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Psychometric Properties of the System for Coding Couples' Interactions in Therapy - Alcohol

Mandy D. Owens[1], **Barbara S. McCrady**[1], **Adrienne Z. Borders**[1], **Julie M. Brovko**[1], and **Matthew R. Pearson**[1]

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

Abstract

Few systems are available for coding in-session behaviors for couples in therapy. Alcohol Behavior Couples Therapy (ABCT) is an empirically supported treatment, but little is known about its mechanisms of behavior change. In the current study, an adapted version of the Motivational Interviewing for Significant Others coding system was developed into the System for Coding Couples' Interactions in Therapy – Alcohol (SCCIT-A), which was used to code couples' interactions and behaviors during ABCT. Results showed good inter-rater reliability of the SCCIT-A and provided evidence that the SCCIT-A may be a promising measure for understanding couples in therapy. A three factor model of the SCCIT-A was examined (Positive, Negative, and Change Talk/Counter-Change Talk) using a confirmatory factor analysis, but model fit was poor. Due to poor model fit, ratios were computed for Positive/Negative ratings and for Change Talk/Counter-Change Talk codes based on previous research in the couples and Motivational Interviewing literature. Post-hoc analyses examined correlations between specific SCCIT-A codes and baseline characteristics and indicated some concurrent validity. Correlations were run between ratios and baseline characteristics; ratios may be an alternative to using the factors from the SCCIT-A. Reliability and validity analyses suggest that the SCCIT-A has the potential to be a useful measure for coding in-session behaviors of both partners in couples therapy and could be used to identify mechanisms of behavior change for ABCT. Additional research is needed to improve the reliability of some codes and to further develop the SCCIT-A and other measures of couples' interactions in therapy.

Keywords

Couples therapy; coding system; alcohol treatment; behavioral couples therapy; couples interactions

Intimate partner involvement has a demonstrably positive influence on alcohol treatment outcomes (Apodaca, Magill, Longabaugh, Jackson, & Monti, 2013; McCrady, Epstein, Cook, Jensen, & Hildebrandt, 2009). Although individual cognitive behavioral therapy is

Correspondence concerning this article should be addressed to Mandy D. Owens, Center on Alcoholism, Substance Abuse and Addictions; University of New Mexico; 2650 Yale Blvd. SE; Albuquerque, NM 87106. mandyo@unm.edu. Phone: 505-925-2333. Fax: 505-925-2301.

efficacious for alcohol use disorders, Alcohol Behavioral Couples Therapy (ABCT) has been found to yield greater improvements in drinking outcomes relative to individual treatment for couples who are willing to engage in treatment together (McCrady et al., 2009). Furthermore, significant others' (SOs) behaviors prior to treatment and language during treatment have meaningful impacts on the identified patients' (IPs) outcomes (Apodaca et al., 2013). As a necessary element of research, a number of coding systems have been developed to aid in the study of couple interactions (Kerig & Baucom, 2004). However, the majority of these coding systems are tailored to laboratory-based interaction tasks rather than behavior during actual therapy sessions. For example, several coding systems, such as the Communication Skills Test (Floyd, 2004) and System for Coding Interactions in Dyads (Malik & Lindahl, 2004), are intended to code couple behavior during problem solving tasks whereby couples are observed discussing a topic of conflict in a laboratory setting. Other couple interaction coding systems have focused on the more positive behaviors of partner support (e.g., The Social Support Interaction Coding System; Pasch, Harris, Sullivan, & Bradbury, 2004).

Some couple interaction coding systems have been used within both laboratory and natural therapy settings. For instance, McCarrick, Mandersheid, and Silbergeld (1981) used the Ericson-Rogers Relational Coding System to study competition and dominance in couple interactions during sessions of group marital therapy. Nevertheless, there continue to be relatively few coding systems developed specifically to observe SO and IP behavior during therapy. The absence of coding systems for partners' behaviors in couple therapy may be because some evidence-based treatments require more tailored coding systems to investigate the active ingredients responsible for their efficacy, or because coding speech in therapy sessions is more complex than coding more constrained interactions.

Of the existing couples coding systems, some couple coding systems have been adapted from extant protocols developed for observing individual therapy (e.g., Narrative Process Coding System; Laitila, Aaltonen, Wahlstrom, & Angus, 1997). Specifically, the Motivational Interviewing with Significant Others 3.0 (MISO 3.0) coding system was developed out of a need to measure SOs' within-session behaviors during conjoint sessions of Motivational Interviewing (Manuel, Houck, & Moyers, 2012). The MISO 3.0 was adapted from the Motivational Interviewing Skill Code Version 2.1, the original protocol used for coding individual sessions of Motivational Interviewing (Miller, Moyers, Ernst, & Amrhein, 2003; Miller et al., 2007). Development of the MISO 3.0 took into account evidenced-based principles from couples' interaction research (Gottman & Notarius, 2002), as well as tenets that are unique to Motivational Interviewing (Manuel, Houck, & Moyers, 2011; Moyers & Martin, 2006; Moyers et al., 2007). The MISO codes only SO behaviors and includes 3 global ratings (Support, Collaboration and Contemptuousness) and 10 specific behavior codes. The global ratings capture the coder's overall impression of the relationship between the SO and IP. The MISO 3.0 behavior codes assigned to individual speech utterances are intended to gauge the amount of SO language dedicated to supporting the IP's efforts for change, discussing him/herself, discussing the IP's drinking, confronting the client with hostile remarks, and other behaviors (Miller, Moyers, Ernst, & Amrhein, 2007). The MISO 3.0 was created to be used with transcripts of audiotapes or videotapes of Motivational Interviewing sessions that include an SO and has demonstrated excellent inter-

rater reliability ratings among trained coders (intraclass coefficients of .75 or greater with most codes; Apodaca et al., 2013).

The MISO 3.0 has been successful in contributing to Motivational Interviewing process research. For instance, Manuel et al. (2012) found that SO statements of support for the IP were related to increases in IP change talk, whereas SO Discuss-Self statements were related to less IP Change Talk. Additionally, SO counter-change talk predicted poorer drinking outcomes for the IP. More recently, Apodaca and colleagues (2013) found corroborative evidence for the positive relationship between SO support statements and IP change talk, and also found that SOs who discouraged the IPs' drinking prior to treatment demonstrated higher levels of support in treatment. Magill et al. (2010) found that baseline SO characteristics, such as drinking behavior and acceptance of IP drinking, were associated with couple engagement over the course of treatment. These findings indicate that SOs can have a meaningful presence in treatment and that some SO behaviors have the potential to influence positive outcomes for the IP. Thus, further study of process variables and SO-IP interactions in treatment may be helpful.

