We-Talk, Communal Coping, and Cessation Success in a Couple-Focused Intervention for Health Compromised Smokers

By: Michael J. Rohrbaugh, Varda Shoham, Jane A. Skoyen, Michaeline Jensen, and Matthias R. Mehl

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Abstract:

We investigated first-person plural pronoun use (we-talk) by health-compromised smokers and their spouses as a possible implicit marker of adaptive, problem-resolving communal processes. Twenty couples in which one or both partners used tobacco despite one of them having a heart or lung problem participated in up to 10 sessions of a smoking cessation intervention designed to promote communal coping, where partners define smoking as “our” problem, rather than “your” problem or “my” problem, and take collaborative action to solve it. We used the Linguistic Inquiry Word Count automatic text analysis program to tabulate first-person pronoun use by both partners from transcripts of a pretreatment marital interaction task and later intervention sessions. Results indicated that pretreatment we-talk by the patient's spouse predicted whether the patient remained abstinent 12 months after quitting, and residualized change in we-talk by both partners during the course of intervention (controlling for baseline levels) predicted cessation outcomes as well. These findings add to evidence regarding the prognostic significance of partner we-talk for patient health and provide preliminary documentation of communal coping as a possible mechanism of change in couple-focused intervention.

Keywords: Communal Coping | Automatic Text Analysis | Couple Therapy | Smoking Cessation

Article:

Research on couples coping with health problems and addictions suggests that communal processes can play a pivotal role in both problem maintenance and problem resolution. On the maintenance side, for example, having a partner who smokes decreases the likelihood of successful quitting (Ferguson, Bauld, Chesterman, & Judge, 2005; Homish & Leonard, 2005), and partners' shared tobacco use may actually enhance couple cohesion in ways that make

quitting more difficult (Rohrbaugh, Shoham, Butler, Hasler, & Berman, 2009; Shoham, Butler, Rohrbaugh, & Trost, 2007). At the same time, a communal orientation to coping appears to predict positive health outcomes (Berg & Upchurch, 2007; Lewis et al., 2006; Rohrbaugh, Mehl, Shoham, Reilly, & Ewy, 2008), and increased partner collaboration is a common mediating aim of couple-focused interventions (Bodenmann et al., 2008; Scott, Halford, & Ward, 2004; Shoham, Rohrbaugh, Trost, & Muramoto, 2006).

The present study examines use of first-person plural pronouns (*we*-talk) by health-compromised smokers and their spouses as an implicit marker of communal problem-resolving processes. Of particular interest is the relevance of *we*-talk to what Lyons, Mickelson, Sullivan, and Coyne (1998) call *communal coping*—a dyadic process that involves appraising a stressor (e.g., a patient's chronic health condition) as "our" problem rather than "yours" or "mine" and taking cooperative "we"-based action to address it. (See also Rolland's (1994) seminal discussion of "our problem" frames among couples coping with chronic illness.) Thus, when couples talk about a health concern, partners' use of "we" pronouns may reflect relatively more we-ness, or communal coping, whereas use of "I" pronouns may reflect less. Here, in the context of a couple-focused intervention for health-compromised smokers (Shoham et al., 2006), we investigate both pretreatment *we*-talk and *we*-talk during the intervention itself as predictors of successful cessation outcomes.

Assessing personal pronoun use through automatic text analysis is a relatively new approach to studying close relationships. While data from more familiar self-report and observational methodologies clearly link dyadic we-ness versus separateness to relationship quality and outcomes (Acitelli & Badr, 2005; Badr, Carmack, Kashy, Cristofanilli, & Revenson, 2010; Bodenmann, 2005; Buehlman, Gottman, & Katz, 1992; Mills, Clark, Ford, & Johnson, 2004), there is growing evidence that use of first-person plural pronouns (we, us, our) in the context of couple communication correlates with relational commitment, shared identity, positive emotional behavior, lower cardiovascular arousal, and effective problem solving by relationship partners (Seider, Hirschberger, Nelson, & Levenson, 2009; Simmons, Chambless, & Gordon, 2008; Simmons, Gordon, & Chambless, 2005; Slatcher & Pennebaker, 2006; Williams-Baucom, Atkins, Sevier, Eldridge, & Christensen, 2010). These couple pronoun studies extend an impressive body of research at the individual level indicating that easily countable linguistic features of transcribed narratives can predict (or postdict) diverse aspects of psychological and biomedical adaptation (Pennebaker, Mehl, & Niederhoffer, 2003; Tausczik & Pennebaker, 2010). Pennebaker and colleagues, who developed the Linguistic Inquiry Word Count (LIWC) software typically used in this research, suggest further that speech particles such as personal pronouns, which reflect linguistic style more than content, are more impervious than regular nouns and verbs to conscious word choice and may therefore serve as better markers of fundamental psychosocial processes such as emotional states, cognitive styles, and social identity (Pennebaker et al., 2003). Automatic text analysis may also be less vulnerable to social desirability bias than traditional interview and questionnaire methods, especially for measuring highly evaluative constructs such as the quality of one's social relations (Pressman & Cohen, 2007).

