaps because they avoided difficult or emotion-laden topics. Interestingly, emotional avoidance is believed to be detrimental in distressed couples and is a recommended target of general couple therapy (Lebow, Chambers, Christensen, & Johnson, 2012); it remains to be seen whether this is a positive or negative communication approach for couples dealing with alcohol problems over time. Validator couples were characterized by high levels of positive behavior and moderately low levels of negative behavior compared to other couples, high support relative to all other couples, high Collaboration, and low Contempt. Given such patterns have been associated with stable, positive relationships (Gottman & Notarius, 2000; Heyman, 2001), it was not surprising that validator couples appeared to be in highly functioning, well-adjusted relationships. Hostile couples were the only couples in which the frequency of negative behavior was greater than the frequency of positive behavior and expressed elevated levels of contempt, defining characteristics of distressed couples (Heyman, 2001). As expected, hostile couples expressed the most relationship dissatisfaction. Ambivalent-detached couples exhibited moderate levels of both positive and negative behavior, and endorsed moderate relationship satisfaction. Ambivalent-detached couples represent a couple type that most departs from the couple types described by Gottman (1993). They engaged in a moderate level of both positive and negative behavior, perhaps suggesting that these couples may start out with good intentions but fall into negativity out of frustration when attempts to problem-solve or work together are ineffective.

Study Findings in the Context of ABCT Research and Theory

Study findings have implications for the study of couple interactions in the treatment of alcohol problems. First, a range of behavioral presentations was found in the current sample and not all types endorsed significant relationship distress. This finding is similar to community samples of couples, and suggests that the presence of an alcohol problem in a relationship does not automatically mean relationship satisfaction is poor. Thus, it may be particularly important for clinicians to assess the role of alcohol within a relationship, as drinking may be a major source of stress for one couple but not another. At the same time, couples struggling with an alcohol problem may be particularly at risk for certain presentations associated with poorer relationship functioning in general samples of couples (e.g., lower rates of positive-to-negative affect, lack of warmth and appreciation), the behaviors that couple therapy is designed to target and change. Thus, clinicians providing ABCT can feel confident that general BCT techniques are likely to be appropriate and useful in this population. Additionally, the current findings highlight potentially detrimental communication styles that such couples may be more likely to present with in a clinical setting. For example, the large number of avoider couples (44% of the sample) suggests that couples struggling with an alcohol problem are likely to rely on avoidance of emotional content as a strategy for maintaining their relationship.

In addition to testing whether couples could be adequately classified based on their clinical presentation, it was hypothesized that couples would have different treatment outcomes based on couple type membership. The results did not support this hypothesis, as couple type was not significantly associated with alcohol use outcome, either in terms of specific follow-up points or by treatment response trajectory. Despite the lack of support for this particular hypothesis, this study provides the first integration of the couple typology literature with research on couples in conjoint alcohol treatment. In fact, a review of the literature suggests that this is the first study to examine the effect of couple type on treatment outcome of any kind (other typology studies that have investigated longitudinal outcomes have been in naturalistic settings).

From one perspective, the finding that a couple's interactions during their first session of treatment did not predict response to treatment in terms of alcohol use is encouraging as this result suggests that couples may respond to treatment similarly in terms of alcohol use outcomes, regardless of their presenting behavioral interactions. However, due to the nature of the current study, it is difficult to determine the cause of this finding. One possible explanation is simply that relationship functioning and drinking may be less related than the underlying theory for ABCT suggests. Previous research supports this possibility (e.g., McCrady, Epstein, & Kahler, 2004). Another potential explanation is that the behaviors assessed to determine couple type in this study were the behaviors targeted by the actual therapy (e.g., positive communication, increasing support) and the development of coping skills during the course of therapy resulted in changes in couple types during therapy. Further research is needed to examine whether couple types are stable during the course of treatment and how such changes relate to alcohol use over time.

Implications for Clinical Practice with Couples Struggling with Alcohol Problems

The findings have several implications for future clinical applications and research. The results suggest that although couple type did not have a significant effect on alcohol use outcomes of the IP, couple type did distinguish couples based on their presenting relationship satisfaction and in-session behavior. Thus, clinicians may want to be aware of the patterns of behavior during the ABCT session, as these are associated with relationship satisfaction outside of session. Some degree of relationship satisfaction or commitment is an important component of engaging couples in therapy, as a foundation of goodwill and positive expectations is critical to building trust. Trust is required to get couples to try new skills and for partners to believe they can rely on their spouses.

