

WE-TALK, COMMUNAL COPING, AND ALCOHOL ABSTINENCE DURING
COUPLE-FOCUSED INTERVENTIONS FOR PROBLEM DRINKERS

By

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A Thesis Submitted to The Honors College
In Partial Fulfillment of the Bachelors degree
With Honors in
Psychology

THE UNIVERSITY OF ARIZONA

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Degree title (eg BA, BS, BSE, BSB, BFA): BA	
Honors area (eg Molecular and Cellular Biology, English, Studio Art): Psychology	
Date thesis submitted to Honors College: 5/1/2013	
Title of Honors thesis: We-Talk, Communal Coping, and Alcohol Abstinence	
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Abstract

First-person plural pronoun use (*we*-talk) by couples may be an implicit marker of communal coping, a process by which partners view a problem or stressor as “ours” rather than “yours” or “mine”, and is associated with adaptive relationship functioning and individual health outcomes (Lyons, Mickelson, Sullivan, & Coyne, 1998). The present study examined *we*-talk in couples undergoing treatment for problematic alcohol use, hypothesizing that greater *we*-talk during therapy would be associated with successful drinking outcomes for patients. Thirty-three couples with male partners who had problematic alcohol use participated in either couple-focused Cognitive Behavioral Therapy (CBT) or Family Systems Therapy (FST). Transcripts of couples’ speech, derived from a baseline interaction task and two subsequent therapy sessions and analyzed using Linguistic Inquiry and Word Count software, provided measures of pronoun use for each partner. Results indicated that greater spouse *we*-talk at baseline was associated with successful drinking outcomes for patients at therapy termination. Increases in couple *we*-talk during therapy also predicted successful drinking outcomes, and for couples participating in the CBT, greater *we*-talk mid-therapy predicted successful outcomes. These findings provide additional evidence for the prognostic significance of couple *we*-talk and communal coping as a possible mechanism of change in couple-focused interventions.

Introduction

Research on patients suffering from health problems and addiction suggest that close relationships play a crucial role in coping processes and patient health. Certain couple and marital characteristics, such as relationship satisfaction and conflict resolution skills, affect illness management and can potentially determine the patient's health and illness course (Fisher, 2006). A spouse's perception, involvement, and expectations of the patient's illness or addiction have been demonstrated to have transitive effects on patient and couple health (Berg & Upchurch, 2007; Lewis et al., 2006). Overall, it seems that when a spouse expresses a collaborative, supportive, and involved stance toward the patient and illness, it is particularly beneficial for patient health outcomes (Berg & Upchurch, 2007). Such evidence supporting the prognostic role of dyadic coping processes in patient health highlight the centrality of relationship support in problem maintenance and resolution for patients with chronic illness and addiction. These mounting findings have important implications for understanding effective psychosocial interventions for patients with health problems and addiction. Several meta-analyses indeed found that couple-focused interventions are more effective than individual-focused interventions for patients with chronic illness as well as problematic alcohol use (Martire, 2005; O'Farrell & Fals-Stewart, 2003). Interventions that specifically aim to improve relationships in addition to the behavior and thoughts of the individual patient result in more successful patient chronic illness outcomes, improved family functioning and higher rates of alcohol abstinence than those that focus solely on the patient (Martire, 2005; O'Farrell & Fals-Stewart, 2003).

Couple-focused interventions may be particularly effective by promoting communal coping, the process by which partners view a problem or stressor as shared and take collective

effort to address it (Lyons, Mickelson, Sullivan, & Coyne, 1998). Communal coping is associated with relationship functioning and stability as well as adaptive processes and individual health outcomes (Bodenmann, Pihet, & Kayser, 2006; Lyons et al., 1998; Papp & Witt, 2010). If a couple views a problem as “ours” rather than “yours” or “mine,” they are more likely to use collective resources to solve it. Thus, first person plural pronoun use, or *we*-talk, may be an implicit marker of communal coping in couples. The current study investigated partner *we*-talk during two couple-focused interventions for problematic drinking – Cognitive Behavioral Therapy (CBT) and Family Systems Therapy (FST).

Quantifying language use through automatic text analysis is a relatively recent advance in the field of non-reactive measurement. Pennebaker and colleagues developed Linguistic Inquiry and Word Count (LIWC; Pennebaker et al., 2007), a computer software that produces precise frequencies of word use and arranges them by a set of extensive categories, such as emotion words, articles, verbs, or pronouns. Of special interest to psychologists studying language use are pronouns - seemingly insignificant words that reveal linguistic style since they are used with less intention and conscious control. As a result, pronouns can reflect psychological states, such as cognitive style, perspective and focus, and social and communal processes (Pennebaker, Mehl, & Niederhoffer, 2003).

Among pronouns studied within relationships, *we*-talk is consistently found to be associated with multiple dimensions of adaptive relationship functioning. Early studies demonstrated that couples’ language use reflected marital function; for instance, more *we*-language relative to *I*-language was related to better relationship satisfaction (Sillars, Shellen, McIntosh, & Pomegranate, 1997). Low couple “*we*-ness,” the extent to which partners identified themselves as independent or interdependent in a relationship history interview, predicted

divorce three years later (Buehlman, Gottman, and Katz, 1992). The recent rise of automatic text analysis and LIWC elicited increased interest among marital researchers, with a narrow focus on *we*-talk as a marker of communal processes. For example, greater *we*-talk in married couples was found to be associated with more positive emotional interactions, less negative emotional interactions, and lower cardiovascular arousal during a conflict discussion (Seider, Hirschberger, Nelson, & Levenson, 2009; Simmons et al., 2005; Williams-Baucom et al., 2010).

An emerging body of research on couple *we*-talk illuminates its predictive ability for patient and couple adjustment and health outcomes. Interestingly, spouse *we*-talk appears to have particular prognostic value, often independent of patient *we*-talk (Robbins, Mehl, Smith, & Weihs, 2012; Rohrbaugh, Mehl, Shoham, Reilley, & Ewy, 2008; Rohrbaugh, Shoham, Skoyen, Jensen, & Mehl, 2012). For example, in a study of heart failure patients and their spouses, spouse *we*-talk predicted a favorable symptom course for heart-failure patients six months later (Rohrbaugh et al., 2008). Further, *we*-talk had stronger predictive power than self-report measures of marital quality and communal coping (Rohrbaugh et al., 2008). The prognostic significance of *we*-talk was also investigated in couples coping with breast cancer (Robbins et al., 2012). Spouse *we*-talk during a family discussion about coping was associated with both patient (i.e. fewer depressive symptoms) and couple (i.e. better relationship quality) adjustment. In a study of health-compromised smokers, spouse *we*-talk at baseline predicted smoking cessation the following year (Rohrbaugh et al., 2012).