One of the primary concerns with using behavioral observation data is the large number of potential variables to be included in analyses. There are a number of ways for researchers to consolidate these variables, including the use of factor analysis. The use of factor analysis helps to address the need to consolidate codes and allows researchers to examine possible underlying factors in couple therapy. Others have supported the use of factor analyses with behavioral observation data (e.g., Carlson, Williams, & Davol, 1984; Jacob & Krahn, 1987). However, Jacob and Krahn (1987) used a principal components analysis, which is statistically different from factor analysis, making it difficult to use their results as a basis for conducting a factor analysis. Heyman (2001) reviewed a series of studies that examined behavioral observation data and included recommendations to researchers, such as being careful to account for family-wise error in related analyses. Some of the studies included in the review utilized factor analyses; however these studies only used the Marital Interaction Coding System and coded couples' interactions in laboratory settings that lasted up to 15 minutes. Some have criticized the use of factor analyses for behavioral observation data (e.g., Gottman, 1979), noting that although behaviors may occur together, they may not function in the same way; however, this critique seems most relevant to exploratory factor analysis in that factors are created in a purely data-driven manner. On the other hand, confirmatory factor analysis is a valuable and parsimonious way of describing a large number of variables and uses theory to derive the proposed factor structure, which supports theory-testing and does not share the limitations of exploratory factor analysis levied by Gottman (1979). Additionally, there is a dearth of research on the use of factor analyses with behavioral observation data with couples and, in particular, there are no studies that reported using factor analyses with full couples therapy sessions.

ABCT is a well-established evidence-based treatment for alcohol use disorders (Bowers & Al-Redha, 1990; Hedberg & Campbell, 1974: McCrady et al., 1986, 1991, 2009; O'Farrell et al., 1993, 1998), but little is known about in-session couple behaviors and how these interactions relate to outcomes. To better understand couples' behaviors in ABCT, the MISO 3.0 coding system was adapted and resulted in the System for Coding Couples'

Interactions in Therapy – Alcohol (SCCIT-A). The SCCIT-A differs from the MISO 3.0 coding system in that it includes codes that pertain to the within session behaviors of SOs *and* IPs during ABCT. The SCCIT-A was used to code ABCT sessions and subsequent papers from this research group will present how the SCCIT-A was used to examine mechanisms of behavior change of ABCT using sessions from the parent studies. The aims of the current paper are to: (a) describe the SCCIT-A, including reliability information for global ratings and behavior codes, (b) examine possible underlying factors of the SCCIT-A based on previous couples and alcohol research, and (c) relate IP and SO behaviors from the SCCIT-A to baseline characteristics of couples in ABCT.

Given our adaptation of the SCCIT-A from the MISO 3.0, we expected that the reliability of the SCCIT-A items would be similar to those of the MISO 3.0. Based on theory and *a priori* hypotheses, three factors were posited for the SCCIT-A global ratings and behavior codes: Positive, Negative, and Change Talk/Counter-Change Talk. The Positive and Negative factors stemmed from the couples literature, which demonstrates that couples that are happier or higher in satisfaction exhibit more positive behavioral interactions and less negative interactions (e.g., Gottman & Notarius, 2002). The Change Talk/Counter-Change Talk factor came from the Motivational Interviewing literature that shows that change-related statements predict alcohol treatment outcomes (e.g., Manuel et al., 2012). We hypothesized that the Positive and Negative factors would be inversely and positively correlated, respectively, with relationship dissatisfaction, and that the Change-Talk/Counter-Change Talk factor would be related negatively to IP length of drinking problem and IP baseline percent days abstinent from alcohol.

Method

Participants

Participants included 188 heterosexual dyads that contributed 284 sessions that were coded for the present study (session 1: $n = 169$, mid-treatment – either session 8 or 9 depending on the length of treatment: $n = 115$). Of the 188 dyads included in the study, 10.1% ($n = 19$) were from a hospital-based randomized clinical trial (RCT) that recruited both male and female IPs (McCrady et al., 1986), 37.8% ($n = 71$) were from an RCT that sampled only male IPs (McCrady, Epstein, & Hirsch, 1999), and 25.0% ($n = 47$; McCrady et al., 2009) and 27.1% ($n = 51$; Epstein & McCrady, 2009) were from two RCTs that recruited only female IPs. As shown in Table 1, most of the dyads were married (85.1%); the remainder were living together but not married (7.4%), committed but not living together (3.7%), separated (2.7%), or unknown (1.1%). The majority of the IPs and SOs identified as White (91.5% and 79.8%, respectively) followed by Black/African American (4.3% and 3.7%, respectively). On average, IPs had 14.2 years of education ($SD = 2.77$), and SOs had 14.5 years of education ($SD = 2.44$). More than half of the IPs were employed full-time (59.0%); the other IPs were homemakers (11.7%), employed part-time (10.1%), or listed other forms of employment (19.2%). Many of the SOs also were employed full-time (68.6%), and fewer worked part-time (10.1%), were homemakers (8.5%), or reported another employment status (12.8%). The average length of drinking problem for the IP was 13.7 years ($SD = 10.0$).

Across all four studies, IPs were included if they met criteria for alcohol abuse or dependence and couples were excluded if either partner met criteria for current drug use disorder. To be included in the study, the IP had to have consumed alcohol in the 30–60 days prior to screening. All of the couples were involved in committed heterosexual relationships and the SO had to be willing to come to treatment. Additionally, couples were excluded if one of the partners met screening criteria for a psychotic disorder or serious cognitive impairment. In the two women's studies, couples also were excluded if there was evidence of significant intimate partner violence. Participants were recruited from the community and other treatment agencies. Studies had various comparison conditions, but all studies included an ABCT condition. Couples used for the current study participated in the ABCT condition. ABCT uses a behavioral approach and incorporates drinking-related skills training for the IP, teaches SOs to support the IPs with abstinence from alcohol, and includes modules designed to improve the quality of the couples' relationships (McCrady & Epstein, 2009). All study treatments focused on an abstinence-based drinking goal and consisted of 12-20 90-minute sessions.

Measures

The MISO 3.0 was adapted to create the SCCIT-A. Adaptation took place in three phases. First, coders met and used the original MISO 3.0 to code ABCT session audio tapes to develop familiarity with the coding system and identify possible problems in using it with ABCT sessions. Because the original MISO 3.0 was created to code Motivational Interviewing therapy sessions, codes were clarified and adjusted during these meetings so that they were relevant to ABCT. Next, IP codes were added to mirror the clarified SO codes. For example, because the original MISO 3.0 included 3 global codes (i.e. support, collaboration, contemptuousness), these global codes were also created to rate the IP. To better reflect findings suggesting that alcohol-specific support is different than other support (Beattie, Longabaugh, & Fava, 1992; Havassy, Hall, & Wasserman, 1991), SO support was split into alcohol specific support and general support, resulting in 7 global ratings total. Similar processes were used to create IP behavior codes. Because a goal was to adapt the MISO 3.0 rather than creating a completely new interaction coding system, IP codes were added and some SO codes were modified using as little adaptation as possible. Finally, through trainings and meetings, all codes were clarified, problem codes were discussed, and the reliabilities of codes were monitored. Adapted from the MISO 3.0, the final version of the SCCIT-A was used to measure SO and IP behaviors during ABCT treatment sessions, and included seven global ratings of SO and IP behavior, 11 behavior codes for SOs, and 11 behavior codes for IPs (the SCCIT-A manual is available for free download at (http://casaa.unm.edu/codinginst.html). Global ratings were assigned to for the full therapy session; a behavior code was assigned to each SO and IP utterance. An utterance is defined as a complete thought. An utterance ends when one thought is completed. A new utterance begins when a new idea is introduced. One utterance can succeed another in the flow of the SO's and IP's speech, as with a sentence that conveys successive ideas. In other words, one sentence or sequential sentences from the same speaker can contain multiple utterances. Utterances differ from speaker turns (Heyman, 2004) in that there may be multiple utterances within one speaker turn.