Gottman (1993) did not distinguish between types of stable couples in terms of relationship quality; more recently, researchers have suggested differences do exist within stable couples, such that validator couples have the highest relationship quality (Holman & Jarvis, 2003). The current study found that although higher than in hostile and ambivalent-detached couples, relationship satisfaction in validator couples did not significantly differ from satisfaction in avoider couples, suggesting that avoidance of conflict may serve a different function in couples where alcohol is a problem than couples without alcohol problems. These results suggest that for couples struggling with alcohol problems, two different interactional styles may be adaptive; engagement and validation of one another, even in the face of disagreement, and avoidance of tough topics both appear to be related to higher levels of relationship satisfaction than combative or mixed interactions.

Overall, couples in the current sample exhibited lower rates of positive behaviors relative to negative behavior than found in the general couples research. Gottman (1993) found that for the three stable couple types, couples displayed positive behaviors five times as often as negative behaviors. In the current sample, only one of the couple types reached this ratio; two other types had greater frequencies of positive behaviors relative to negative behaviors, but at lower ratios. This is not surprising because these couples were presenting for treatment with a significant alcohol problem. The findings also are consistent with previous research finding that these couples exhibit less positive behavior and more negative behavior compared to couples where alcohol is not a problem (Jacob & Krahn, 1988; Jacob & Leonard, 1992). Thus, this study provides further support that couples struggling with alcohol problems also struggle in terms of their positive affective expression. Interactions and communication suffer in ways that general BCT theory predicts would impact overall marital quality. This may lead to greater levels of distress and conflict in such couples, and in fact divorce rates are higher for individuals with alcohol dependence than any other psychological disorder (Halford, Bouma, Kelly, & Young, 1999). These findings further support the need for and importance of treating alcohol problems within a couple framework, as alcohol affects the system, not only the individual.

Study Limitations and Strengths

One limitation of the current study was the less than optimal reliability of some of the behavioral codes used for the analyses; although only Alcohol-Specific Support fell in the poor range of clinical significance as described by Cicchetti (1994), a number of other codes

fell in the fair range. Further study and replication of the present findings is needed before more conclusive statements can be made about the presentation of couples seeking alcohol treatment. A second limitation was that ACQ data were only available from the baseline assessment, limiting the ability to examine whether couple type was associated with relationship satisfaction during and after treatment. Additionally, couple type was determined based on the behavioral presentation of couples in the first treatment session. Thus, the current study does not provide information on whether couple type was stable across the course of treatment. It is possible that couples in therapy change their couple type as they learn relationship skills (e.g., positive communication, conflict resolution). Additionally data were analyzed at the couple level, thus information about each partner was not examined independently and within-couple variation was not addressed. This approach was utilized for conceptual and analytic reasons; however, combining partner scores is only one strategy for assessing couples, and alternative approaches may be appropriate based on the aims and methods of a given study. Future research on ABCT should consider this issue; some researchers in the general couples typology literature have examined partners independently (e.g., Givertz et al., 2009; Holman & Jarvis, 2003). It is also worth noting that relationship satisfaction was based on IP report alone, thus conclusions should not be generalized to the SO's perception of relationship satisfaction. A final limitation was the current sample being predominantly Caucasian and consisting entirely of heterosexual individuals. These limit generalizability and make it hard to assess whether similar couple types exist in minority or non-heterosexual couples.

The present study also had a number of strengths. First, observational data of actual couple behavior were utilized; observational data of couple behavior and interactions provide a valid and powerful method for quantifying important information about a relationship (Gottman & Notarius, 2000; Heyman, 2001). Another strength was that the current sample was comprised of couples who were actively seeking treatment. Much of the couple typology literature is based on community samples of couples. Due to selection bias, it would be easy to make the assumption that couples seeking treatment would represent a skewed sample. This study adds to the limited information on the presentation of couple typologies in treatment settings. Another strength of the current study was that in more than half the couples the female partner was the one presenting with an alcohol problem rather than the male partner. The vast majority of previous research on couples and alcohol problems has utilized samples where the male partner had the alcohol problem. Finally, this was the first study to examine the impact of couple type on outcomes other than relationship quality. Using a theory-driven approach, it was hypothesized that couple type (which is associated with relationship quality and stability in the general couple literature) would be associated with alcohol use outcomes in couples receiving ABCT. Although the current study yielded nonsignificant results, it represents a novel application for testing the theoretical framework for couple-focused treatments of individual disorders and clinical utility of developing couple typologies in couples seeking such treatments.