Our own extension of couple pronoun methodology to communal coping with health problems evolved from a prospective study of couples coping with heart failure, where the strongest

predictor of 8-year survival was the reported frequency of partners' "useful discussions" about the patient's illness (Rohrbaugh, Shoham, & Coyne, 2006). This finding is reminiscent of the Lyons et al.'s (1998) communal coping construct, and a follow-up study with a different sample of heart patients found that communal coping, unobtrusively measured by a spouse's first-person-plural pronoun use (*we*-talk) during a conjoint coping interview, predicted a favorable heart-failure symptom course over the next 6 months (Rohrbaugh et al., 2008). Interestingly, only the spouse's *we*-talk (and not the patient's) had prognostic significance in this study, and *we*-talk correlated only minimally with a self-report measure of communal coping that was not itself a significant predictor of patient health change.[1]

Another opportunity to study *we*-talk as a marker of communal coping arose in the context of a treatment-development study involving a family consultation (FAMCON) intervention for couples in which one or both partners continued to smoke despite one of them having heart or lung disease (Rohrbaugh et al., 2001; Shoham et al., 2006). Grounded in family systems theory, the FAMCON intervention aims simultaneously to interrupt interpersonal patterns of smoking maintenance and promote communal coping by the partners in the service of change. Tactics for the latter include (1) attending to and reinforcing partners' recollections of how they have successfully resolved difficulties together in the past; (2) requesting partner agreement about cessation strategies (e.g., setting a quit date, helpful and unhelpful support behavior); and (3) framing therapeutic suggestions in terms of their implications for "you as a couple." To the extent that such attempts to facilitate communal coping succeed, one might expect to see an increase in partner *we*-talk as the FAMCON intervention progresses, and a correlation between this increase and positive clinical outcomes. The primary smokers (identified patients) in the FAMCON pilot study achieved a 50% rate of stable cessation at 6 months, and the entire sample of 28 smokers (which included some smoking partners) had co-verified quit rates of 54% and 46% over 6 and 12 months, respectively (Shoham et al., 2006). Although the sample was small, these outcomes compare favorably to benchmarks in the literature (Fiore et al., 2000, 2008), and the balanced split of successes and failures provides a useful criterion against which to examine the prognostic significance of partner *we*-talk before and during the FAMCON intervention.

To summarize, the present study examines first-person plural pronoun use (*we*-talk) by health-compromised smokers and their spouses as a predictor of successful cessation following couple-focused intervention. Building on evidence that *we*-talk marks effective communal coping by couples, we hypothesized that (1) *we*-talk levels assessed prior to a couple-focused intervention would predict post-treatment quit success, and (2) increased *we*-talk during the course of couple-focused intervention would predict this outcome as well. In our view, the latter hypothesis is most significant clinically because it highlights a putative mechanism of change, and possibly a relational "common factor" in couple-focused interventions for health problems. Finally, we sought to explore two secondary questions prompted by indications that FAMCON may be especially well suited for female patients and patients whose partner also smokes—two subgroups at high risk for relapse: (1) whether *we*-talk is more prevalent in dual- than single-smoker couples, and (2) whether the prognostic significance of *we*-talk depends on partner smoking status or patient sex.

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[1] As in most couple pronoun studies, the statistical analyses of *we*-talk took into account *I*-talk (first-person singular pronoun use). In fact, the best overall pronoun predictor of health change in Rohrbaugh et al. (2008) was the relative *we/I* ratio.

Method

Participants

Participants were 20 couples in which one partner (the patient) continued to smoke despite having heart or lung disease or at least two additional documented risk factors for coronary artery disease (e.g., hypertension, diabetes, obesity, high blood cholesterol). All primary smokers had smoked at least 10 cigarettes per day on average for the previous 6 months, and all reported multiple unsuccessful prior quit attempts. In eight (dual-smoker) couples the primary smoker's partner also smoked, and in 12 (single-smoker) couples only the patient smoked. The primary smokers included 12 men and 8 women, whereas 4 men and 4 women were secondary-smoker partners.

Demographically, the mean age of all participants was 55 years (range 41–72); a quarter (25%) had graduated from college, and 54% were at least partially retired. Three of the 40 participants were Mexican American, one was Native American, and the rest were Caucasian. All couples were either married (n = 18) or had lived together in a committed relationship for at least 2 years (n = 2). All but two—a gay couple with two smokers and a lesbian couple with one—were heterosexual. Couples had been together an average of 22 years (range 3–47), and 62% of the participants had been previously married. Although no couple had children living in their household, most (75%) had an adult child in the local area.

In the clinical domain, 13 (65%) of the 20 primary smokers (but none of their partners) had a diagnosed heart or lung problem aggravated by smoking. At the time of initial screening, primary and secondary smokers reported averaging 25.1 (SD = 9.1) and 23.1 (SD = 10.7) cigarettes a day, respectively. On the Fagerstrom Test of Nicotine Dependence, where scores in the 6–7 range indicate “high dependence” (Heatherton, Kozlowski, Frecher, & Fagerstrom, 1991), primary and secondary smokers had mean scores of 6.2 (SD = 2.3) and 5.8 (SD = 2.3). The primary smokers all reported multiple unsuccessful prior quit attempts, nearly half (45%) had a previous alcohol or drug problem, and 45% had scores in the clinical distress range of an abbreviated Hopkins Symptom Checklist (HSCL–25; Heshbacher, Downing, & Stephansky, 1978).

Participating couples were fairly satisfied with their relationships, as reflected in average scores toward the high end of Hendrick's (1988) Relationship Assessment Scale (Mdn partner score = 4.5 of 5). Similar positive scores were recorded for Heavey, Larson, Christensen, and Zumtobel's (1996) Constructive Communication Scale, which correlated highly with the Hendrick measure for both patients (r = .82) and their partners (r = .60). To create a couple-level index of baseline marital quality, we averaged the z scores for both of these measures across both partners.