The utility of automatic text analysis and growing evidence of the prognostic value of *we*-talk begs novel interest in *we*-talk during couple-focused interventions. Using text analysis to study *we*-talk is a non-reactive approach to studying change during couple-focused interventions for patients suffering from chronic illness and addiction. Extrapolating from previous research,

increases in *we*-talk during the course of an intervention may indicate that it is effectively promoting communal coping and therefore potentially improving patient health outcomes. To our knowledge, so far one study has operationalized *we*-talk, as a non-reactive, linguistic marker of communal processes, to understand the mediating mechanisms of couple-focused interventions. Health-compromised smokers and their spouses engaged in a couple-focused family systems intervention (Rohrbaugh et al., 2012). An increase in patient and spouse *we*-talk over the course of therapy was associated with smoking cessation the following year, suggesting that couples with the better health outcomes had the more pronounced increases in *we*-talk during therapy. This preliminary evidence of communal coping as a mechanism of change in couple-focused interventions has major implications for understanding how interventions are effective in treating patients with chronic illness or addiction, and which aspects are particularly beneficial.

The present study builds upon the preliminary evidence of communal coping as a mechanism of change by comparing patient and spouse pronoun use during two different couple-focused interventions for problematic alcohol use. The intervention previously found to increase *we*-talk among couples with successful health outcomes was based in family systems theory, and thus focused on the system of relationships in which alcohol use is maintained (Rohrbaugh et al., 2012). Therefore, a specific aim of family systems therapy (FST; Rohrbaugh et al., 1995) is to promote communal coping by encouraging goal-setting and change “as a couple,” and focusing on amplifying interaction patterns within the couple that served as problem solutions in the past (Rohrbaugh et al., 2012). Other common interventions, however, have different theoretical frameworks and do not directly aim to promote communal coping as family systems therapy does. For example, a common intervention for a variety of individual and relationship problems

is couple-focused cognitive behavioral therapy (CBT; Wakefield et al., 1996), which aims primarily to adjust maladaptive cognitions and behaviors in the individual drinker. It is not yet known if such interventions consequently do not enhance communal coping among couples to achieve successful outcomes, or if in fact they do as well, possibly as an indirect consequence of other treatment processes. Identifying such distinctions can guide our understanding of the underlying mechanisms of couple-focused interventions and possible common effects between them. In the treatment of problematic alcohol use, couple-focused CBT differs from the FST in that it does not directly aim to promote communal coping among couples and aims *secondarily* to improve relationship quality. Therefore, the FST may be associated with greater improvements in communal coping than the CBT, marked by an increased use of *we*-talk by couples.

The present study investigated partner *we*-talk during two couple-focused interventions for problematic drinking – CBT and FST. Specifically, we used automatic text analysis to examine partners' *we/I*-ratios, our main pronoun variable, representing first-person plural pronoun use (*we*-talk) relative to first-person singular pronoun use (*I*-talk). To capture change over the course of therapy we investigated partners' *we/I*-ratio use during a baseline interaction task, mid-therapy, and the end of therapy. First, we hypothesized that greater spouse *we/I*-ratio use during the baseline task would predict successful patient drinking outcomes, as was found among couples suffering from heart failure, breast cancer, and health-compromised smoking (Robbins et al., 2012; Rohrbaugh et al., 2008; Rohrbaugh et al., 2012). The FST implemented in the current study was a precursor of the intervention implemented for health-compromised smokers (Rohrbaugh et al., 2012). We accordingly hypothesized that change in couple *we*-talk will be associated with better drinking outcomes for patients. Specifically, we predicted that

greater couple *we/I*-ratio use during therapy relative to during the baseline interaction task will be associated with successful drinking outcomes for patients at the end of therapy, as was found with health-compromised smokers. A novel expansion of this recent work is our comparison of the CBT and FST. CBT places greater emphasis on the individual drinker and less focus on promoting communal coping than the FST, and therefore we hypothesized that FST will result in greater increases in *we/I*-ratio use than CBT. Such an association may have implications for understanding the possible mediating role of communal coping in successful health outcomes of couple-focused interventions.

Method

Participants

Participants were 33 heterosexual couples (N=66) with a male partner who had problematic alcohol use. On average, identified patients were 39.2 years old (range = 21 – 68) and 91% Caucasian. 36% of patients graduated from college and 94% graduated from high school. The average length of couple relationship was 10 years (range = 1 - 45). Couples were assessed for eligibility at the University of California, Santa Barbara. All male partners were required to qualify for the diagnosis of problematic alcohol use based on several criteria: (a) a diagnosis of alcohol abuse or dependence by the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; American Psychiatric Association, 1987) and (b) a score of at least a seven on the Michigan Alcohol Screening Test, indicating hazardous drinking or alcohol dependence (MAST; Selzer, 1971). The male drinkers also needed to be in a committed romantic relationship of at least one year in length with a female who was willing to also participate in the study. Participants agreed to comply with all aspects of the treatment and assessments (e.g. breathalyzer tests).

Participants were drawn from a larger randomized control trial that investigated the efficacy of cognitive-behavioral therapy (CBT) and family-systems therapy (FST) in treating patients' problematic alcohol use (Shoham, Rohrbaugh, Stickle, & Jacob, 1998). The current sample of couples was selected based on several criteria. Each couple was required to have attended at least six therapy sessions and have usable video recordings (not missing or damaged) of at least one of the two selected sessions. Inclusion also required indications from a time-line follow-back interview at termination that the male drinker (the patient) had a clear successful drinking outcome (signified by 30 days abstinence) *or* a negative outcome (non-abstinence and more than one heavy drinking day in the past 30 days).

Interventions

Couples were randomly assigned to one of two manualized interventions developed and operationalized for the larger study, cognitive-behavioral therapy (CBT) or family-systems therapy (FST; Shoham et al., 1998). MA-level therapists from Santa Barbara, California were trained in one of the two manuals and had access to the manual authors for ongoing consultation and supervision to ensure adherence to guidelines. In-depth descriptions of the CBT and FST interventions can be found in Wakefield et al. (1996) and Rohrbaugh et al. (1995), respectively.

The CBT intervention differs from the FST intervention in several ways. The CBT focused on changing the drinking-maintaining thoughts and behaviors of the drinker by exploring reoccurring behavioral and cognitive drinking patterns, and teaching cognitive, behavioral, and coping skills. The primary goal was to teach the individual drinker skills in order to maintain abstinence and prevent lapses and relapses. Of secondary concern in the CBT was to improve relational and life problems within the couple in order to maintain alcohol abstinence, and conversely, altering drinking-maintaining interactions was primary focus to the FST. The

CBT had a more structured format by requiring certain activities and goals rather than allowing patients to frame their goals based on their attitudes and beliefs.