Conclusion and Future Directions

In summary, the results of the present study suggest that couples seeking treatment for alcohol problems can be reliably classified into one of four couple types characterized by

unique profiles of behaviors that included level of positive and negative utterances, general and alcohol-specific support, collaboration, and contempt. Couple type was significantly associated with baseline relationship satisfaction but not alcohol use during and after treatment.

Ultimately, findings serve to highlight areas where researchers and clinicians need better understanding of ABCT process. Further study is needed to investigate the function of alcohol within a relationship. For example, perhaps it would be useful for clinicians to make one goal of their initial assessment to gather information on the role of alcohol on the expression of emotion within the couple. This may offer additional insight into the maintenance of the alcohol problem and provide the couple insight into how some of their interactions depend on alcohol. Additionally, with more knowledge about how the presenting profile of a couple is related to treatment outcomes, such information can be made available in real-time to a clinician who is looking for specific signs of emotional avoidance to help the clinician address that issue more readily. Future research needs to be directed towards examining whether couple type has an effect on couple behavior change during treatment and relationship quality during follow-up. The current study examined couple type as a static variable; future research should examine change in couple type during treatment. It may be that such change mediates the relationship between treatment and alcohol outcome. By pursuing such lines of inquiry, researchers and clinicians will better be able to identify the most salient aspects of a couple's presentation and intervene accordingly.



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Table 1

Descriptive behavioral coding data

Variable	IP		SO		Couple	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Behavior Codes						
Neutral	86%	7%	91%	6%	87%	6%
Positive	9%	5%	6%	5%	6%	4%
Negative	5%	5%	3%	4%	3%	4%
Global Codes						
General Support	3.17	0.78	3.46	0.77	3.16	0.66
Alcohol-Specific Support*			4.05	0.68		
Collaboration	3.54	0.95	3.71	0.95	3.51	0.94
Contempt	2.46	1.08	2.37	1.07	2.27	0.93

Couple codes calculated using the equation from Lavee & Olson (1993). Behavior codes are reported as relative frequency, global codes as the raw 1-5 Likert scale. Alcohol-Specific Support was only coded for the SO, thus the SO value was used as the couple score for that variable.

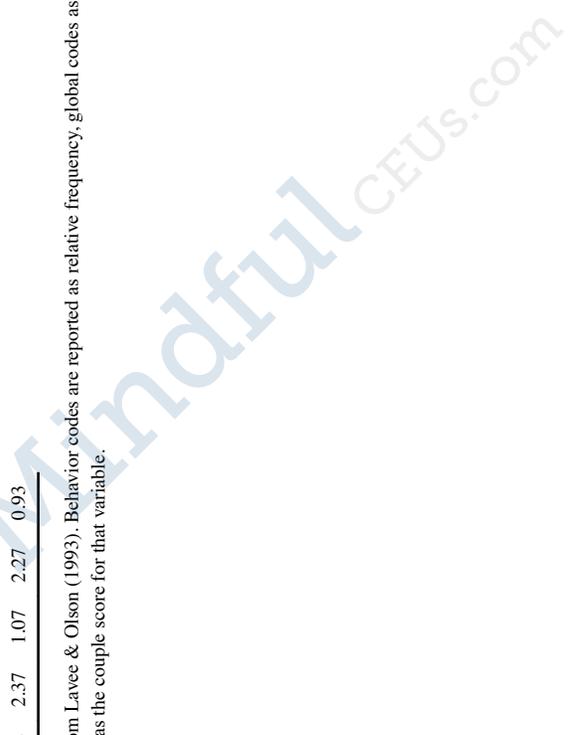


Table 2
Results of multivariate tests of hierarchical solutions with 3-6 clusters

Clustering Variable	Number of Clusters in Solution			
	3	4*	5	6
Neutral Utterances	36%	45%	53%	58%
Positive Utterances	26%	27%	48%	61%
Negative Utterances	34%	70%	70%	72%
General Support	34%	39%	42%	45%
Alcohol-Specific Support	51%	52%	52%	53%
Collaboration	51%	54%	56%	61%
Contempt	49%	53%	54%	58%
Multivariate Test Estimate				
1-Wilks' Lambda	0.844	0.932	0.955	0.974
Roy's Largest Root	1.75	3.43	3.49	4.01
Smallest group <i>n</i>	35	8	7	7

* Based on these results, the 4-cluster solution was selected as the best solution. Values for each clustering variable in the top half of the tables refer to Eta-squares formatted as percents (i.e., variance accounted for in the solution by that variable). Values in bold font represent an increase of 5% or more from the *n*-1 cluster solution.