All participants provided their informed consent for all aspects of the study following procedures approved by the University of Arizona Human Subjects Committee.

Procedures

After enrolling in the study, but before receiving any treatment, each couple completed a series of assessments, including the couple interaction task (a laboratory smoking experiment) that provided baseline LIWC data for this report. Unfortunately, the pretreatment self-report assessments included no measures of communal coping per se. In preparation for the couple interaction task, couples used a modified Areas of Change Questionnaire (Weiss & Birchler, 1975) to identify at least three health-related disagreements they could discuss during the videotaped interaction task. We instructed couples to choose topics that were important to both partners and concerned desired changes in at least one partner's behavior. Typical topics included disagreements in regard to the management of smoking, diet, and exercise; financial management of health-care costs; relationships with health-care providers; and involvement of family members in health-related issues. Disagreements also concerned divisions of labor and shared couple activities, particularly when health problems interfered with those activities. The marital interaction task began when the research assistant left the room and the couple began discussing the first disagreement on their list. After 5 minutes a light came on signaling one or both smokers in the couple to light up, and the conversation continued for another 5 minutes. Participants did not know in advance how long they would talk before the signal. Subsequent coding of video recordings and transcripts revealed that couples on average devoted 52% of their discussions to smoking-related topics.

The couples then participated in the FAMCON intervention, which provides up to 10 "consultation" sessions and ideally proceeds through a *preparation* phase (sessions 1–3), a *quit* phase (sessions 4–5), and a *consolidation* phase (session 6+). The treatment typically unfolds over 4 months, with sessions 1–3 conducted during the first month in a structured format and subsequent sessions allocated according to each couple's quit plan and progress. The preparation phase includes indirect interventions (e.g., solution-oriented questions to promote communal coping) as well as detailed assessment of smoking-related interaction patterns, past quit attempts, and couple strengths. In session 3, after reviewing assessment information with the treatment team, the consultant presents a carefully tailored "opinion," providing specific observations and feedback about how smoking fits the couple's relationship; why/how quitting will be difficult; reasons to be optimistic about success; and issues for the couple to consider in developing a quit plan. The opinion session also includes gently proffered suggestions intended to interrupt problem-maintaining interaction patterns, and it typically concludes with an invitation for the couple to consider a quit date. The remaining FAMCON sessions in the quit and consolidation phases focus on helping the couple develop, implement, and sustain a quit plan for one or both partners while preserving and building upon communal qualities of their relationship (Shoham et al., 2006; Rohrbaugh & Shoham, 2011).

As noted above, the smoking outcomes of this intervention were generally positive, with 10 of the 20 health-compromised smokers (patients) achieving stable abstinence for 6 months after an initial quit attempt and 40% for a full year (Shoham et al., 2006). The present study operationalized outcome using both a dichotomous "point prevalence" index of abstinence at 12 months (whether or not the patient had abstained for 30 consecutive days at the time of follow-up) and a continuous measure of abstinence defined as the percent of smoke-free days during the entire 12-month follow-up period. Shoham et al.'s (2006) report of the FAMCON treatment-development study provides more details on how these outcomes were assessed.

To obtain speech samples for automatic text analysis of pronoun use, we transcribed what each partner said during both 5-minute phases (pre- and postlight-up) of the pretreatment marital interaction task *and* during three 5-minute segments of the fourth (early quit phase) and last (consolidation phase) FAMCON intervention sessions. For the interaction task, there were thus four transcripts for each of the 20 participating couples (baseline phase/patient, baseline phase/spouse, smoking phase/patient, and smoking phase/spouse). To examine the prognostic significance of pretreatment *we*-talk and *we*-talk change during the intervention, we used pronoun rates from only the baseline phase of the smoking experiment (before anyone lit up) as a covariate for *we*-talk levels later on. (This was because conditions were less uniform in the smoking phase, although including pronoun data from the smoking phase did not alter the main results.)

The rationale for sampling only from later intervention sessions had two facets: First, because the content focus of the first two sessions followed closely the FAMCON manual, and portions of the third (opinion) session involved the consultant talking more than the clients did, it proved difficult to find transcription segments that sampled comparably free or unstructured client speech. Second, because session 3 introduces the (presumably) most important components of the FAMCON intervention, change in a theoretically central process like communal coping should be most apparent after this happens. Accordingly, we used session 4 (where clients' response to the intervention should begin to be evident) and the final FAMCON session (when change should be well established) to transcribe patient and spouse speech segments centered at time marks roughly 25%, 50%, and 75% of the way through each session. In three sessions, a research assistant blind to study hypotheses adjusted these marks backwards or forwards in the session timeline to ensure that each partner contributed at least 20% of the relevant speech in a given segment. For LIWC analysis, most couples therefore had four postopinion transcripts, each based on three segments), when usable recordings were available beyond session 4. (Three couples had only two transcripts, and for one of these the last possible sampling was from session 3.) A limitation of these speech sampling procedures was that a third person (the therapist/consultant) was present during the intervention segments but not during the baseline smoking experiment. Thus, time of assessment was unavoidably confounded with the opportunity for partners to speak to a third party rather than, or in addition to, each other.