The FST intervention focused on altering interactions within the couple's system that may maintain problematic alcohol use. From this perspective, problem drinking is treated as a function of marital and family relationships, and therefore, exploring and improving interpersonal problems was of principal concern in the reduction of drinking behaviors and drinking-maintaining interactions. The FST therapists assessed problematic and effective interaction patterns, identified severity and consequences of drinking, and shaped the intervention according to couples' attitudes and beliefs about drinking within their system.

Another important distinction between the interventions was the CBT's focus on authoritative and direct therapist guidance; abstinence was required of clients by the 12th session (compliance tested using breathalyzers). This structured, demanding style differed from that of the FST, in which therapists used more indirect strategies to encourage clients to choose to become abstinent rather than demanding change. The FST therapists remained neutral but supportive about change, offering treatment if the couple decided they wanted to make drinking-related changes.

Procedure

Couples completed several baseline questionnaires and a marital interaction task during two assessment sessions prior to the start of the interventions. Participants provided self-report measures including a demographic questionnaire, Christensen and Sullaway's (1984) Communication Patterns Questionnaire, the Michigan Alcohol Screening Test (MAST; Selzer, 1971), and the Alcohol Use Inventory (AUI; Wanberg, Horn, & Foster, 1977). To identify a topic of discussion for the marital interaction task, partners completed the Areas of Change

Questionnaire (Weiss, 1984), in which they indicated certain areas in which they would like their partner to change.

In the final assessment session prior to intervention, couples engaged in a videotaped marital interaction task (MIT) directed by a research assistant. The research assistant first used couples' responses to the Areas of Change Questionnaire (1984) to assist them in choosing a conflict topic. The couple was instructed to have a ten-minute discussion about the conflict area they previously agreed upon, and then subsequently another ten-minute discussion about the problem of drinking.

Participants were randomly assigned (as a couple) to either the CBT or FST. Both interventions consisted of 20 sessions. Typically sessions one to 12 occurred within a span of six to 12 weeks, and sessions 13 to 20 occurred within a span of four to eight months. The FST progressed based on couples' readiness to change problematic drinking behaviors, and this less structured approach is generally associated with a longer duration of treatment. The CBT, however, is more structured, specifically requiring for couples to be abstinent from alcohol by session 12. These differences in therapy structure and client demands result in a faster-paced progression in the CBT than FST.

Automatic text analysis. In order to capture change in first-person plural pronoun use (*we-talk*) over the course of the interventions, three time points were selected for pronoun analysis: the baseline marital interaction task, a mid-therapy session, and the second-to-last session. The MIT was transcribed by trained research assistants. To capture pronoun use at baseline, speech was sampled from the 20-minute conflict and drinking discussion during the MIT. To capture pronoun use at mid-therapy, speech was sampled from session seven, because it marked the beginning of the active treatment phase in the FST, and followed a session in which

the therapist had offered his or her opinion on how to proceed with treatment (session six). We chose to sample speech from this session to allow ample time for change from the intervention to take effect among couples and also to capture pronoun use at the start of the active treatment phase rather than the assessment phase. The same sessions were selected for the CBT to maintain congruency among interventions, and because it is not characterized by equally distinct phases. If the videotape of session seven was missing or damaged, session eight was used instead (occurred for one couple). To capture pronoun use at the end of therapy, speech was sampled from the second-to-last session; the final session was not used because it likely an atypical therapy session, composed of wrap-up topics including client feedback and review of treatment. If the videotape of couples' second-to-last session was missing or damaged, the previous session was used in its place (occurred for three couples).

Three 5-minute speech segments of the mid-therapy and end of therapy sessions were transcribed by a trained research assistant. The three speech segments began ten, 25, and 40 minutes into each therapy session; our rationale for choosing these segments was based on several points. First, the average duration of a CBT session is approximately 50 minutes, while the length of the FST sessions are typically longer and more variable. Due to this wide range of session durations in the FST (range = 25 - 97 minutes), it was necessary to ensure that speech was sampled consistently across both interventions; specifically, segment start points were selected to avoid sampling of the beginning and end of sessions, which are typically devoted to catch-up and wrap-up topics. Second, segment selection was modeled after previous work by Rohrbaugh et al. (2012), in which speech was sampled at 25%, 50%, and 75% into sessions; therefore, 5-minute speech samples began 10, 25, and 40 minutes into each session (about 25%, 50%, and 75% through an average CBT session).

These segment start points were adjusted (remaining within six minutes of the target start point) if necessary to ensure that each partner contributed at least 20% of speech. Unfortunately, due to the nature of the triadic sessions, the primary goal to improve the males' drinking behaviors, and the individual differences in talkativeness, it was not always possible to obtain 20% of speech for each partner. Under these conditions, segments were adjusted forward and/or backward to obtain maximal amounts of speech while remaining within 6 minutes of the target start point.

Transcripts were cleaned and separated into male and female transcripts for each session. The texts (typically six transcripts per couple) were then entered into Linguistic Inquiry and Word Count (LIWC), an automatic text analysis program that performs counts for pronoun use, proportionate to each partner's total word count (Pennebaker, Francis, & Booth, 2007). The primary focus for the present study was *we/I*-ratio – first person plural pronoun use (*we*-talk) relative to first person singular pronoun use (*I*-talk). LIWC provided separate counts for all pronoun variables for each session and for each partner. The pronoun measures identified by LIWC were subsequently used in the data analyses.

Measures

Alcohol problem severity measures. The MAST is a 25-item self-report questionnaire that requires participants to indicate drinking behaviors and negative consequences related to drinking. The AUI self-report questionnaire also captures consequences of drinking, in addition to patterns of alcohol use and perceived benefits of drinking. Both the MAST and the AUI provided an index of alcohol-problem-severity at baseline.

Time-line follow-back interview. To gauge change in drinking behavior after the intervention, the Time-line Follow-back Interview was used for measurement at baseline and

therapy termination (Sobell & Sobell, 1992). This validated measure consists of an interview in which participants recall the frequency and quantity of their alcohol use in the previous thirty days. Interviewers assist participants in accurate retrieval with the guide of a calendar and anchor points such as special events, weekends, or holidays.