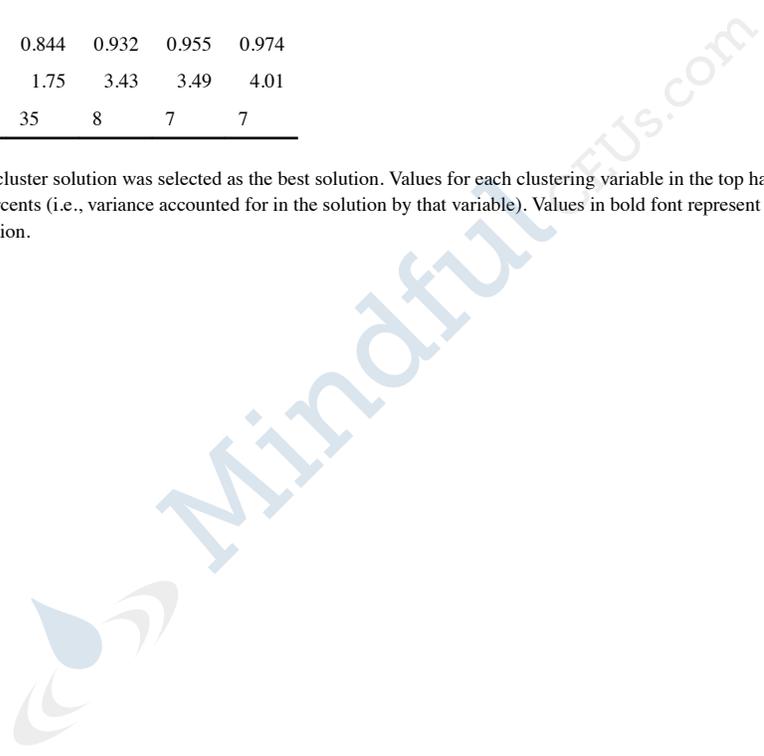


Table 3
One-way ANOVA of cluster by the seven MISO clustering variables, baseline ACQ score, and baseline PDA

Variable	Cluster			<i>p</i>
	Avoider	Validator	Hostile	
Neutral Utterances	91% ^a	85% ^b	74% ^c	85% ^b <.001
Positive Utterances	4% ^a	10% ^b	7% ^{ab,c}	7% ^c <.001
Negative Utterances	2% ^a	2% ^a	14% ^b	4% ^c <.001
General Support	3.2 ^a	3.9 ^b	2.1 ^c	2.7 ^d <.001
Alcohol-Specific Support	3.9 ^a	4.8 ^b	4.2 ^{ab,c}	3.7 ^{ab,c} <.001
Collaboration	3.8 ^a	4.4 ^b	1.8 ^c	2.7 ^d <.001
Contempt	1.9 ^a	1.5 ^b	3.8 ^c	3.1 ^d <.001
Baseline ACQ	17.5 ^a	13.6 ^a	33 ^b	24.7 ^b <.001
Baseline PDA	32.7 ^a	29.1 ^a	36.7 ^a	36.3 ^a <i>ns</i>

p-values are for the overall One-way ANOVA comparing all clusters. For each variable (rows), clusters (columns) with different superscripts (a,b,c,d) differ significantly from one another using a pairwise contrast at *p* <.01. Based on test of homogeneity of variances, assumption of equal variance was used for Alcohol-Specific Support, Collaboration, and ACQ; for remaining variables variance was not assumed equal. ACQ = Areas of Change Questionnaire (lower scores represent higher relationship satisfaction), PDA = percent days abstinence.

Table 4
Multilevel model of fixed effects of couple type on alcohol use (PDA) during follow-up

Parameter	β	S.E.	<i>p</i>
Intercept	1.26	0.11	<.001
Baseline ACQ	0.00	0.00	<i>ns</i>
Baseline PDA	0.32	0.09	<.001
Original Study	-0.13	0.03	<.001
Couple Type	-0.01	.02	<i>ns</i>

ACQ = Areas of Change Questionnaire, PDA = arcsine transformed percent days abstinent.





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