Global ratings—Global ratings aim to capture the general, overall impression of the SO and IP interaction, and use a 5-point Likert-type scale. The seven global ratings included: (a) *SO Alcohol-Specific Support*, which was a single rating of SO encouragement of IP abstinence and engagement in alcohol treatment; (b) *SO General Support* and *IP General Support* were two separate ratings that captured SO and IP overall support for their partners offered through explicit encouragement and verbal willingness to help the other partner, respectively; (c) *SO Collaboration* and *IP Collaboration* were two global ratings that described how the couples got along in general, and how the couples worked together in therapy and in problem solving; and (d) *SO Contemptuousness* and *IP Contemptuousness*, which rated the degree to which SOs and IPs exhibited disdain or mockery towards one another, respectively (high ratings) or warmth and appreciation (low ratings). Table 2 shows the means and standard deviations for the global ratings. Additional information on the General Support, Collaboration, and Contemptuousness global ratings is available elsewhere (Manuel et al., 2012).

Behavior codes—Behavior codes are assigned to individual utterances and include 11 SO and 11 IP behavior codes (see Table 2 for the full list of codes and means and standard deviations). Examples of SO behavior codes included Giving Advice (AD-SO; “Why don’t you try going to AA?”), Encourage/Support Drinking-Related (ESD-SO; “I’ve given up drinking to help him along”), and Confront (CO-SO; “I can’t tell you how many times I’ve heard this before”). Descriptions of other SO behavior codes have been reported previously (Manuel et al., 2012). The IP behavior codes were created to mirror SO codes from the MISO 3.0 and included codes specific to alcohol therapy, such as Discuss-Self about Drinking (DSD-IP; “I think that some of my old drinking buddies may be at that party”) and Change-Talk (CT-IP; “I’ll lose my job if I don’t stop drinking”). Examples of other IP behavior codes are Giving Information-General (GIG-IP; “We used to live in Connecticut”), Direct statements (DI-IP; “He needs to go out and find work”), and Counter-Change-Talk (CCT-IP; “I’m more relaxed and easier to get along with after a few drinks”). Percentages of the total number of utterances by the SO or IP for each behavior code were used in all analyses. Percentages were used in lieu of raw counts because of the variability in the number of utterances that were coded for each partner (range of total IP utterances in session 1 was 28 to 758 utterances; range of total SO utterances in session 1 was 5 to 413 utterances). Confirmatory factor analyses were computed with percentages and raw counts and results were similar, therefore outcomes are reported using the results from the percentages of SO or IP utterances for each behavior code (i.e., AD-SO was operationalized as the number of utterances coded as Advice divided by the total number of SO utterances for that session).

Baseline variables—Baseline characteristics included variables that were measured consistently across each of the four parent studies. Length of IP drinking problem (in years) was assessed using general demographic questionnaires. IP relationship dissatisfaction was measured by the Areas of Change Questionnaire (ACQ; Margolin, Talovic, & Weinstein, 1983), where higher scores indicate a greater desire for changes in the relationship and greater levels of relationship dissatisfaction. For the ACQ, only the IP “Want” score was used, because one parent study did not have SOs complete the ACQ. IP baseline drinking

was defined as percent days abstinent from alcohol (PDA) during the 90 days prior to the IPs' last drink, which was assessed just before starting therapy using the Timeline Follow-back Interview (Sobell & Sobell, 1996).

Procedures

Coder training—Prior to beginning coding, six graduate students were trained for five months until fidelity was reached among all coders. One coder moved out of the state, and a procedure was developed to train a new coder. The training procedure consisted of weekly reading materials and assignments, such as reviewing relevant manuals (e.g., the ABCT manual), listening to therapy sessions, practicing coding, reviewing codes with sessions coded by the other coders, and assessing reliability of coding with and without the new coder. Once comparable reliability was established between the new coder and original five coders, the new coder began coding study sessions. Throughout the study period, all coders and the principal investigator (B.S.M.) attended weekly meetings to review ongoing coder reliability and review coding procedures.

There were seven individuals total who coded sessions used for the current study. All seven coders were graduate students in a psychology doctoral program (six in clinical psychology, one in evolutionary psychology), four coders had a master's degree in psychology at the time of coding, and five coders were female.

Assignment of sessions to coders—After a complete list of available session audio recordings was established, sessions were randomly allocated to each coder using computer-generated assignment. Included in the total number of sessions coded was a subset of sessions to be coded by all coders for assessing reliability (33 sessions, 12% of the 284 sessions available to code). The selection of sessions to be coded for reliability was chosen randomly by a computer program with the constraint that the number of sessions selected from each parent study was proportional to the number of sessions coded by each coder.

Parsing and coding—All study tapes were transcribed to ensure consistent coding of the couples' utterances across coders. Transcribers did not code session tapes. After transcribing tapes, the SCCIT-A then was used in three coding passes. During the first pass, one coder parsed all SO and IP transcribed speech into codeable units based on content, called utterances, and corrected any errors in transcriptions.

For the second pass, a second coder provided global ratings for the session. During the third pass, the same second coder assigned behavior codes to each SO and IP utterance. Therapist speech was not parsed and therapist dialogue received a code a "T" to delineate that it was the therapist speaking. Each coder listened to the entire session during each parsing and coding pass.

Data Analysis

Reliability—All analyses (excluding the confirmatory factor analyses) were performed using SPSS version 20 (IBM Corp., 2011). Inter-rater reliability was computed based on the 33 sessions coded by six coders (where the new coder and the coder who left the study were

combined as one coder) using single measure intraclass correlations (ICCs) for absolute agreement for the seven global ratings and 22 behavior codes. As defined by Cicchetti & Sparrow (1981), poor reliability is indicated by ICCs less than 0.40, fair is 0.40 to 0.59, good is 0.60 to 0.74, and excellent reliability is defined as ICCs 0.75 or greater. Pair-wise reliability also was assessed using single measure ICCs for absolute agreement. No data were missing for the reliability analyses.