Constructive communication. Christensen and Sullaway's (1984) Communication Patterns Questionnaire (CPQ) is a 35-item self-report measure of constructive communication among couples. A 3-item subscale of the CPQ was used to obtain a measurement of constructive communication. Constructive communication is a manifestation of relationship quality that is highly correlated to relationship satisfaction (**citation**).

Pronoun measures. Transcripts of both partners at each time point were entered into LIWC. LIWC provided measures of total word count by partners to be further examined as a potential covariate. LIWC provided measures of *we*-talk and *I*-talk that represented participants' total use of each pronoun relative to their total word count. We also calculated an additional pronoun variable, *we/I*-ratio, to represent the total amount of *we*-talk relative to *I*-talk as a proportion of total first-person pronoun use. Previous studies found that *we/I*-ratio is a better predictor of patient and couple outcomes than *we*-talk alone, because it proportions how often participants refer to themselves as a interdependent unit to how often they refer to themselves as an independent individual.

Data Analysis Plan

Descriptive statistics of the main pronoun variables for patients and spouses in the CBT and FST intervention appear in Table 1 and Table 2, respectively. Preliminary analyses included between-person correlations of pronoun use at baseline, mid-therapy, and at the end of therapy to evaluate the role of intervention phase. Patient-spouse concordance was compared to existing

research on couple pronoun use, particularly those involving partners with health problems. Within-person correlations across all time points were computed to assess the stability of individuals' pronoun use over the course of therapy.

Correlates of the main pronoun and outcome variables were examined as potential covariates for the association between pronoun use and patient drinking outcome. Demographic and relationship variables were investigated due to their previously identified influence on pronoun use. Mean age of couples, length of couples' relationship, and constructive communication scores were assessed by computing correlations with outcome and the main pronoun variables. Significant effects were addressed further by controlling for such variables in the main analyses.

Using SPSS, a series of mixed model analyses of variance (ANOVA and MANOVA) were conducted to examine the role of pronoun use in health outcome (as successful or unsuccessful) and role (as patient or spouse) across both interventions. The first ANOVA examined the relationship between *we/I*-ratio use at baseline and drinking outcomes for patients. The second model investigated if *we/I*-ratio use during therapy (averaging across mid-therapy and end of therapy sessions) predicts drinking outcomes with and without controlling for baseline *we/I*-ratio use. Succeeding ANOVAs examined associations between *we/I*-ratio use and drinking outcomes at mid-therapy and also the end of therapy. Finally, an ANOVA of *we/I*-ratio use during therapy was performed using session (as middle or end of therapy) as a within-subject factor. Follow-up t-tests were computed to interpret significant main and interaction effects.

Results

Descriptive statistics for the main pronoun variables (*we/I*-ratio, *we*-talk, *I*-talk) for patients and spouses at baseline, the middle of therapy, and the end of therapy in the CBT and

FST interventions are displayed in Table 1 and Table 2, respectively. Patient and spouse *we*-talk occurred at relatively lower rates than *I*-talk, but *we/I*-ratios showed sufficient variability for statistical analyses. This finding is consistent with previous research in which singular pronoun use was found to occur more frequently than plural pronoun use.

Between-person correlations of the main pronoun variables revealed patient-spouse concordance at each time point to monitor change and possible trends between couples' language use throughout therapy. There was moderate patient-spouse concordance for *we/I*-ratio at baseline, $r = 0.41, p = .02$, but not at mid-therapy ($r = 0.24, p > .1$), or the end of therapy ($r = 0.18, p > .1$). Patient-spouse concordance for *we*-talk was also significant at baseline ($r = 0.43, p = .02$), but not at mid-therapy ($r = 0.09, p > .1$) or at the end of therapy ($r = 0.23, p > .1$). Between-couple correlations of *I*-talk revealed significant patient-spouse concordance at baseline ($r = 0.41, p = .02$), and mid-therapy ($r = 0.48, p = .005$), but not at the end of therapy ($r = 0.14, p > .1$).

Within-person correlations of the main pronoun variables were performed across time points to gauge the stability of partners' pronoun use. *We/I*-ratio use was not stable baseline to mid-therapy for patients ($r = 0.16, p > .1$) or spouses ($r = 0.29, p > .1$), or from mid-therapy to the end of therapy for patients ($r = 0.01, p > .1$) or spouses ($r = 0.21, p > .1$). However, *we/I*-ratio correlations revealed moderate stability from baseline to the end of therapy for patients ($r = 0.43, p = .02$) and spouses ($r = 0.33, p = .08$). Correlation coefficients for *we*-talk revealed little stability from baseline to mid-therapy for patients ($r = 0.18, p > .1$) and spouses ($r = 0.12, p > .1$), and from mid-therapy to the end of therapy for patients ($r = 0.14, p > .1$) and spouses ($r = 0.17, p > .1$). There was significant stability of *we*-talk from baseline to the end of therapy for patients ($r = 0.52, p = .005$), but not for spouses ($r = 0.21, p > .1$). Stability coefficients were

moderate for *I*-talk from baseline to mid-therapy for patients ($r = 0.35, p = .05$), but indicated stability among spouses ($r = 0.57, p = .001$). Stability of *I*-talk mid-therapy to the end of therapy was not significant for patients ($r = 0.30, p > .1$) or spouses ($r = 0.25, p > .1$). Finally, *I*-talk was moderately stable from baseline to the end of therapy for patients ($r = 0.40, p = .04$) and spouses ($r = 0.51, p = .005$).

Demographic variables, couples' mean age and length of relationship, were investigated as potential covariates in the main analyses. Couples' mean age was not significantly correlated with outcome ($r = -0.9, p > .1$), nor individual *we/I*-ratio, *we*-talk, or *I*-talk at any time point. A significant relationship between couple mean age and relationship length was found, $r = 0.69, p = .00$. Constructive communication was positively but not significantly related to outcome, $r = 0.30, p = .099$. Constructive communication was not significantly related to *we/I*-ratio use by couples at baseline ($r = -0.15, p > .1$), mid-therapy ($r = 0.28, p > .1$), or the end of therapy ($r = 0.04, p > .1$). This measure was also not significantly correlated to *we*-talk at baseline ($r = -0.14, p > .1$), mid-therapy ($r = 0.29, p > .1$), or the end of therapy ($r = -0.10, p > .1$), nor *I*-talk at baseline ($r = 0.10, p > .1$), mid-therapy ($r = -0.07, p > .1$), or the end of therapy ($r = -0.30, p > .1$). Length of relationship was not significantly related to *we/I*-ratio at baseline ($r = 0.03, p > .1$), mid-therapy ($r = 0.24, p > .1$), or the end of therapy ($r = 0.19, p > .1$). It was also not significantly correlated with *we*-talk at baseline ($r = -0.02, p > .1$), mid-therapy ($r = 0.21, p > .1$), or the end of therapy ($r = 0.10, p > .1$), or *I*-talk at baseline ($r = -0.20, p > .1$), mid-therapy ($r = 0.23, p > .1$), or the end of therapy ($r = -0.35, p = .07$). Further, length of relationship was unrelated to outcome, $r = -0.09, p > .1$.