Pronoun Measures

Automatic text analyses performed with the LIWC 2007 software (Pennebaker, Francis, & Booth, 2007) produced separate counts of all pronoun types used by the patient and spouse in each couple during each study segment. LIWC presents variables in a relative metric, as percentages of a participant's total number of transcribed words. To address the main research questions, we focused narrowly on first-person pronouns and based statistical analyses on proportion (percentage) variables representing (1) each partner's use of first-person plural (*we*-talk) and singular (*I*-talk) pronouns; and (2) each partner's use of first-person pronouns that were plural rather than singular (*we/I*-ratio), with total first-person pronouns as the denominator of a ratio variable. The first set of pronoun variables allowed for examining patient and spouse *we*-talk and *I*-talk independently, while *we/I*-ratio captured the relative balance of plural versus singular first-person pronouns. Because the distributions of these variables tended to be

negatively skewed, we applied arcsine transformations to improve normality and used these transformed values in all analyses.

Results

Preliminary Analyses

We-talk was infrequent but sufficiently prevalent and variable for analysis: During the baseline phase of the smoking experiment, mean *we*-talk and *I*-talk percentages of total words across all participants were $M = 1.5$ ($SD = 1.8$, range 0–6.3) and $M = 6.0$ ($SD = 2.4$, range 2.9–12.9), respectively. The corresponding rates during intervention segments were $M = 1.1$ ($SD = 1.0$, range 0–4.1) and $M = 6.0$ ($SD = 1.7$, range 2.3–10.5). Thus, for the average participant, *we*-talk comprised no more than 1.5% of all words spoken—a nonetheless rate comparable to other published studies.

Within-partner correlations revealed modest rank-order stability of *we*-talk across phases of the smoking experiment (patient $r = .26$, $p > .1$, spouse $r = .49$, $p = .03$) and from baseline to therapy segments (patient $r = .35$, $p > .1$, spouse $r = .44$, $p = .05$). Stability coefficients for *I*-talk were similar but tended to be somewhat higher for patients ($r = .65$, $p < .01$; $r = .45$, $p = .05$) than for spouses ($r = .28$, $p > .1$; $r = .16$, $p > .1$). Between-partner correlations revealed moderate patient-spouse concordance for *we*-talk, both at baseline ($r = .50$, $p = .03$) and during intervention segments ($r = .42$, $p = .06$), but not for *I*-talk (rs = .07, −.12).

A strong predictor of *we*-talk, at least for patients, was whether both partners in a couple smoked: Point-biserial correlations between couple type (coded 0 for single- and 1 for double-smoker couples) and the patient's *w*e-talk were .61 ($p < .01$) at baseline and .45 ($p = .045$) during the postopinion therapy sessions, while the corresponding rs for spouses were .35 and .18 (both ps > .1). Other demographic and problem severity variables (e.g., gender, age, addiction severity, medical diagnosis, psychological distress) were essentially unrelated to pronoun use. Couple-level marital quality did correlate significantly with baseline *we*-talk by the patient ($r = .56$, $p = .01$), but not the spouse ($r = .17$), and was unrelated to *we*-talk levels during the later intervention sessions (rs = .09, −.04).

To examine pronoun use during the pretreatment marital interaction task more closely, we performed mixed-model analyses of variance (anovas), with *role* (patient vs. spouse) and *phase* (baseline vs. smoking) as within-couple variables and *couple type* (dual vs. single smoker) as a between-couple variable. A significant main effect for couple type emerged in the ANOVAs for *we*-talk, $F(1, 18) = 15.97$, $p = .01$, and *we/I* ratio, $F(1, 18) = 5.77$, $p = .03$, indicating that dual-smoker couples used more *we*-talk overall than single-smoker couples did. Couple type was not a significant source of variance for *I*-talk alone. These anovas also revealed a significant Role × Phase × Couple-type interaction for both *we*-talk, $F(1, 18) = 8.01$, $p = .01$, and *we/I*-ratio, $F(1, 18) = 10.01$, $p < .01$, with the pattern of means suggesting that *we*-talk by the spouse (but not the patient) may have increased from baseline to smoking in dual-smoker couples more than in single-smoker couples. Paired t tests comparing baseline and smoking phases within the small subgroups of double- and single-smoker couples were not significant, however.

Hypothesis 1. Pretreatment *We*-Talk Predicting Post-treatment Cessation Outcome

To test hypothesis 1, we correlated baseline pronoun variables with measures of successful smoking cessation by the patient 12 months after his or her initial FAMCON quit attempt. As Table 1 shows, baseline *we*-talk by the spouse (but not the patient) when neither partner was smoking predicted the patient's later cessation success, suggesting an asymmetric prognostic pattern reminiscent of our findings with heart-failure couples (Rohrbaugh et al., 2008). This association did not vary by couple type (partner smoking status) or patient sex. As reported elsewhere, smoking outcomes were also unrelated to the severity of the smoker's health problems and unrelated to the Fagerstrom index of smoking severity (Shoham et al., 2006).

Table 1. Pronoun Predictors of 12-Month Smoking Cessation by Primary Smokers

Predictor Variables	Abstinent at 12 Months (30-Day Point Prevalence)		Percent Abstinent Days Over 12 Months	
	r	*p* Value	*r*	*p* Value
Patient *we*-talk	.11	>.1	.07	>.1
Patient *I*-talk	−.12	>.1	−.14	>.1
Patient *we/I* ratio	.18	>.1	.16	>.1
Spouse *we*-talk	.44	.05	.43	.06
Spouse *I*-talk	−.18	>.1	−.20	>.1
Spouse *we/I* ratio	.49	.03	.47	.04

Note. $N = 20$ couples. Predictor variables are from a 5-minute couple interaction task (discuss health-related disagreements) during which neither partner smoked.