Confirmatory factor analysis (CFAs)—We used confirmatory factor analysis to examine the hypothesized three-factor solution for the SCCIT-A global ratings and behavior codes: Positive (SO Alcohol-Specific Support, SO and IP General Support, SO and IP Collaboration, SO and IP Encourage/Support – General, SO Encourage/Support – Drinking, and SO and IP Advice), Negative (SO Contemptuousness, IP Contemptuousness, SO and IP Direct, and SO and IP Confront), and Change Talk/Counter-Change Talk (SO and IP Change Talk, and SO and IP Counter-Change Talk). For SOs and IPs, Tables 3 and 4, respectively, show the correlations among the indicators for the three factors as well as the codes that were excluded from factors. Behavior codes related to nonvalenced sharing of information (e.g., DSD-IP, GID-SO) were not included in the CFA model because there were no *a priori* hypotheses about how these codes would relate to the three proposed factors.

CFAs were conducted using Mplus version 6.11 (Muthén & Muthén, 1998-2011) with no missing coding data. The three factors were allowed to covary with the other factors. The fit statistics examined for the CFA were the chi square test statistic, where a non-significant chi square value indicates good fit; the root-mean square error of approximation (RMSEA), where a value less than 0.08 suggests acceptable fit; the comparative fit index (CFI), where a value greater than 0.90 may indicate acceptable fit; and the standardized root-mean-square residual (SRMR), where acceptable fit may be shown by a value less than 0.08 (Kline, 2010).

Additional analyses were completed to establish concurrent validity of the SCCIT-A by examining correlations between session 1 SCCIT-A codes and IP baseline characteristics. Baseline variables included: IP length of drinking problem, relationship functioning measured by the IP scores on the ACQ, and IP PDA during the 90 days prior to his/her last drink during the baseline assessment period.

Results

Reliability

Means and standard deviations for the seven global ratings and 22 behavior codes for both the first and mid-treatment sessions, and the overall ICCs and pair-wise reliabilities calculated from the 33 tapes coded for reliability analyses are presented in Table 2. All global ratings and behavior codes were in the fair to excellent range (defined as ICCs greater than 0.40 by Cicchetti & Sparrow, 1981), except for one global rating (SO Alcohol-Specific Support) and four behavior codes (SO and IP Encourage/Support – General, SO Encourage/Support – Drinking, and SO Counter-Change Talk). These poor reliabilities may be related to the restriction of range and the low frequencies of these codes. For example, the standard

deviation of the SO Alcohol-Specific Support global rating was smaller than the other global ratings across both sessions. Additionally, the means for these behavior codes all are less than 2%, which is considerably lower than other codes, such as session 1 SO and IP Change-Talk (M = 2.96 and 7.37, respectively).

Confirmatory Factor Analysis

All of the model fit indices indicated that the CFA models were a poor fit for both session 1, χ^2 (167) = 638.918, $p < .0001$, RMSEA = 0.129 (90% CI: 0.119-0.140), CFI = 0.613, and SRMR = 0.104; and session 8/9, $\chi^2(167) = 391.955$, $p < .0001$, RMSEA = 0.108 (90% CI: 0.094-0.122), CFI = 0.778, and SRMR = 0.079. Fit was slightly better fit across all indices for the mid-treatment sessions. Table 5 shows the standardized loadings for each indicator for the CFAs for sessions 1 and 8/9. Reasonable attempts were made to improve the model, including examining modification fit indices, allowing all error terms for SO codes to covary, and allowing all error terms for IP codes to covary. However, these minor adjustments did not substantially improve model fit; therefore, we concluded that the three-factor model was not supported by the data.

Correlations—Because of the poor model fit for both the session 1 and 8/9 CFAs, the plan to examine correlations between these factors and baseline variables was revised to instead compute correlations between the global ratings and behavior codes from session 1 and IP baseline variables to better understand the validity of the indicators (see Table 6). IP ACQ scores were negatively correlated with all of the positive global ratings (SO Alcohol-Specific Support, SO and IP General Support, and SO and IP Collaboration), such that higher levels of IP relationship dissatisfaction were related to lower ratings of SO and IP support and collaboration. SO and IP Encourage/Support and Giving Advance behavior codes were not significantly correlated with IP ACQ scores.

Negative global ratings and behavior codes (Contemptuousness global ratings and Confront and Direct behavior codes) showed significant correlations with IP ACQ scores in the expected direction, such that higher scores on IP relationship dissatisfaction were related to more contemptuousness and greater frequency of confrontations by both partners. SO and IP Direct codes were not related to IP ACQ scores. Negative global ratings and behavior codes were not related to IP baseline PDA.

IP Counter-Change Talk was negatively correlated with length of drinking problem such that IPs with drinking problems of longer duration had lower proportions of Counter-Change Talk in the first session. Change Talk/Counter-Change Talk codes were unrelated to IP baseline PDA and relationship satisfaction.

Post-hoc Testing

Ratios—Based on practices of other researchers in the couples (e.g., Gottman, 1999) and Motivational Interviewing/Motivational Enhancement Therapy (e.g., Hallgren & Moyers, 2011) fields, ratios of Positive to Negative indicators and Change Talk to Counter-Change Talk were examined similarly for both the initial and mid-treatment sessions. To better mirror previous studies, SO and IP ratios were examined separately. Positive/Negative ratios

were calculated as Positive behavior codes divided by a sum of Positive and Negative behavior codes (see Table 7), and General Support global ratings divided by Contemptuousness global ratings. Advice and Direct codes were not included in the ratio analyses. Change Talk/Counter-Change Talk ratios were computed as Change Talk utterances divided by a sum of Change Talk and Counter-Change Talk utterances. As shown in Table 7, 19 SOs and 40 IPs had no positive or negative utterances in session 1, and 12 SOs had no Change Talk or Counter-Change Talk utterances; therefore, ratios were not computable for these SOs and IPs. Comparable proportions of SOs and IPs with available coding data were excluded from the ratio analyses for the mid-treatment session as were excluded from the first session. For session 1, partners with Positive/Negative and Change Talk/Counter-Change Talk ratio data were not significantly different from partners with missing ratio data on any of the included baseline variables. Descriptive statistics for each of the ratios are included in Table 7.

Correlations—Correlations were examined between baseline variables and SO and IP Positive/Negative and Change Talk/Counter-Change Talk ratios from session 1 only (see Table 8). It was expected that the ratios would relate similarly to baseline variables as was expected for the Positive, Negative, and Change Talk/Counter-Change Talk factors. For example, similar to the correlations with factor indicators, the Positive/Negative ratios were expected to be related inversely with IP ACQ scores, and Change Talk/Counter-Change Talk ratios were expected to be positively related with IP length of drinking problem and IP baseline PDA.

IP ACQ scores were significantly and inversely related to the SO Positive/Negative behavior code ratio, SO Positive/Negative global ratings ratio, and the IP Positive/Negative global ratings ratio. IP Positive/Negative behavior codes were related to IP ACQ scores in the expected direction at the trend level ($r = -.170$, $p = .058$). IP baseline PDA also was inversely related to both of the SO Positive/Negative ratios and IP Positive/Negative global ratings ratios, where greater IP abstinence at baseline was related to lower ratios of SO and IP Positive/Negative ratios. SO and IP Positive/Negative ratios were unrelated to other baseline variables.

