

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.

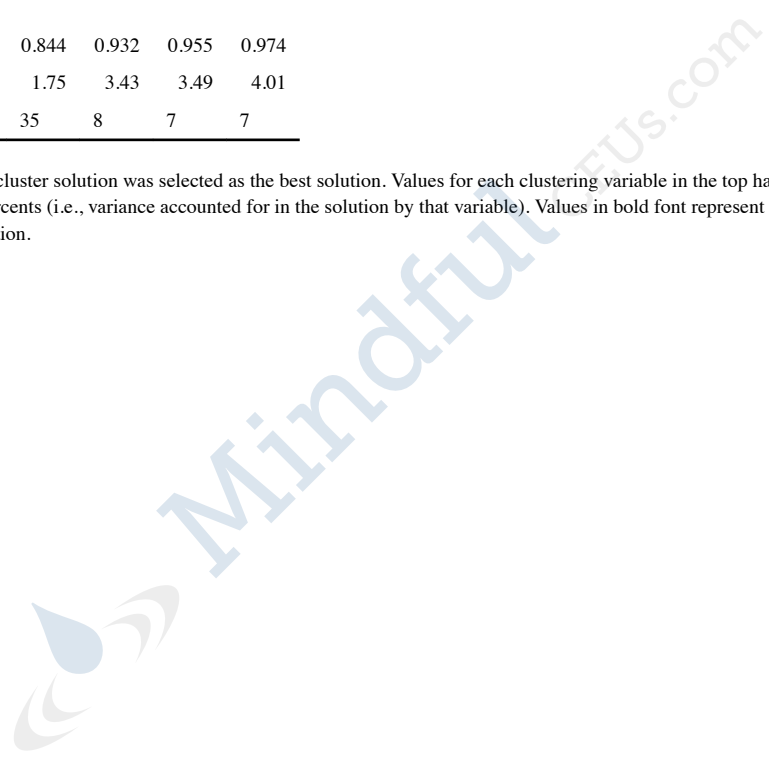


Table 3
One-way ANOVA of cluster by the seven MISO clustering variables, baseline ACQ score, and baseline PDA

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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