Hypothesis 2. *We*-Talk Change Predicting Outcome

To test hypothesis 2, we computed partial correlations between cessation outcomes and pronoun variables from the postopinion FAMCON intervention sessions, controlling for levels of the same pronoun variables at baseline. The coefficients in Table 2, representing associations between residualized pronoun use and subsequent clinical outcome, suggest that *we*-talk by *both* partners during therapy predicted successful smoking abstinence after 1 year.

Table 2. Pronoun Change During FAMCON Predicting 12-Month Cessation

Predictor Variable	Abstinent at 12 Months (30-Day Point Prevalence)		Percent Abstinent Days Over 12 Months	
	r	*p* Value	*r*	*p* Value
Patient *we* talk	.42	.07	.51	.03
Patient *I* talk	−.11	>.1	−.20	>.1
Patient *we/I* ratio	.36	>.1	.43	>.1
Spouse *we* talk	.51	.03	.46	.06
Spouse *I* talk	.06	>.1	.12	>.1
Spouse *we/I* ratio	.41	.08	.34	>.1

Note: Pronoun predictor variables combine transcript samples from FAMCON session 4 and the last session (both postintervention). Table shows partial correlations controlling for pronoun levels in the baseline phase of the laboratory smoking experiment. $N = 20$ couples.

Finally, a series of exploratory moderation analyses based on regression and general linear models suggested that the association between *we*-talk change and outcome was stronger for couples in which both partners smoked than for couples in which only the patient did. For example, a conceptually inverted repeated measures anova, with residualized *we*-talk as the dependent variable, couple type (single vs. dual smokers) and cessation outcome (smoking vs.

abstinent) as between-case factors, and role (patient vs. spouse) as a within-case factor, found a significant Couple-type × Outcome interaction, $F(1, 18) = 8.38$, $p = .01$, with no significant statistical effects involving the patient–spouse role factor. Statistical decomposition of this interaction revealed that the adjusted *we*-talk mean for couples in which both partners had smoked and the patient later achieved stable cessation was about twice as high as adjusted means for the other three subgroups, $F(1, 18) = 26.91$, $p < .01$. There were no statistical interactions involving the patient's sex.

Discussion

The results of this preliminary study suggest that first-person plural pronoun use (*we*-talk) is a meaningful marker of communal coping in couples where at least one partner continues to smoke despite having a health problem. While pretreatment *we*-talk by the patient's spouse (but not the patient) predicted successful smoking cessation by the patient 12 months after quitting, the most noteworthy finding is that increased *we*-talk by *both* partners during the course of intervention tended to predict outcome as well. This provides tentative documentation of communal coping—marked by *we*-talk—as a possible mechanism of change in a couple-focused intervention. The results also highlight questions about the nature and measurement of dyadic coping, which we will discuss below.

Our study has important limitations, including a small sample size and equivocal significance levels arising from multiple comparisons with such limited power. In addition, because the post hoc text analysis design confounds measurement occasion (pre- vs. postintervention) with both the absence versus presence of a third party (the therapist/consultant) and the topic of discussion (health-related disagreements at baseline versus therapeutic problem-solving later on), we have a very limited and approximate picture of *we*-talk *change* during the FAMCON intervention. A cleaner naturalistic design would entail sampling speech segments in exactly the same way and in identical psychological contexts at different points in time, either during and/or apart from the intervention sessions proper. Moreover, to establish unequivocally that *we*-talk (or any other measure of communal coping) marks a true mediating process or mechanism of change, one would ideally manipulate some element(s) of intervention experimentally to determine (1) whether the intervention changes the putative mediator variable, and (2) whether statistical control of that mediator variable reduces or eliminates the effect of the intervention on subsequent clinical outcomes. Although experimental approaches to mediation analysis are very rare in the couple intervention literature, their potential for illuminating how psychosocial interventions actually work is difficult to deny.

Beyond the question of change mechanisms, the present results are consistent with other text analysis research in confirming the adaptive significance of *we*-talk in couples, not only as a correlate of positive relationship attributes (Seider et al., 2009; Simmons et al., 2005; Slatcher & Pennebaker, 2006; Williams-Baucom et al., 2010) but also as a predictor of individual patient outcomes related to chronic illness (Rohrbaugh et al., 2008). Indeed, the distinction between couple-level and individual (patient) functioning as a dependent variable is probably important in this arena, as asymmetrical associations are more likely with the latter (where spouse behavior predicts patient outcomes more than vice versa) than the former (Rohrbaugh, Shoham, Cleary, Berman, & Ewy, 2009; Rohrbaugh et al., 2008). Other patterns of couple pronoun use may

correlate with relational (if not individual) "outcomes" as well—for example, several studies link second-person pronoun use (*you*-talk) to problematic marital interaction (e.g., Simmons et al., 2005)—but the most robust findings now seem to associate *we*-talk[2] with adaptive communal processes. At the same time, it is also evident that *we*-talk does not inevitably mark such we-ness (see Pennebaker & Lay, 2002, on use of the Royal We in political rhetoric).[3] In fact, the psychological meaning of first-person plural pronoun use probably depends to a certain extent on the social context in which it occurs—and one could speculate that the strongest associations between *we*-talk and communal processes might be apparent when partners represent themselves (and their relationship) jointly rather than separately to a third party (Rohrbaugh et al., 2008).