The IP Change Talk/Counter-Change Talk ratio was positively related to length of drinking problem, such that IPs with longer periods of problematic drinking had higher ratios of Change Talk to Counter-Change Talk. No other correlations were significant for SO or IP Change Talk/Counter-Change Talk ratios.

Discussion

There is a gap in the literature on behavioral coding systems that assess both SOs and IPs in full couples therapy sessions. The purpose of this study was to describe the SCCIT-A, which is a revised version of the MISO 3.0, that codes both SO and IP behaviors in therapy sessions. The SCCIT-A appears to be a promising adaption of the MISO 3.0 in terms of overall coding reliability. Specifically, according to the guidelines proposed by Cicchetti and Sparrow (1981), 24 of the 29 (83%) global ratings and behavior codes were in the fair or better range (ICCs > 0.40), with more than half (59%) being in the good or better range

(ICCs > 0.60). Further, as hypothesized, the reliabilities for many of the SCCIT-A items were consistent with those found for the MISO 3.0 (Manuel et al., 2012), with the least reliable codes being those with the lowest frequency (e.g., Encourage-Support behavior codes). Although some other SCCIT-A codes also had poor reliability, this may have been due to restricted range (e.g., SO Alcohol-Specific Support) or very low frequency of in-session behaviors compared to sessions coded by the MISO (e.g., SO Counter-Change Talk). For example, very few SOs exhibited behaviors consistent with low Alcohol-Specific Support or high SO Counter-Change Talk, which may be due to the fact that only SOs supportive of change would engage in couples therapy for the IPs' alcohol use. Additionally, whereas the MISO has been used to code Motivational Interviewing/Motivational Enhancement Therapy sessions, the SCCIT-A was used to code ABCT sessions, where therapists are not trained or asked to elicit statements specifically related to change. SOs had to be willing to participate in ABCT and therefore likely were supportive of the IP changing his/her behavior; this could be another reason for the low frequency of SO Counter-Change Talk and subsequently low reliability of the code.

The present study is the first study to examine the underlying factor structure of the SCCIT-A (or its predecessor, the MISO 3.0), which contributes to the limited research on factor structures of couples therapy coding systems. Based on research in the general couples literature (Gottman & Notarius, 2002) as well as research in alcohol use disorders and Motivational Interviewing (Manuel et al., 2012), we expected the global ratings and behavior codes would be reasonably explained by three latent factors: positive behaviors, negative behaviors, and change-related behaviors (i.e., change talk/counter-change talk). Overall, our CFA models did not support this three factor solution, suggesting that this model may be an overly simplified model of couples' interactions in therapy. Although factor analyses have been used previously with behavioral observation data, all of these studies coded couples' interactions during contrived laboratory sessions that had a prescribed topic (e.g., 10 minute sessions where couples were asked to discuss how they solve problems). The current study is one of the first to attempt to code couples' interactions in full therapy sessions (i.e., 90 minute sessions) where there is a wider range of observed behaviors. It is possible that the proposed models of couples' interactions that focus on positive versus negative behaviors may not include or account for other behaviors that would provide a more accurate reflection of how partners act together. Additionally, the SCCIT-A is revised from the MISO 3.0, which has been used to code Motivational Interviewing sessions; it is possible that further adaptations should be made to the SCCIT-A to better characterize couples' interactions in therapy.

Another possible explanation for the poor model fit of the CFA models concerns the nature of the variables. Some of the indicators had low average frequencies with high variability, resulting in extremely positively skewed distributions that do not conform to normal or count distributions (e.g., Poisson, negative binomial). Although we obtained poor model fit, we thought it important to present these results given the lack of published studies using factor analysis with coded couple interaction data. When poor fit is obtained, investigators often opt to use rationally-derived composite scores without psychometric testing. The present study provides baseline fit for a three-factor model of couple interactions in couple

therapy to which alternative models can be compared as well as subsequent revisions of the SCCIT-A or other coding systems can be compared.

Although the CFA models did not support the three factors that we originally proposed, post-hoc analyses using items from our hypothesized three factors (Positive, Negative, and Change/Counter-Change Talk) and ratios suggested a moderate amount of concurrent validity for the individual SCCIT-A ratings and codes. Namely, IP relationship dissatisfaction was related to positive SO and IP global ratings (Support and Collaboration) and inversely related to negative SO and IP global ratings and in-session behaviors (Contemptuousness and Confront behaviors). These findings suggest that SCCIT-A items and ratios of these items may accurately capture the desired constructs, such as positive and negative interactional behaviors.

The present study had certain limitations that should be noted. First, the sample consisted of mostly Caucasian participants with high levels of education, making generalizability to other racial/ethnic groups and individuals with lower education levels difficult. Generalizability also may be limited by the fact that participants were an alcohol treatment sample, and results likely will differ from partners in general couples therapy. Second, only the initial and one mid-treatment session were coded, thus analyses focused only on data from these sessions rather than looking at how behaviors may have looked throughout the rest of treatment. Additionally, although the reliability of most of the SCCIT-A items was comparable to those included in the MISO 3.0 (Manuel et al., 2012), the reliability of some items was poor (e.g., SO Alcohol-Specific Support). The low frequency and subsequently low reliability of some SCCIT-A items are important to note because many of these items are related to hypothesized mechanisms of behavior change for ABCT. If a behavior is engaged in very infrequently, it is not likely that it is an essential mechanism of behavior change mobilized by ABCT (e.g., SO and IP Encourage/Support behaviors). The limitation related to low frequency of purported mechanisms of behavior change should be considered in future research that examines why ABCT is an empirically supported treatment for alcohol. Furthermore, the CFA model fits were poor for both session 1 and session 8/9. Poor model fit indicates that the model is not adequately describing SO and IP behaviors, which could present problems when using these factors in other analyses. Finally, the present study used audiotapes, which resulted in some session tapes being excluded because they were inaudible. Also, nonverbal behavior was lost, which may have aided in understanding the intent of sometimes ambiguous utterances being coded.

Despite the above limitations, this study provides a unique contribution to the literature on coding couple interactions during treatment. Overall, the SCCIT-A showed good reliability, suggesting the value of further refining the coding system and using it in other studies of couple therapy. Women with alcohol use disorders are under-represented in the treatment literature. In the present study, the SCCIT-A was used with similar numbers of males and females with alcohol use disorders. The current study also addresses the paucity of research on the underlying factor structure of couples observational coding systems and highlights some of the challenges of using factor analysis with in-session couple behaviors. Additionally, similar to how other coding systems have contributed to mechanisms of behavior change research, the use of the SCCIT-A may provide data that can be used to

identify mechanisms for empirically supported alcohol treatments, such as ABCT. For example, one could examine how active ingredients of ABCT (e.g., therapist behaviors) relate to these in-session IP and SO behaviors (i.e., purported mechanisms of behavior change), which in turn are expected to predict alcohol use outcomes.