Pronoun use as a predictor of drinking outcome

In order to test our main hypotheses regarding the role of *we*-talk in the FST and CBT in the problem drinker's abstinence outcome, a series of mixed model analyses of variance (ANOVA and MANOVA) were performed using SPSS general linear model statistical module. In these models, partner's role (as patient versus spouse) was a within-subject factor and outcome (as success versus failure) and intervention (as CBT or FST) were between-subject factors. The first ANOVA examined the relationship between *we/I*-ratio use during the baseline interaction task and successful versus unsuccessful drinking outcomes for patients. The second and third models investigated *we/I*-ratio use during therapy (averaged across mid-therapy and end of therapy sessions) with and without controlling for baseline *we/I*-ratio use. The fourth ANOVA examined *we/I*-ratio use at mid-therapy, and a fifth model examined *we/I*-ratio at the end of therapy when controlling for baseline *we/I*-ratio use. Finally, a seventh model investigated *we/I*-ratio use during therapy, with session (as the middle or end of therapy) as a within-subject factor.

First, baseline *we/I*-ratio use was investigated, and a significant main effect of role was found, $F(1, 28) = 5.81, p = .02$, such that spouses ($M = 17.65, SD = 9.99$) had greater *we/I*-ratios than patients ($M = 13.31, SD = 9.41$). Further, a marginal role x outcome interaction was found, $F(1, 28) = 3.52, p = .07$, revealing that patient and spouse *we/I*-ratios significantly differed among couples with successful drinking outcomes $t(17) = -3.68, p = .002$, but not among couples with unsuccessful drinking outcomes, $t(13) = -0.31, p > .1$. Specifically, among couples with successful drinking outcomes, spouses ($M = 18.84, SD = 9.73$) had greater *we/I*-ratios than patients ($M = 11.12, SD = 8.11$), whereas there was no difference between patient ($M = 15.49, SD = 10.65$) and spouse ($M = 16.45, SD = 10.52$) *we/I*-ratios among couples with unsuccessful drinking outcomes. No other significant main effects or interactions were found.

An ANOVA examined total *we/I*-ratio use during therapy (averaged across mid-therapy and end of therapy sessions) and no significant main effects or interactions were found.

Subsequently, a multivariate analysis of variance (MANOVA) was performed to examine total *we/I*-ratio use during therapy when controlling for baseline *we/I*-ratio use. A significant main effect of outcome, $F(1, 27) = 4.71, p = .04$, indicated that couples with successful drinking outcomes had greater change in *we/I*-ratio use from baseline to subsequent therapy sessions. Specifically, couples with successful drinking outcomes had significantly greater increases in *we/I*-ratio use from baseline to subsequent therapy sessions ($M = 13.34, SD = 5.15$) than couples with unsuccessful drinking outcomes ($M = 10.63, SD = 4.71$).

An additional ANOVA revealed a significant main effect of role on *we/I*-ratio use mid-therapy $F(1, 28) = 6.80, p = .01$, indicating that spouses ($M = 14.14, SD = 9.06$) had greater *we/I*-ratios than patients ($M = 9.55, SD = 6.25$). There was also a significant main effect of outcome on *we/I*-ratio in the mid-therapy $F(1, 28) = 3.98, p = .06$, revealing that couples with successful drinking outcomes ($M = 13.62, SD = 6.41$) used more *we*-talk relative to *I*-talk than couples with unsuccessful drinking outcomes ($M = 9.58, SD = 5.01$). There was also a marginal interaction effect between role and intervention on *we/I*-ratio use $F(1, 28) = 3.31, p = .08$. Tests for simple effects related to this interaction at mid-therapy revealed that for couples in the CBT intervention, there was a significant difference between patient and spouse *we/I*-ratio use, $t(15) = -3.38, p = .004$, such that spouses ($M = 15.63, SD = 9.23$) had greater *we/I*-ratios than patients ($M = 8.21, SD = 6.90$). For couples in the FST intervention, however, there was no difference between spouse ($M = 12.66, SD = 8.94$) and patient ($M = 10.90, SD = 5.42$) *we/I*-ratio use at mid-therapy, $t(15) = -0.70, p > .1$. Finally, a marginal interaction between intervention and outcome was found $F(1, 28) = 3.72, p = .06$, revealing that for couples in the CBT, there was a significant

difference in *we/I*-ratio use between couples with successful and unsuccessful drinking outcomes, $t(14) = -2.76, p = .02$, such that couples with successful outcomes had greater *we/I*-ratios ($M = 15.40, SD = 6.32$) than couples with unsuccessful outcomes ($M = 7.45, SD = 4.80$). However, there was no difference in *we/I*-ratio use between couples with successful and unsuccessful outcomes among couples in the FST, $t(14) = -0.05, p = .96$. A similar MANOVA model was performed to examine couple *we/I*-ratios at the end of therapy when controlling for baseline *we/I*-ratio use. No significant main effects or interactions were found.

A final ANOVA was computed to examine *we/I*-ratio during therapy with session (the middle or end of therapy) as a within-subject factor. There were no significant main effects, but several interactions were found. A role x session interaction was found $F(1, 24) = 5.70, p = .03$, revealing that patient and spouse *we/I*-ratios differed significantly mid-therapy, $t(31) = -2.68, p = .01$, but not at the end of therapy, $t(28) = 1.17, p > .1$. Specifically, at mid-therapy, spouses ($M = 13.67, SD = 8.07$) had significantly greater *we/I*-ratios than patients ($M = 9.75, SD = 6.34$). A final marginal three-way interaction between role x session x intervention was also found $F(1, 24) = 3.50, p = .07$, such that spouse *we/I*-ratios significantly decreased from the middle ($M = 16.74, SD = 9.15$) to the end ($M = 9.91, SD = 6.56$) of the CBT $t(14) = 2.90, p = .01$, with no change in spouse *we/I*-ratios from the middle to the end of the FST. Patient *we/I*-ratios did not differ from the middle to the end of therapy in either intervention.