A major challenge in this area is to reconcile pronoun measures of communal coping with self-report measures of the same construct. For example, in the earlier study of heart-failure couples (Rohrbaugh et al., 2008), we found only a weak association between *we*-talk and a brief self-report measure of communal coping based on the Lyons et al.'s (1998) construct definition—and only *we*-talk (not the self-report measure) predicted a positive course of the patient's symptoms. Even if observational or implicit (pronoun) measures do show better criterion validity than self-report measures, there is a need to map and understand the conditions under which different indicators of the communal coping construct do and do not converge. To some extent nonconvergence may reflect the fact that self-report measures usually reference how partners behave *in general*, whereas observational and pronoun measures necessarily reflect what transpires in some specific interactional context or social situation (e.g., talking about cooperation or conflict with a third party present or absent). Another consideration is that coping questionnaires are typically multidimensional, and even those suitable for couples do not often capture communal coping per se. For example, the only subscale in Bodenmann's (1997) Dyadic Coping Questionnaire to approximate Lyons et al.'s definition of communal coping (a three-item measure of "common positive dyadic coping") does not squarely capture the key attributional element of *we*-ness (viewing the illness or stressor as "our problem" rather than "yours" or "mine"). Further measure development in this area should increase our understanding of how, and in what social contexts, couple pronoun use maps on to partners' perceptions of *we*-ness and other dimensions of dyadic coping. Another question, related more to measurement validity, is whether implicit linguistic markers like *we*-talk can augment, or even exceed, the prognostic value of self-report measures in predicting health outcomes. Unfortunately, because the present study did not have a self-report communal coping measure, we were not able to examine these questions with the data at hand.

The couple pronoun literature is equivocal about the extent to which adaptive communal coping, at least as reflected in first-person plural pronoun use, is a reciprocal, couple-level process. In their original theoretical statement, Lyons et al. (1998) postulated that a communal orientation on

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[2] Repeating these analyses with pronoun scores from the entire marital interaction task (baseline and smoking phases combined) as the covariate yielded essentially the same results.

[3] Although other couple pronoun studies (e.g., Seider et al., 2009; Simmons et al., 2005; Williams-Baucom et al., 2010) refer to first-person-plural pronoun use as "*we*-focus" rather than "*we*-talk," we believe the latter term is more tangibly operational and therefore more appropriate for describing this form of pronoun use per se. "*We*-focus," on the other hand, is useful as a more general construct label that encompasses self-report and other observational measures as well, as in the original Buehlman et al. (1992) observational study that coined "*we*-focus" in the first place.

the part of *at least one partner* should be sufficient for adaptive outcomes—which is consistent with our findings that *we*-talk by the spouse (and not the patient) predicted meaningful change in an identified patient's health (Rohrbaugh et al., 2008) and smoking behavior later on. Also difficult to reconcile with a couple-level view of communal coping is the fact that, when heart-failure patients and their spouses talked with an interviewer about how they coped with the patient's illness, we found essentially no correlation between the two partners' levels of *we*-talk (Rohrbaugh et al., 2008). The present study, on the other hand, did show some apparent reciprocity, with significant interpartner correlations for *we*-talk (but not *I*-talk) both at baseline, when the partners talked with each other alone, and during the later intervention sessions, when they were interacting with a clinician. In addition, *we*-talk change by *both* partners during the course of intervention correlated with successful smoking cessation.[4]

An interesting wrinkle in the tapestry of couple pronoun research is that *we*-talk might also mark communal processes related to problem maintenance, at least when both partners in a couple engage in the same risk behavior, like smoking, drinking, or overeating. The finding that pretreatment *we*-talk was more prevalent in dual- than single-smoker couples is reminiscent of an interpersonal pattern we call *symptom-system fit*, which occurs when problem behavior appears to have adaptive consequences for a close relationship, at least in the short run (Rohrbaugh et al., 2001). For example, in couples where both partners smoke or drink, shared substance use might create a context for mutually supportive interactions or help partners stay positive, even when they disagree. A striking demonstration of this phenomenon came from the same baseline experiment with dual- and single-smoker couples reported here. Immediately afterwards, using joysticks to rate their continuous emotional experience during the interaction while watching themselves on video, participants in dual-smoker couples reported increased positive emotion contingent upon lighting up, while in single-smoker couples both partners (nonsmokers and smokers alike) reported the opposite (Shoham et al., 2007). A follow-up analysis found that a couple-level index of affective synchrony, operationalized as correlated moment-to-moment change in partners' reported emotional experience, also increased during smoking when both partners smoked and decreased when only one did (Rohrbaugh, Shoham, Butler, et al., 2009). Given this indication that a clearly communal process can contribute to smoking maintenance, it is not surprising that *we*-talk in the context of a health discussion was most prevalent when both partners smoked. One wonders if future research will be able to disambiguate when first-person pronouns are likely to mark problem-maintaining versus problem-attenuating couple interaction patterns.

How are the results relevant to intervention and understanding clinical change? First, the generally favorable outcomes for patients in dual-smoker couples illustrate the positive side of communal processes for this vulnerable subgroup. Although quitting is notoriously difficult when both partners in a couple smoke, the FAMCON intervention aimed to capitalize on this *we*-ness, and patients in dual-smoker couples were indeed more likely to achieve stable cessation when *we*-talk was relatively salient during the course of the couple intervention. It is important to re-emphasize, however, that *communal coping*, not the linguistic use of "we" or "I" per se, is the theoretically operative mechanism of clinical change. Pronoun use represents only one possible

[4] Williams-Baucom et al. (2010) found similar *we*-talk reciprocity in their study linking partner pronoun use to relationship quality.

approach to measuring this construct and would not, in and of itself, constitute a meaningful target for intervention.

