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

Benjamin O. Ladd[1,2] and **Barbara S. McCrady**[2]

[1]Adolescent Health Research Program, Reed College, Portland OR

[2]Center on Alcoholism, Substance Abuse and Addictions, University of New Mexico, Albuquerque NM

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.

Corresponding author id : benladd@reed.edu.

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 who 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 (McCrady 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 $a = 86$. 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 (McCrady 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 (McCrady 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 (McCrady 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.

[1]Analyses were conducted examining the effect of gender, and no significant effects were found. These analyses were not reported due to space considerations.

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 the 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.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

References

Apodaca T, Manuel JK, Moyers T, Amrhein P. Motivational Interviewing with Significant Others (MISO) Coding Manual. Unpublished manual. 2007

Borgen FH, Barnett DC. Applying cluster analysis in counseling psychology research. Journal of Counseling Psychology. 1987; 34:456–468.

Cicchetti DV. Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. Psychological Assessment. 1994; 6:284–290.

Cicchetti DV, Sparrow SA. Developing criteria for establishing interrater reliability of specific items: Applications to assessment of adaptive behavior. American Journal of Mental Deficiency. 1981; 86:127–137. [PubMed: 7315877]

Cohen A, Geron Y, Farchi A. A typology of marital quality of enduring marriages in Israel. Journal of Family Issues. 2010; 20:1–21.

Dixon WJ. Simplified estimation from censored normal samples. The Annals of Mathematical Statistics. 1960; 31:385–391.

Fals-Stewart W, Schafer J, Birchler GR. An empirical typology of distressed couples that is based on the Areas of Change Questionnaire. Journal of Family Psychology. 1993; 7:307–321.

Fisher L, Ransom DC. An empirically derived typology of families: I. Relationships with adult health. Family Process. 1995; 34:161–182. [PubMed: 7589416]

Fowers BJ, Olson DH. Four types of premarital couples: An empirical typology based on PREPARE. Journal of Family Psychology. 1992; 6:10–21.

Funk R, Ives M, Dennis M. LI analysis training series: Cluster analysis. Unpublished method manual developed under contract #270-2003-00006 for SAMHSA's Center for Substance Abuse Treatment (CSAT). 2006

Garson, GD. Cluster Analysis. 2012. Retrieved from http://www.statisticalassociates.com

Givertz M, Segrin C, Hanzal A. The association between satisfaction and commitment differs across marital couple types. Communication Research. 2009; 36:561–584.

Gottman JM. The roles of conflict engagement, escalation, and avoidance in marital interaction: A longitudinal view of five types of couples. Journal of Consulting and Clinical Psychology. 1993; 61:6–15. [PubMed: 8450108]

Gottman JM, Notarius CI. Decade review: Observing marital interaction. Journal of Marriage and Family. 2000; 62:927–847.

Green, K., Worden, B., Menges, D., McCrady, BS. Assessment of alcohol use disorders. In: Hunsley, J., Mash, E., editors. A guide to assessments that work. NY: Oxford University Press; 2008. p. 339-369.

Halford WK, Bouma R, Kelly A, Young RM. Individual psychopathology and marital distress: Analyzing the association and implications for therapy. Behavior Modification. 1999; 23:179–216. [PubMed: 10224948]

Hallgren KA. Computing inter-rater reliability for observational data: An overview and tutorial. Tutorials in Quantitative Methods for Psychology. 2012; 8(1):23–34. [PubMed: 22833776]

Heyman RE. Observation of couple conflicts: Clinical assessment applications, stubborn truths, and shaky foundations. Psychological Assessment. 2001; 13:5–35. [PubMed: 11281039]

Holman TB, Jarvis MO. Hostile, volatile, avoiding, and validating couple-conflict types: An investigation of Gottman's couple-conflict types. Personal Relationships. 2003; 10:267–282.

Jacob T, Krahn GL. Marital interactions of alcoholic couples: Comparison with depressed and nondistressed couples. Journal of Consulting and Clinical Psychology. 1988; 56:73–79. [PubMed: 3346452]

Jacob T, Leonard K. Sequential analysis of marital interactions involving alcoholic, depressed, and nondistressed men. Journal of Abnormal Psychology. 1992; 101:647–656. [PubMed: 1430603]

Lavee Y, Olson DH. Seven types of marriage: Empirical typology based on ENRICH. Journal of Marital and Family Therapy. 1993; 19:325–340. [PubMed: 21118472]

Lebow JL, Chambers AL, Christensen A, Johnson SM. Research on the treatment of couple distress. Journal of Marital and Family Therapy. 2012; 38:145–168. [PubMed: 22283385]

Margolin G, Talovic S, Weinstein CD. Areas of Change Questionnaire: A practical approach to marital assessment. Journal of Consulting and Clinical Psychology. 1983; 51:920–931.