Discussion

The aim of this study was to investigate partner first-person plural pronoun use during two couple-focused interventions for problematic drinking – Cognitive Behavioral Therapy and Family Systems Therapy. Specifically, we examined partner *we/I*-ratios (*we*-talk relative to *I*-talk) during a baseline interaction task, mid-therapy, and the end of therapy, and hypothesized

that: (1) spouse *we/I*-ratio at baseline would predict patient drinking outcome, (2) increases in couple *we/I*-ratios during therapy would be associated with successful drinking outcomes for patients, and (3) the association between increases in *we/I*-ratios and drinking outcomes would be more pronounced for those couples in FST compared to those in CBT, as the FST places greater emphasis on promoting communal coping. Consistent with our first hypothesis, greater *we/I*-ratios by spouses than patients at baseline predicted successful drinking outcomes for patients. Results support the second hypothesis as well, revealing that couples' overall change in *we/I*-ratios during therapy (averaged across the selected therapy sessions) predicted successful drinking outcomes for patients. Somewhat surprisingly, at mid-therapy, greater couple *we/I*-ratios (averaged across partners) predicted successful drinking outcomes for patients in the CBT but not the FST (when controlling for baseline *we/I*-ratio use). Further, at mid-therapy spouses had greater *we/I*-ratios than patients in the CBT, with no difference in *we/I*-ratio use between partners in the FST. At the end of therapy, *we/I*-ratio use by spouses in the CBT decreased, and *we/I*-ratios were not associated with drinking outcome in either intervention. Overall, these findings provide additional support for the prognostic value of spouse *we*-talk in patient health outcomes, and communal coping as a possible mechanism of change in couple-focused interventions.

These findings corroborate previous investigations into the predictive ability of spouse *we*-talk for patient health outcomes. Indeed, greater spouse *we*-talk during a baseline interaction task predicted the successful drinking outcomes for patients at the end of therapy. This result extends our knowledge of the adaptive quality of spouse *we*-talk for couples coping with health problems, observed in the case of heart failure, health-compromised smoking, breast cancer, and now problematic alcohol use (Robbins et al., 2012; Rohrbaugh et al., 2008; Rohrbaugh et al.,

2012). Thus greater communal coping by the spouse, implicitly measured by *we-talk*, is associated with better health in patients suffering from a wide range of illnesses on a quite consistent basis. This recent utility of automatic text analysis in the study of couples coping with health problems emphasizes the influential role of dyadic processes in the course of chronic illness and addiction. These recent findings supplement the existing literature highlighting the influential role of relationship characteristics on health outcomes (for a review see Fisher, 2006), by suggesting that communal coping by mainly the spouse defines the patient's course of illness and addiction. This growing body of research demonstrating the transitive effects of spouses' thoughts and behaviors on patients' health illuminates that for patients suffering from health problems or addiction, coping is truly a dyadic process that shapes the course of illness.

Perhaps the most noteworthy finding is that increased *we-talk* by couples over the course of both interventions predicted successful drinking outcomes for patients. This finding mirrors that of the only other study, to our knowledge, that has investigated *we-talk* by couples during therapy. The authors found that increases in *we-talk* by couples during a family systems intervention (FAMCON) predicted cessation of health-compromised smokers the following year (Rohrbaugh et al., 2012). Together, these findings suggest that communal coping, implicitly measured by *we-talk*, mediates the effects of couple-focused interventions for patients suffering from addiction. Whereas the majority of previous research using automatic text analysis revealed associations between couple *we-talk* and chronic illness and addiction outcomes, these two preliminary studies broadly demonstrate the utility and efficacy of this non-reactive methodology for studying mechanisms of change in psychosocial interventions. Together, the results specifically indicate that promoting communal coping in couple-focused interventions is beneficial for the health of patients suffering from addiction. Importantly, increases in couple

we-talk during therapy predicted successful drinking outcomes for patients in both the CBT and FST, suggesting that despite fundamental differences, they both promoted communal coping, which contributed to successful alcohol abstinence after the intervention.

The CBT aims primarily to adjust maladaptive cognitions and behaviors in the individual drinker, and secondarily to improve relationship quality, and the FST aims primarily to improve couple interactions that maintain drinking behavior by promoting communal coping. The FST promotes communal coping among couples by encouraging goal-setting and change “as a couple,” and focusing on amplifying interaction patterns that served as problem solutions in the past. Therefore, we hypothesized that the FST would be associated with greater increases in couple communal coping, measured by *we*-talk than in the CBT. However, we found no evidence to support this hypothesis. In fact, couple *we*-talk at mid-therapy did not predict drinking outcomes for patients in the FST, as it did in the CBT. This is particularly difficult to reconcile with the previous finding that increases in couple *we*-talk during FAMCON therapy— a later version of the FST intervention—were associated with successful smoking outcomes for health-compromised smokers. Although couples were randomly assigned to the interventions and we examined potential covariates prior to our main analyses, it is still possible that the two groups of couples differed in other ways prior to the study. Alternatively, it may not be so surprising that the couple-focused CBT promoted communal coping as well, since it is also carefully designed to weave the spouse and couple relationship into the fabric of the intervention. The CBT therapists spend a great deal of time teaching and exercising skills to enhance couples’ relationship functioning and communication, and instruct couples to plan and implement pleasurable activities together to promote positive interactions without the presence of alcohol. Perhaps significantly beneficial for communal coping is that as patients receive treatment for

alcohol use, spouses receive analogous treatment for a behavior they choose to eliminate. The goal of engaging the spouse in the same process as the patient is to increase empathy and revert focus to herself, rather than to the patient or the drinking. Therefore, it is not surprising that the results of the current study suggested that the CBT enhances communal coping among couples, thereby resulting in successful drinking outcomes for patients.

We specifically chose the mid-therapy session as session seven because at that point in the first half of therapy, the phases of the two interventions were the most similar, and we believed ample change could take effect for couples in both interventions by this time. Despite these decisions, it is still possible that dissimilarities of the intervention phases and nature of discussions were responsible for the finding that couple *we*-talk mid-therapy did not predict drinking outcomes in the FST. Mid-therapy, the FST therapists began the treatment phase by guiding couples in creating plans, goals, and agreements for removing alcohol from their relationship after having investigated and assessed the couples' relationship with alcohol. During this time in the CBT, therapists began working on coping and refusal skills and continued practicing self-monitoring skills by both partners and enhancing the couples' relationship through communication skills training and pleasant events. Therefore, the discussions throughout therapy sessions were likely different in nature in the two interventions. The couples in the CBT had completed exercises implemented to specifically improve couple functioning (independent of alcohol), and couples in the FST did less direct exercises to promote communal coping by exploring the positive aspects of their relationship and framing goals "as a couple." Although change in overall couple *we*-talk during therapy did predict successful drinking outcomes in the FST, perhaps *we*-talk mid-therapy did not predict drinking outcomes in the FST due to the different stage and nature of discussion compared to the CBT.