Second, if future research confirms that increased communal coping (whether operationalized by *we*-talk or self-report) does in fact mediate the effects of an intervention such as FAMCON, it will be important to investigate the generality of this construct as a mechanism of change—or a possible relational "common factor"[5]—across different couple-focused interventions for different individual and relationship problems. Third, despite the centrality of communal coping, we think it unlikely that FAMCON change depends entirely, or even primarily, on mobilizing this relational process. Equally central to the FAMCON theory of change is social cybernetic pattern interruption (Rohrbaugh & Shoham, 2011) focused on problem-maintaining ironic processes (Rohrbaugh & Shoham, 2011) and symptom-system fit (Shoham et al., 2007). With further testing, this approach could offer a useful alternative to psycho-educational and cognitive–behavioral interventions in the framework of stepped care.

Although the results further illustrate the psychosocial significance of linguistic markers identified through automatic text analysis, we acknowledge a common and legitimate criticism of this methodology—that it cannot account for semantic contextual markers related to subtle dimensions of communication such as irony, sarcasm, and multiple meanings of the same word (Mehl, 2006). Although the imperviousness of text analysis to self-report bias may offset this limitation somewhat, it will be useful to supplement this highly quantitative, objectivist approach with more intensive, qualitative observations of similar relational phenomena. (A noteworthy example in the arena of dyadic coping is Kayser, Watson, and Andrade's (2007) study of cancer as a "we-disease.")

In conclusion, the results of this small study add to evidence regarding the prognostic value of partner *we*-talk for patient health and provide preliminary documentation of communal coping as a possible mechanism of clinical change. Together these findings highlight the potential utility of automatic text analysis in couple-focused intervention research.

References

Acitelli, L.K., & Badr, H.J. (2005). My illness or our illness? Attending to the relationship when one partner is ill. In T.A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Couples coping with stress* (pp. 121– 136). Washington, DC: American Psychological Association.

Badr, H., Carmack, C.L., Kashy, D.A., Cristofanilli, M., & Revenson, T.A. (2010). Dyadic coping in metastatic breast cancer. *Health Psychology*, **29**, 169– 180.

Berg, C.A., & Upchurch, R. (2007). A developmental-contextual model of couples coping with chronic illness across the life span. *Psychological Bulletin*, **133**, 920– 954.

[5] Note that "therapeutic alliance," perhaps the dominant common factor in traditional psychotherapy research, is itself a largely communal, problem-resolving construct. It will be useful in this arena to distinguish communal processes occurring *within* a couple (or family) client system from those occurring *between* the client (or client system) and a helper (Friedlander, Escudero, & Heatherington, 2006).

Bodenmann, G. (1997). Dyadic coping—A systemic-transactional view of stress and coping among couples: Theory and empirical findings. *European Review of Applied Psychology*, **47**, 137– 140.

Bodenmann, G. (2005). Dyadic coping and its significance for marital functioning. In T.A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Couples coping with stress* (pp. 33– 49). Washington, DC: American Psychological Association.

Bodenmann, G., Plancherel, B., Beach, S.R.H., Widmer, K., Gabriel, B., Meuwly, N. et al. (2008). Effects of a coping-oriented couples therapy on depression: A randomized clinical trial. *Journal of Consulting & Clinical Psychology*, **76**, 944– 954.

Buehlman, K.T., Gottman, J.M., & Katz, L.F. (1992). How a couple views their past predicts their future: Predicting divorce from an oral history interview. *Journal of Family Psychology*, **5**, 295– 318.

Ferguson, J., Bauld, L., Chesterman, J., & Judge, K. (2005). The English smoking treatment services: One year outcomes. *Addiction*, **100**, 59– 69.

Fiore, M.C., Bailey, W.C., Cohen, S.J., Dorfman, S.F., Goldstein, M.G., Gritz, E.R. et al. (2000). *Treating tobacco use and dependence*. Clinical Practice Guideline. Rockville, MD: US Public Health Service.

Fiore, M.C., Jaen, C.R., Baker, T.B., Bailey, W.C., Benowitz, N.L., Curry, S.J. et al. (2008) *Treating tobacco use and dependence: 2008 update*. Clinical Practice Guideline no. 18. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research.

Friedlander, M.L., Escudero, V., & Heatherington, L. (2006). *Therapeutic alliances with couples and families: An empirically informed guide to practice*. Washington, DC: American Psychological Association.

Heatherton, T.F., Kozlowski, L.T., Frecher, R.C., & Fagerstrom, K. (1991). The Fagerstrom test for nicotine dependence: A revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction*, **86**, 1119– 1127.

Heavey, C.L., Larson, B., Christensen, A., & Zumtobel, D.C. (1996). The Communication Patterns Questionnaire: The reliability and validity of a constructive communication subscale. *Journal of Marriage and the Family*, **58**, 796– 800.

Hendrick, S.S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and the Family*, **15**, 93– 98.

Heshbacher, P.K., Downing, R.W., & Stephansky, P. (1978). Assessment of psychiatric illness severity by family physicians. *Social Science and Medicine*, **12**, 45– 52.

Homish, G.G., & Leonard, K.E. (2005). Spousal influence on smoking behaviors in a US community sample of newly married couples. *Social Science and Medicine*, **61**, 2557– 2567.

Kayser, K., Watson, L.E., & Andrade, J.T. (2007). Cancer as a "we-disease": Examining the process of coping from a relational perspective. *Families, Systems, & Health*, **25**, 404– 418.