McCrady BS, Epstein EE, Cook S, Jensen N, Hildebrandt T. A randomized trial of individual and couple behavioral alcohol treatment for women. Journal of Consulting and Clinical Psychology. 2009; 77(2):243–256. [PubMed: 19309184]

McCrady BS, Epstein EE, Hirsch LS. Maintaining change after conjoint behavioral alcohol treatment for men: outcomes at six months. Addiction. 1999; 94:1381–1396. [PubMed: 10615723]

McCrady BS, Epstein EE, Kahler CW. Alcoholics Anonymous and relapse prevention as maintenance strategies after conjoint behavioral alcohol treatment for men: 18-month outcomes. Journal of Consulting and Clinical Psychology. 2004; 72(5):870–878. [PubMed: 15482044]

McCrady BS, Noel NE, Abrams DB, Stout RL, Nelson HF, Hay WM. Comparative effectiveness of three types of spouse involvement in outpatient behavioral alcoholism treatment. Journal of Studies on Alcohol. 1986; 47:459–467. [PubMed: 3795960]

Mooi, E., Sarstedt, M. A concise guide to market research: The process, data and methods using IBM SPSS Statistics. Springer; New York: 2011.

Moyers TB, Martin T, Houck JM, Christopher PJ, Tonigan JS. From in-session behaviors to drinking outcomes: A causal chain for motivational interviewing. Journal of Consulting and Clinical Psychology. 2009; 77:1113–1124. [PubMed: 19968387]

O'Farrell TJ, Clements K. Review of outcome research on marital and family therapy in treatment for alcoholism. Journal of Marital and Family Therapy. 2012; 38:122–150. [PubMed: 22283384]

Olson, DH. Family typologies: Bridging family research and family therapy. In: Filsinger, EE., Lewis, RA., editors. Assessing marriage: New behavioral approaches. Beverly Hills, CA: Sage; 1981. p. 74-89.

Olson DH, Fowers BJ. Five types of marriage: An empirical typology based on ENRICH. The Family Journal. 1993; 1:196–207.

Owens MD, McCrady BS, Borders AZ, Brovko JM, Pearson MR. Psychometric properties of the system for coding couples' interactions in therapy – alcohol. Psychology of Addictive Behaviors. in press.

Powers MB, Vedel E, Emmelkamp PMG. Behavioral couples therapy (BCT) for alcohol and drug use disorders: A meta-analysis. Clinical Psychology Review. 2008; 28:952–962. [PubMed: 18374464]

Rapkin BD, Luke DA. Cluster analysis in community research: Epistemology and practice. American Journal of Community Psychology. 1993; 21:247–277.

Sevier M, Eldridge K, Jones J, Doss BD, Christensen A. Observed communication and associations with satisfaction during traditional and integrative behavioral couple therapy. Behavior Therapy. 2008; 39:137–150. [PubMed: 18502247]

Shrout PE, Fleiss JL. Intraclass correlations: Uses in assessing rater reliability. Psychological Bulletin. 1979; 86:420–428. [PubMed: 18839484]

SPSS Inc. SPSS for Windows, Version 12.0. Chicago: SPSS Inc; 2003. Released

Sobell LC, Maisto SA, Sobell MB, Cooper AM. Reliability of alcohol abusers' self-reports of drinking behavior. Behavior Research and Therapy. 1979; 17:175–160.

Ward JH. Hierarchical grouping to optimize an objective function. Journal of the American Statistical Association. 1963; 58:236–244.

Table 1

Descriptive behavioral coding data

Variable	IP		SO		Couple	
	M	SD	M	SD	M	SD
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 n	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.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

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

Variable	Cluster				p
	Avoider	Validator	Hostile	Ambivalent-Detached	
Neutral Utterances	91% [a]	85% [b]	74% [c]	85% [b]	<.001
Positive Utterances	4% [a]	10% [b]	7% [a,b,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 [a,c]	3.7 [a,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]	ns

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 abstinent.

Table 4

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

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

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