Another interesting finding was that spouses used more *we*-talk than patients in the CBT at mid-therapy, but not in the FST. One possible explanation for this interaction is that couples in the CBT and FST differed prior to the intervention, although there was no effect of intervention in analyses of baseline *we*-talk. Another plausible explanation is that some aspect of the CBT at mid-therapy improved communal coping by the spouse specifically, and this was not captured by *we*-talk in the FST. One integral feature of the CBT possibly contributing to this effect is the spouses' participation in a parallel process to that of the patient throughout the intervention, which aimed to promote empathy for the patient and distraction from the patient's drinking. At the end of therapy, however, *we*-talk decreased among spouses in the CBT to meet that of patients, and *we*-talk did not predict drinking outcome in either intervention. Particularly interesting is that CBT and FST had the most similar goals and exercises at the end of therapy, with discussions focused on the couples' progress, plans to prevent relapse, social support networks, and addressing "loose end" complaints. Perhaps these discussions were unique to other time points by focusing on the past and/or future more so than the present. Another possibility is that at this relapse prevention stage at end of therapy, there was more focus on the drinking than the relationship.

There are several limitations of our study. First, our sample of couples was relatively small ($N = 66$), yielding limited statistical power for analyses. Second, automatic text analysis is unable to disambiguate the contextual meaning of pronoun use, and does not account for certain subtleties of language or multiple meanings of the same word. Third, the nature of the baseline interaction task and subsequent therapy sessions differed in terms of the absence or presence of a third party and the topic of discussion. At baseline, the couples discussed a conflict and the problem of drinking itself amongst themselves, and during therapy sessions the couples

discussed therapeutic problem-solving with a third-party present (the therapist). Therefore, it may be problematic to compare *we*-talk across these time points, particularly because pronoun use likely changes when partners talk amongst themselves versus with the therapist. These disparities among time points may confound the comparisons in our results, and a cleaner study would entail sampling speech from more identical situations.

Another limitation is inherent in the study's very design – we compared *we*-talk across two interventions that differed in the nature and topic of discussions. A notable discrepancy is that therapists in the CBT often engaged in dyadic conversation with the patient or spouse separately about the patient's drinking and the spouse's "target behavior" she aims to eliminate. Therapists in the FST, however, tended to engage both partners in triadic conversation most frequently. Additionally, since the CBT places a lesser focus on the couple (rather than the individual drinker) than the FST, the spouses in the CBT appeared to speak less during the sessions. As a result, there were more speech segments from couples in the CBT than FST with less than 10% talk-time by spouses.

The main clinical implication of this study is that communal coping may be a mechanism of change in couple-focused interventions. This was the case for both the CBT and FST, suggesting that incorporating the spouse and the couple relationship in interventions for patients with addiction may be beneficial, regardless of fundamental differences in theory and implementation. These findings corroborate previous support for additive benefits of incorporating the spouse and relationship in interventions for patients with health problems. Somewhat dissimilar patterns of change in *we*-talk by couples in the CBT and FST suggest that although both interventions were most effective among couples who increased in communal coping over the course of therapy, their processes of doing so differed. Spouses of patients

copied with health problems are integral in shaping the patients' illness course, evident in spouse *we*-talk predictive power across studies and illnesses. Currently two studies of three interventions and two illnesses suggest that increased communal coping mediates the beneficial effects of couple-focused therapies for health problems. Future research is required to establish the extent of generality across other couple-focused interventions that target other complaints beyond addiction, such as marital conflict.

In conclusion, the results of the present study support existing documentation of the prognostic value of spouse *we*-talk for patient health outcomes and the mediating effect of communal coping on patient health outcomes in different couple-focused interventions. These findings highlight language use as indicators of change in couple-focused intervention research.

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Table 1

Descriptive Statistics for Pronoun Variables of the CBT Intervention

Pronoun Variables	Patients			Spouses		
	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
<i>We/I-ratio</i>						
Baseline	10.8	10.1	1.4 – 38.4	17.1	10.9	1.5 – 40.4
Mid-therapy	8.2	6.9	0 – 23.0	15.6	9.2	2.8 – 28.6
End of therapy	12.7	6.7	3.1 – 25.0	9.8	6.1	0 – 20.6
<i>We-talk</i>						
Baseline	1.0	0.9	0.1 – 3.2	1.4	0.9	0.2 – 3.2
Mid-therapy	0.7	0.5	0 – 1.6	1.2	0.7	0.2 – 2.2
End of therapy	1.0	0.5	0.4 – 2.0	0.8	0.5	0 – 2.0
<i>I-talk</i>						
Baseline	8.7	2.0	5.3 – 12.2	7.0	1.9	4.0 – 11.3
Mid-therapy	7.9	2.3	5.2 – 13.7	6.9	2.1	4.3 – 11.8
End of therapy	6.8	1.7	4.4 – 11.3	7.5	1.3	4.3 – 9.9

Note. Raw *we-talk* and *I-talk* variables represent proportions of total words, while the *we/I-ratio* variable represents first-person plural pronouns divided by all first-person pronouns.

Table 2

Descriptive Statistics for Pronoun Variables of the FST Intervention

Pronoun Variables	Patients			Spouses		
	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
<i>We/I-ratio</i>						
Baseline	15.3	8.3	0 – 29.1	18.5	9.3	5.0 – 37.9
Mid-therapy	10.9	5.4	1.8 – 20.9	12.7	8.9	0 – 39.7
End of therapy	13.4	12.3	1.8 – 42.5	11.7	7.9	2.4 – 29.5
<i>We-talk</i>						
Baseline	1.4	0.8	0 – 2.7	1.5	0.6	0.5 – 2.4
Mid-therapy	1.0	0.5	0.2 – 2.0	1.0	0.6	0 – 2.5
End of therapy	1.1	1.1	0.2 – 4.2	1.0	0.7	0.2 – 2.5
<i>I-talk</i>						
Baseline	8.5	1.7	5.3 – 12.2	6.9	1.9	3.7 – 9.8
Mid-therapy	7.9	1.9	5.2 – 13.7	7.4	2.2	3.8 – 11.0
End of therapy	7.8	2.1	4.4 – 11.3	7.4	2.4	3.4 – 12.3

Note. Raw *we-talk* and *I-talk* variables represent proportions of total words, while the *we/I-ratio* variable represents first-person plural pronouns divided by all first-person pronouns.