Together, the results and limitations of this study provide an impetus for further research and implications for refining the SCCIT-A and other observational rating systems. The SCCIT-A may be adapted further to better examine mechanisms of behavior change of ABCT. As noted, some of the SCCIT-A items that measure possible mechanisms of behavior change (e.g., SO and IP Encourage/Support behavior codes) appear infrequently in-session, which may have led to lower ratings of reliability. Future adaptations to the SCCIT-A could collapse these low frequency positive behavior codes within or across sessions to produce greater variability and improved the reliability of coding positive and negative behaviors among couples. Additionally, the SCCIT-A could be used to measure the interactions in a more heterogeneous sample of couples that may exhibit more or less of these positive and negative behaviors. Future investigations involving the SCCIT-A and other coding systems also may want to consider using Likert-type rating scales in addition to or instead of discrete coding categories to facilitate analyses. Also, using the SCCIT-A to code sessions throughout therapy could help to better understand changes in couples' interactions rather than coding only the first and mid-treatment sessions, as in this study. The SCCIT-A is adaptable and future research efforts should consider revising the system for other treatment needs, such as couples seeking treatment for other types of substance abuse or general relationship issues. For example, the SCCIT-A could be adapted for general couples therapy by dropping alcohol-related global ratings and behaviors, such as SO Alcohol-Specific Support, SO Encourage/Support – Drinking, and IP and SO Change Talk and Counter-Change Talk.

Conclusions

The SCCIT-A has demonstrated good overall reliability to be used as a tool in future research and clinical efforts with individuals with AUDs in couple therapy. Our three factor model based on the couples therapy and Motivational Interviewing literatures did not adequately fit the data as expected, which may be related to the SCCIT-A as an instrument and our abilities to capture couples' interactions accurately using this coding system. Earlier research has used laboratory tasks to study the interactions of couples affected by AUDs. The SCCIT-A provides a tool to expand understanding of these couples' interactions by studying how they interact in a different setting, the therapy session. The SCCIT-A also offers avenues for further investigation into other treatment-seeking populations (e.g., general couple therapy or broader substance use). Challenges in evaluating the psychometric properties of this coding instrument suggest that psychometric research on similar coding systems would benefit the field through comprehensive documentation of their method and use of factor analysis. Taken together, findings should serve as a foundation for further development of the SCCIT-A and research into the difficulties encountered in the analysis of the underlying factor structures of couples coding data.

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Table 1

Demographics by the Four Parent Studies

Study	Dyads		Coded Sessions		% Married	% Female	% White		Mean Age		Mean Education		Length of Drinking
	n	%	1	8/9		IP	IP	SO	IP	SO	IP	SO	IP
1	19	10.1	19	16	94.7	21.1	94.7	N/A	45.1	45.6	12.2	N/A	12.0
2	71	37.8	58	34	78.9	0	87.3	81.7	39.9	38.1	13.5	13.5	12.0
3	47	25.0	44	31	89.4	100	93.6	95.7	45.2	48.0	14.6	15.1	10.0
4	51	27.1	48	34	86.3	100	94.1	92.2	46.0	47.6	15.3	15.2	19.9
TOTAL	188	100	169	115	85.1	54.3	91.5	79.8	43.5	44.1	14.2	14.5	13.7

Notes. Parent studies are: 1 (McCrady et al., 1986), 2 (McCrady, Epstein, & Hirsch, 1999), 3 (McCrady, Epstein, Cook, Jensen, & Hildebrandt, 2009), and 4 (Epstein &McCrady, 2009). Age, education, and length of drinking problem are reported in years. Information on SO education was not collected for Study 1.

Table 2

Descriptive Statistics and Overall Reliability of Global Ratings and Behavior Codes

Rating or Code	Session 1 *Mean* (*SD*)	Session 8/9 *Mean* (*SD*)	Group ICCs	Pair-Wise ICCs
Global Ratings				
SO Alcohol-Specific Support	4.05 (0.68)	3.97 (0.71)	0.410	0.420
SO General Support	3.47 (0.76)	3.60 (0.87)	0.522	0.506
IP General Support	3.17 (0.78)	3.37 (0.90)	0.626	0.623
SO Collaboration	3.72 (0.95)	3.83 (0.98)	0.546	0.542
IP Collaboration	3.54 (0.95)	3.76 0.95)	0.673	0.669
SO Contemptuousness	2.37 (1.07)	2.20 (1.06)	0.629	0.625
IP Contemptuousness	2.45 (1.09)	2.26 (1.01)	0.630	0.637
Behavior Codes – SO				
Giving Information – General (GIG-SO)	18.84 (8.10)	24.96 (8.86)	0.746	0.751
Giving Information – Drinking-Related (GID-SO)	14.08 (8.08)	9.20 (7.26)	0.682	0.689
Encourage/Support – General (ESG-SO)	0.63 (1.09)	0.77 (1.05)	0.380	0.400
Encourage/Support – Drinking (ESD-SO)	1.60 (2.19)	1.13 (1.58)	0.371	0.394
Giving Advice (AD-SO)	0.69 (0.87)	1.69 (1.84)	0.686	0.686
Discuss-Self (DS-SO)	32.67 (10.24)	35.30 (11.52)	0.605	0.682
Direct (DI-SO)	0.57 (0.79)	0.96 (1.09)	0.624	0.636
Confront (CO-SO)	1.66 (3.36)	1.20 (3.00)	0.755	0.755
Change Talk (CT-SO)	2.96 (2.94)	1.25 (1.62)	0.512	0.504
Counter-Change Talk (CCT-SO)	0.62 (0.84)	0.30 (0.64)	0.274	0.274
Follow/Neutral (FN-SO)	17.65 (10.00)	16.39 (9.29)	0.604	0.623
Behavior Codes – IP				
Giving Information – General (GIG-IP)	10.68 (6.05)	16.28 (6.46)	0.911	0.910
Giving Information – Drinking-Related (GID-IP)	2.36 (2.30)	1.90 (2.09)	0.536	0.547
Encourage/Support – General (ESG-IP)	0.35 (0.50)	0.57 (0.70)	0.361	0.369
Giving Advice (AD-IP)	0.34 (0.67)	0.68 (0.90)	0.564	0.547
Discuss-Self – General (DSG-IP)	25.89 (10.54)	32.96 (12.82)	0.414	0.572
Discuss-Self – Drinking-Related (DSD-IP)	24.16 (8.63)	16.00 (8.18)	0.796	0.799
Direct (DI-IP)	0.32 (0.52)	0.49 (0.62)	0.523	0.525
Confront (CO-IP)	1.35 (3.11)	0.98 (2.41)	0.754	0.731
Change Talk (CT-IP)	7.37 (4.51)	6.01 (3.89)	0.707	0.709
Counter-Change Talk (CCT-IP)	2.97 (2.46)	1.50 (2.66)	0.734	0.735
Follow/Neutral (FN-IP)	18.22 (8.83)	15.65 (8.48)	0.652	0.682

Notes. Global ratings were coded on a Likert-type scale from 1 to 5. Descriptive statistics for behavior codes are based on percentages of SO/IP utterances for each code. Group and mean pair-wise ICCs were calculated from 33 sessions (12% of total number of sessions) calculated across all six coders and pairs within the six coders respectively, and include session 1 (n=19) and session 8 or 9 (n=14).