Lewis, M.A., McBride, C.M., Pollak, K.I., Puleo, E., Butterfield, R.M., & Emmons, K.M. (2006). Understanding health behavior change among couples: An interdependence and communal coping approach. *Social Science and Medicine*, **62**, 1369– 1380.

Lyons, R.F., Mickelson, K.D., Sullivan, M.J., & Coyne, J.C. (1998). Coping as a communal process. *Journal of Personal and Social Relationships*, **15**, 579– 605.

Mehl, M.R. (2006). Quantitative text analysis. In M. Eid & E. Diener (Eds.), *Handbook of multimethod measurement in psychology* (pp. 141– 156). Washington, DC: American Psychological Association.

Mills, J., Clark, M.S., Ford, T.E., & Johnson, M. (2004). Measurement of communal strength. *Personal Relationships*, **11**, 213– 230.

Pennebaker, J.W., Francis, M.E., & Booth, R.J. (2007). *Linguistic inquiry and word count (LIWC): LIWC 2007* [Computer program]. Mahwah, NJ: Erlbaum.

Pennebaker, J.W., & Lay, T.C. (2002). Language use and personality during crises: Analyses of mayor Rudolph Giuliani's press conferences. *Journal of Research in Personality*, **36**, 271– 282.

Pennebaker, J.W., Mehl, M.R., & Niederhoffer, K.G. (2003). Psychological aspects of natural language use: Our words, ourselves. *Annual Review of Psychology*, **54**, 547– 577.

Pressman, S.D., & Cohen, S. (2007). Use of social words in autobiography and longevity. *Psychosomatic Medicine*, **69**, 262– 269.

Rohrbaugh, M.J., & Shoham, V. (2001). Brief therapy focused on interrupting ironic processes: The Palo Alto Model. *Clinical Psychology: Science & Practice*, **8**, 66– 81.

Rohrbaugh, M.J., Mehl, M.R., Shoham, V., Reilly, E.S., & Ewy, G.A. (2008). Prognostic significance of spouse *we* talk in couples coping with heart failure. *Journal of Consulting & Clinical Psychology*, **76**, 781– 789.

Rohrbaugh, M.J., & Shoham, V. (2011). Family consultation for couples coping with health problems: A social-cybernetic approach. In H.S. Friedman (Ed.), *Oxford handbook of health psychology* (pp. 480– 501). New York: Oxford University Press.

Rohrbaugh, M.J., Shoham, V., Butler, E.A., Hasler, B., & Berman, J.S. (2009). Affective synchrony in dual- and single-smoker couples: Further evidence of "symptom-system fit"? *Family Process*, **48**, 55– 67.

Rohrbaugh, M.J., Shoham, V., Cleary, A., Berman, J.S., & Ewy, G.A. (2009). Health consequences of partner distress in couples coping with heart failure. *Heart and Lung: Journal of Acute and Critical Care*, **38**, 298– 305.

Rohrbaugh, M.J., Shoham, V., & Coyne, J.C. (2006). Effects of marital quality on 8-year survival of patients with heart failure. *American Journal of Cardiology*, **98**, 1069– 1072.

Rohrbaugh, M.J., Shoham, V., Trost, S., Muramoto, M., Cate, R., & Leischow, S. (2001). Couple-dynamics of change resistant smoking: Toward a family-consultation model. *Family Process*, **40**, 15– 31.

Rolland, J.S. (1994). In sickness and in health: The impact of illness on couples' relationships. *Journal of Marital and Family Therapy*, **20**, 327– 347.

Scott, J.L., Halford, W.K., & Ward, B.G. (2004). United we stand? The effects of a couple coping intervention on adjustment to early stage breast or gynecological cancer. *Journal of Consulting and Clinical Psychology*, **72**, 1122– 1135.

Seider, B.H., Hirschberger, G., Nelson, K.L., & Levenson, R.W. (2009). We can work it out: Age differences in relational pronouns, physiology, and behavior in marital conflict. *Psychology and Aging*, **24**, 604– 613.

Shoham, V., Butler, E.A., Rohrbaugh, M.J., & Trost, S.E. (2007). Symptom-system fit in couples: Emotion regulation when one or both partners smoke. *Journal of Abnormal Psychology*, **116**, 848– 853.

Shoham, V., Rohrbaugh, M.J., Trost, S.E., & Muramoto, M. (2006). A family consultation intervention for health-compromised smokers. *Journal of Substance Abuse Treatment*, **31**, 395– 402.

Simmons, R.A., Chambless, D.L., & Gordon, P.C. (2008). How do hostile and emotionally overinvolved relatives view relationships? What relatives' pronouns tell us. *Family Process*, **47**, 405– 419.

Simmons, R.A., Gordon, P.C., & Chambless, D.L. (2005). Pronouns in marital interaction: What do “you” and “I” say about marital health? *Psychological Science*, **16**, 932– 936.

Slatcher, R.B., & Pennebaker, J.W. (2006). How do I love thee? Let me count the words: The social effects of expressive writing. *Psychological Science*, **17**, 660– 664.

Tausczik, Y.R., & Pennebaker, J.W. (2010). The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology*, **29**, 24– 54.

Weiss, R.L., & Birchler, G. (1975). *Areas of change*. Unpublished manuscript, University of Oregon, Eugene, OR.

Williams-Baucom, K.J., Atkins, D.C., Sevier, M., Eldridge, K.A., & Christensen, A. (2010). “You” and “I” need to talk about “us”: Linguistic patterns in marital interactions. *Personal Relationships*, **17**, 41– 56.