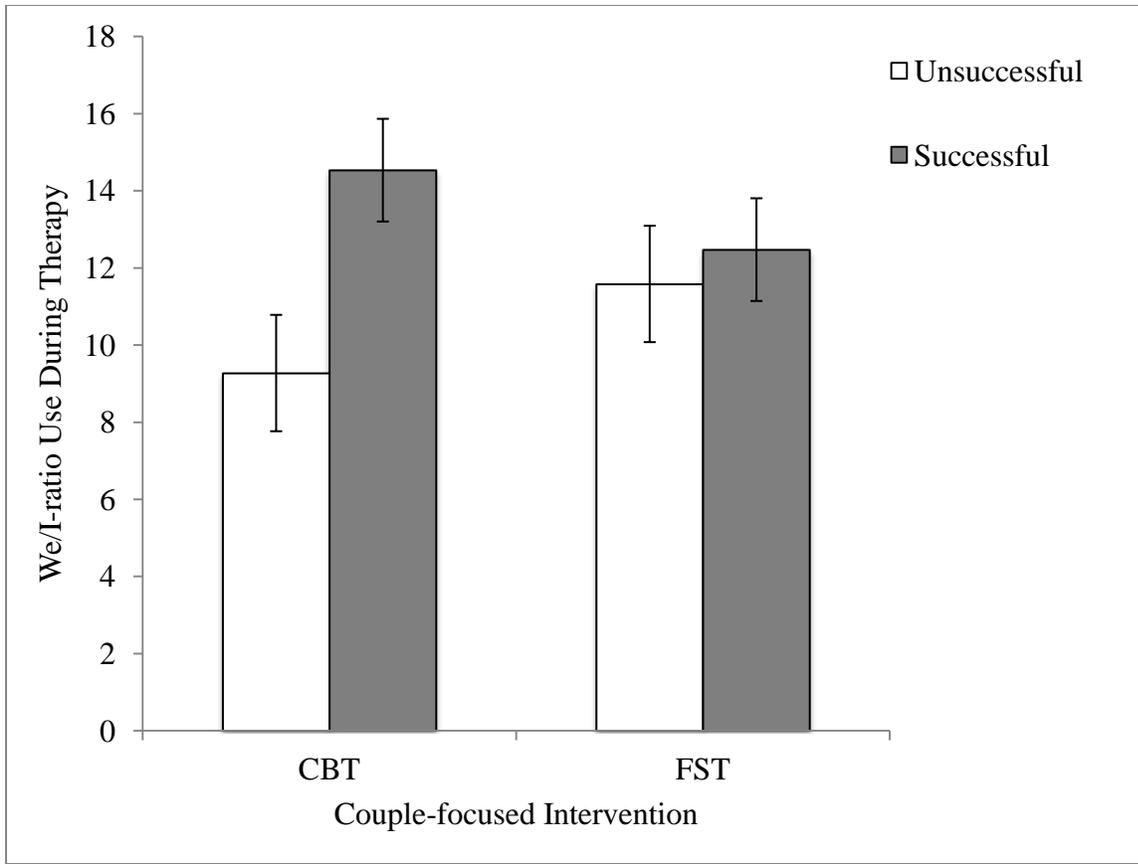


Figure 1. Mean *we/I*-ratio use across both partners during therapy as a function of drinking outcome and intervention ($N = 66$). Error bars represent standard errors.

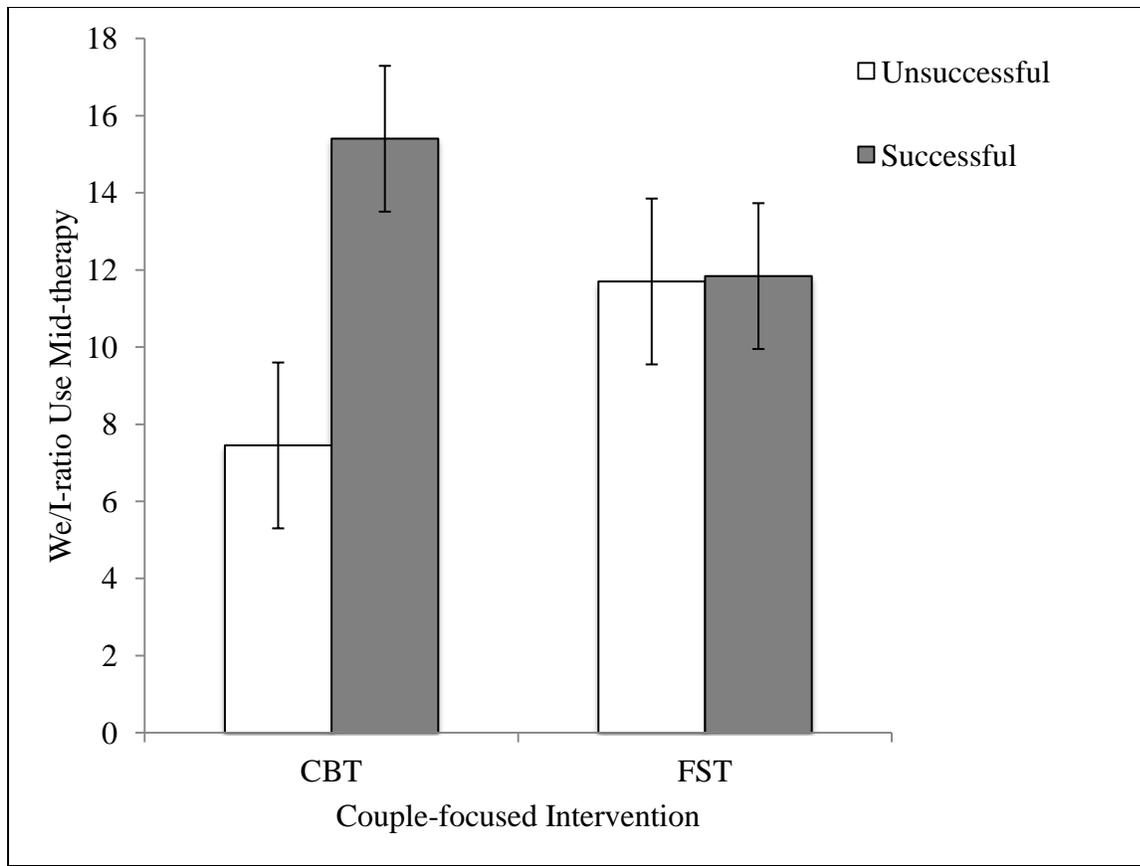


Figure 2. Mean *we/I*-ratio use across partners at mid-therapy as a function of drinking outcome and intervention (N = 66). Error bars represents standard errors.