Table 3

Correlations among All SO Codes for Session 1 and 8/9.

	Positive						Negative			Change Talk		Other Codes			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
1. Alcohol-Specific Support	–	**0.47**	**0.45**	*0.19*	**0.29**	*0.20*	**−0.45**	−0.07	**−0.25**	0.14	−0.02	−0.03	*0.19*	**−0.27**	0.12
2. General Support	**0.57**	–	**0.69**	**0.35**	*0.22*	0.15	**−0.72**	−0.15	**−0.41**	0.01	−0.10	0.15	0.00	*−0.23*	0.13
3. Collaboration	**0.41**	**0.57**	–	**0.29**	0.17	*0.20*	**−0.76**	−0.18	**−0.47**	0.04	−0.05	0.11	−0.02	−0.17	0.10
4. Encourage/Support - General	**0.23**	**0.35**	0.14	–	0.16	*0.20*	*−0.24*	−0.04	−0.13	0.01	−0.05	*0.19*	−0.03	*−0.23*	0.07
5. Encourage/Support - Drinking	**0.26**	**0.30**	0.09	**0.29**	–	0.17	−0.16	*−0.23*	−0.17	0.07	−0.02	**−0.26**	*0.19*	−0.14	0.10
6. Giving Advice	*0.17*	*0.19*	*0.18*	**0.22**	*0.19*	–	*−0.20*	*0.20*	−0.15	0.12	0.03	*−0.19*	*0.19*	**−0.38**	**0.26**
7. Contemptuousness	**−0.30**	**−0.57**	**−0.74**	−0.11	*−0.17*	−0.06	–	0.18	**0.62**	−0.06	0.05	−0.10	−0.03	0.10	−0.06
8. Direct	−0.13	**−0.23**	*−0.16*	−0.03	−0.13	0.06	**0.20**	–	0.18	0.04	0.11	0.09	0.03	−0.13	−0.03
9. Confront	−0.04	**−0.29**	**−0.46**	−0.03	−0.12	*−0.18*	**0.56**	0.11	–	−0.01	**0.26**	−0.01	−0.09	−0.01	−0.10
10. Change Talk	0.12	−0.03	−0.01	−0.02	0.14	−0.01	0.06	0.06	0.05	–	0.15	0.08	**0.30**	**−0.28**	0.07
11. Counter-Change Talk	0.02	0.07	0.00	0.01	0.05	0.01	0.01	−0.03	0.15	*0.17*	–	0.01	0.07	−0.18	−0.04
12. Giving Information – General	−0.02	−0.02	0.06	0.06	*−0.16*	0.02	−0.08	0.05	−0.13	−0.07	**−0.24**	–	**−0.39**	−0.10	−0.35
13. Giving Information – Drinking	0.13	0.08	0.15	−0.16	0.02	0.03	−0.08	0.03	−0.10	**0.21**	0.12	**−0.29**	–	**−0.40**	0.03
14. Discuss Self	*−0.19*	−0.05	−0.08	−0.03	−0.11	**−0.28**	0.07	−0.10	−0.04	**−0.22**	−0.05	−0.10	**−0.26**	–	**−0.52**
15. Follow Neutral	0.06	0.04	0.05	0.05	0.10	**0.20**	−0.11	0.03	−0.07	*−0.15*	−0.05	**−0.28**	**−0.20**	**−0.46**	–

Notes. Correlations below the diagonal are for session 1; correlations above the diagonal are for session 8/9. Significant effects are bolded ($p < .01$) or italicized ($p < .05$) for emphasis. Alcohol-Specific Support, General Support, Collaboration, and Contemptuousness are global ratings; all other codes are behavior codes.

Table 4

Correlations among All IP Codes for Session 1 and 8/9.

	Positive				Negative			Change Talk		Other Codes				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
1. General Support	–	**0.74**	**0.25**	0.09	**−0.66**	*−0.21*	**−0.53**	*0.23*	−0.05	0.05	0.06	−0.13	0.14	0.00
2. Collaboration	**0.58**	–	**0.25**	0.14	**−0.80**	**−0.24**	**−0.67**	0.11	−0.05	0.04	0.03	0.03	−0.07	0.00
3. Encourage/Support – General	*0.16*	0.05	–	0.13	*−0.19*	0.02	0.01	0.07	−0.08	*0.24*	−0.03	−0.05	−0.07	−0.02
4. Giving Advice	−0.05	−0.13	**0.21**	–	−0.11	0.07	−0.13	−0.03	−0.12	0.05	−0.08	**−0.35**	0.01	**0.46**
5. Contemptuousness	**−.61***	**−0.79**	−0.10	0.12	–	*0.20*	**0.60**	−0.10	0.08	−0.05	−0.08	0.04	−0.01	−0.01
6. Direct	**−0.20**	**−0.23**	0.11	*0.19*	**0.31**	–	**0.38**	*−0.23*	−0.09	*0.23*	0.04	0.01	*−0.24*	0.09
7. Confront	**−0.49**	**−0.56**	0.07	0.05	**0.63**	**0.48**	–	*−0.22*	−0.06	0.10	−0.05	0.15	*−0.23*	−0.12
8. Change Talk	0.08	0.14	0.06	−.03	−0.14	*−0.16*	−0.09	–	**0.47**	*−0.18*	0.04	**0.48**	**0.54**	−0.05
9. Counter-Change Talk	*−0.17*	*−0.17*	0.00	−0.09	0.13	0.04	0.09	**0.28**	–	*−0.22*	0.05	**−0.30**	**0.32**	−0.14
10. Giving Information – General	0.08	−0.02	0.13	0.02	0.00	0.10	0.03	**−0.23**	**−0.22**	–	0.07	0.10	**−0.46**	−0.15
11. Giving Information – Drinking	0.06	0.08	0.13	0.14	−0.09	**0.23**	0.02	0.14	0.12	0.01	–	**−0.31**	**0.27**	0.02
12. Discuss Self – General	0.09	0.00	0.14	*−0.17*	−0.03	−0.14	−0.14	**−0.33**	**−0.22**	−0.03	**−0.45**	–	**−0.59**	**−0.54**
13. Discuss Self – Drinking	0.08	*0.17*	0.00	−0.08	*−0.16*	−0.17	**−0.20**	**0.30**	0.13	**−0.42**	**0.22**	**−0.36**	–	0.05
14. Follow Neutral	−0.07	0.00	−0.02	*0.17*	−0.02	0.06	−0.03	**−0.25**	*−0.15*	−0.03	0.01	**−0.39**	**−0.29**	–

Notes. Correlations below the diagonal are for session 1; correlations above the diagonal are for session 8/9. Significant effects are bolded ($p < .01$) or italicized ($p < .05$) for emphasis. General Support, Collaboration, and Contemptuousness are global ratings; all other codes are behavior codes.

Table 5

Confirmatory Factor Loadings (Standardized)

	Session 1 (*n*=169)		Session 8/9 (*n*=115)	
	Estimate	***SE***	**Estimate**	***SE***
Positive				
SO Alcohol-Specific Support	0.351	0.074***	0.459	0.078***
SO General Support	0.553	0.061***	0.747	0.046***
IP General Support	0.620	0.053***	0.756	0.044***
SO Collaboration	0.741	0.042***	0.851	0.030***
IP Collaboration	0.888	0.027***	0.931	0.019***
Encourage/Support – General (ESG-SO)	0.125	0.081	0.283	0.089**
Encourage/Support – General (ESG-IP)	0.100	0.081	0.242	0.091**
Encourage/Support – Drinking (ESD-SO)	0.161	0.080*	0.210	0.092*
Giving Advice (AD-SO)	−0.074	0.082	0.224	0.092
Giving Advice (AD-IP)	0.109	0.081	0.153	0.094
Negative				
SO Contemptuousness	0.758	0.040***	0.913	0.022***
IP Contemptuousness	0.883	0.026***	0.872	0.027***
Direct (DI-SO)	0.212	0.078**	0.220	0.092*
Direct (DI-IP)	0.355	0.072***	0.269	0.090**
Confront (CO-SO)	0.686	0.048***	0.709	0.051***
Confront (CO-IP)	0.696	0.047***	0.752	0.046***
Change Talk/Counter Change Talk				
Change Talk (CT-SO)	0.681	0.091***	0.174	0.189
Change Talk (CT-IP)	0.655	0.092***	1.897	1.795
Counter-Change Talk (CCT-SO)	0.245	0.093**	−0.026	0.045
Counter-Change Talk (CCT-IP)	0.430	0.087***	0.248	0.248
Positive WITH Negative	−0.908	0.029***	−0.930	0.023***
Positive WITH Change Talk	0.018	0.110	0.090	0.105
Negative WITH Change Talk	−0.003	0.107	−0.087	0.108

Notes. Statistical significance determined by Wald test. Session 1: Chi Square=638.918 (*df*=167, *p*<.0001); RMSEA=0.129 (CI: 0.119–0.140); CFI=0.613; SRMR=0.104. Session 8/9: Chi Square=391.955 (*df*=167, *p*<.0001); RMSEA=0.108 (CI: 0.094–0.122); CFI=0.778; SRMR=0.079.

* *p*<.05;

** *p*<.01;

*** *p*<.001.

Table 6

Correlations Among Individual Indicators and Baseline Variables for Session 1 Only

	Baseline Variables		
	IP ACQ	**IP PDA**	**IP Length of Drinking**
Positive			
SO Alcohol-Specific Support	*−0.20*	−0.04	0.12
SO General Support	**−0.27**	*−0.19*	*0.16*
IP General Support	**−0.27**	−0.09	−0.07
SO Collaboration	**−0.40**	−0.15	0.04
IP Collaboration	**−0.33**	−0.11	−0.05
Encourage/Support – General (ESG-SO)	0.01	0.01	0.12
Encourage/Support – General (ESG-IP)	0.05	0.07	0.08
Encourage/Support – Drinking (ESD-SO)	0.07	−0.13	*0.17*
Giving Advice (AD-SO)	−0.08	−0.16	0.03
Giving Advice (AD-IP)	0.13	0.05	**0.28**
Negative			
SO Contemptuousness	**0.33**	**0.22**	−0.06
IP Contemptuousness	**0.35**	*0.19*	0.08
Direct (DI-SO)	−0.04	0.14	0.03
Direct (DI-IP)	0.10	0.02	0.06
Confront (CO-SO)	**0.33**	*0.19*	−0.01
Confront (CO-IP)	**0.26**	0.11	0.11
Change Talk/Counter Change Talk			
Change Talk (CT-SO)	−0.14	0.12	−0.13
Change Talk (CT-IP)	−0.12	0.01	−0.05
Counter-Change Talk (CCT-SO)	0.06	0.03	0.05
Counter-Change Talk (CCT-IP)	−0.15	−0.06	*−0.19*

Notes. Significant effects are bolded ($p < .01$) or italicized ($p < .05$) for emphasis. ACQ = Areas of Change Questionnaire, where higher scores indicate higher levels of relationship dissatisfaction. PDA = percent days abstinent.

Table 7

Ratios

	Session 1		Session 8/9	
	n	***Mean* (*SD*)**	***n***	***Mean* (*SD*)**
SO Positive/Negative: Behavior Codes (ESD + ESG)/(ESD + ESG + CO)	150	0.68 (0.37)	108	0.73 (0.38)
IP Positive/Negative: Behavior Codes (ESG)/(ESG + CO)	129	0.44 (0.43)	91	0.64 (0.41)
SO Positive/Negative: Global Ratings General Support/Contemptuousness	169	1.97 (1.33)	115	2.22 (1.45)
IP Positive/Negative: Global Ratings General Support/Contemptuousness	169	1.73 (1.17)	115	1.99 (1.34)
SO Change Talk/Counter-Change Talk (CT)/(CT + CCT)	147	0.78 (0.27)	84	0.82 (0.28)
IP Change Talk/Counter-Change Talk (CT)/(CT + CCT)	169	0.71 (0.16)	114	0.82 (0.17)

Notes. Session 1 total $n = 169$; Session 8/9 total $n = 115$. Results of ratio analyses were identical using raw counts and percentages of each behavior code.

Table 8

Correlations Among Ratios and Baseline Variables for Session 1 Only

	Baseline Variables		
	IP ACQ	**IP PDA**	**IP Length Drinking**
Positive/Negative Ratios			
SO Positive/Negative Behavior Codes	**−0.30**	**−0.31**	0.07
IP Positive/Negative Behavior Codes	−0.17	−0.06	0.02
SO Positive/Negative Global Ratings	**−0.27**	**−0.23**	0.09
IP Positive/Negative Global Ratings	**−0.32**	**−0.22**	−0.06
Change Talk/Counter-Change Talk Ratios			
SO Change Talk/Counter-Change Talk	−0.10	0.06	−0.06
IP Change Talk/Counter-Change Talk	0.12	0.06	*0.17*

Notes. Significant effects are bolded ($p < .01$) or italicized ($p < .05$) for emphasis. ACQ = Areas of Change Questionnaire, where higher scores indicate higher levels of relationship dissatisfaction. PDA = percent days abstinent.