

# Implicit and explicit communal coping in couples with recently diagnosed type 2 diabetes

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# Abstract

When an individual in a close relationship is diagnosed with a chronic illness, coping can be the responsibility of the patient or couple members can cope communally. Communal coping reflects a shared appraisal of a stressor (our problem instead of my problem) and collaborative efforts to address the stressor. The current study examined whether patients' and partners' communal coping levels were associated with relational and health functioning among 70 couples in which one member was recently diagnosed with type 2 diabetes. We assessed explicit communal coping with self-reported "inclusion of the other in the self' in regard to diabetes management and implicit communal coping with first-person plural pronoun usage during a diabetes discussion. We also assessed patient reports of support received from partners, patient and partner psychological distress, and patient self-care behavior. Results showed that patient explicit communal coping was related to better patient relationship quality and greater support receipt from partners. Patient and partner explicit communal coping also were related to reduced partner distress but not patient distress. Instead, partner implicit communal coping was related to reduced patient distress. Most noteworthy, partner implicit communal coping was related to better patient self-care behavior. These results suggest that communal coping may be beneficial for both relationships and health but that the effects of explicit measures differ from those of implicit measures. Patients might benefit especially from partner communal coping efforts that are less obvious.

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#### Keywords

Chronic illness, communal coping, couples, pronoun, support

There is a substantial body of research focused on how people cope with chronic illness (Helgeson & Reynolds, 2002; Revenson & DeLongis, 2010). Many of these studies focus on characteristics of the patient that predict adjustment, but a person who is coping with a chronic illness does so in a social context. There are social environmental variables that influence adjustment to chronic illness, including both supportive (Fekete, Stephens, Mickelson, & Druley, 2007; Gallant, 2003) and unsupportive social ties (Fekete et al., 2007; Gallant, Spitze, & Prohaska, 2007). The social environment is also affected by the chronic illness, and a prominent person in the social environment is the patient's spouse or partner. For example, Baider and Kaplan De-Nour (1988) have argued "Medically, we describe the patient as the person who has the illness, ..." (p. 168). They suggested that future researchers who study chronic illness examine the couple as a unit rather than the patient alone and hypothesized that couples who respond as an "interpersonal unit" demonstrate more optimal coping.

Some researchers have adopted a dyadic approach to the study of chronic illness. James Coyne is a pioneer in this area and identified two broad classes of relationship-focused coping in his work on persons with heart disease and their spouses (Coyne, Ellard, & Smith, 1990; Coyne & Smith, 1991): active engagement and protective buffering. Active engagement is a form of coping that involves the partner in the discussion and includes problem-solving. Protective buffering reflects hiding one's concerns and giving in to the partner to avoid disagreement. Active engagement is related to positive outcomes, whereas protective buffering is related to increased distress in spouses (Coyne & Smith, 1991, 1994).

Dyadic coping also has been studied by Bodenmann (1997), who developed a questionnaire to assess how often each person solicits support from the other, different kinds of supportive and unsupportive coping, and what partners do together to manage the stressor. Dyadic coping predicts increased marital quality over 2 years (Bodenmann, Pihet, & Kayser, 2006). A form of dyadic coping, described by Berg et al. (2008) as collaborative coping or joint problem-solving, was associated with positive mood and increased marital satisfaction in an ecological momentary assessment (EMA) study of men with prostate cancer.

Thus, there have been several ways of conceptualizing and measuring how couples jointly cope with a stressor. The relationship coping frameworks of Coyne et al. and Bodenmann are broad in describing many ways that couples may relate to one another in approaching a stressor. In addition, many of their measures reflect one person's reporting of both persons' behavior. Here, we examine a specific form of dyadic coping that we refer to as "communal coping" from the perspective of both members of the couple. We define communal coping as when "one or more individuals perceive a stressor as 'our' problem (shared appraisal) versus 'my' or 'your' problem (individualistic appraisal), and activate a process of shared or collaborative coping" consistent with the definition offered by Lyons, Mickelson, Sullivan and Coyne (1998, p. 583). Thus, communal coping incorporates the collaborative element articulated by Berg et al. (2008) but also contains the feature of shared appraisal. In their review of the literature on dyadic coping, Berg and Upchurch (2007) acknowledged that collaboration would be more adaptive in the presence of shared appraisals.

Aspects of communal coping have been captured with explicit self-report measures, including collaborative coping (Berg et al., 2008) and dyadic coping (Bodenman et al., 2006). In the present study, we use an innovative way of measuring communal coping explicitly—by modifying the Inclusion of Other in the Self (IOS) scale (Aron, Aron, & Smollan, 1992). The original IOS scale measures an individual's perception of relationship closeness using a set of pictorial representations of the self and the other. An individual chooses the pair of circles that best describes his or her relationship from seven choices that vary in the degree of overlap. The amount of overlap represents perceived relational closeness (Agnew, Loving, Le, & Goodfriend, 2004). To measure communal coping in the context of coping with chronic illness, we modified the IOS instructions by asking couple members to choose the pair of circles that best represented how they were coping with a new diagnosis of type 2 diabetes. We refer to the modified IOS as an explicit measure of communal coping because individuals consciously considered how they cope with one person's diabetes. This explicit measure has the same advantage that the original IOS has over other relationship closeness measures; it consists of a single item that makes it easy to employ in a multitude of studies. Because the measure is pictorial, it is also very easy to complete.

A more subtle and implicit way of conceptualizing communal coping is through language. Communal coping can be represented by use of first-person plural pronouns or what has come to be known as "we-talk." There is evidence that greater use of "we" pronouns relative to "I" pronouns is linked to self-reports of communal coping in patients with heart failure (Rohrbaugh, Mehl, Varda, Reilly, & Ewy, 2008). Because language is an indirect assessment of communal coping, we refer to we-talk in this paper as "implicit communal coping." However, we acknowledge that language is not as implicit as the unconscious processes expected to underlie the implicit association test. In this sense, language is *relatively* more implicit than explicit measures that directly ask people how they are coping with the illness. Here, communal coping is inferred from the language people use.

We measured both explicit and *relatively* implicit communal coping to see whether these two distinct measures of communal coping would show the same associations to relationship and health functioning. Because the literature has not clarified the best way to measure communal coping, we thought it is important to test two different measures. To the extent that the two measures reveal different relations to relationship and health functioning, we may learn something about whether people's overt awareness of communal coping is essential to good relationships and health.

Before introducing the present study, we provide some background on our measures of explicit and implicit communal coping in the context of relationships and health.

# Explicit communal coping: Inclusion of IOS

We refer to the modified IOS as an explicit measure of communal coping because individuals self-report how they cope with one person's diabetes. This process requires conscious reflection about coping. The general IOS scale is related to better relationship functioning in married (Aron et al., 1992) as well as dating couples (Agnew, Van Lange, Rusbult, & Langston, 1998). General IOS scores are also associated with greater blurring of the distinction between traits that belong to the self and the romantic partner (Aron, Aron, Tudor, & Nelson, 1991; Aron & Fraley, 1999). When the partner is included in the self-concept and the focus is shifted to the dyadic unit, one's partner's traits are cognitively adopted as one's own.

Explicit communal coping with chronic disease—including the IOS with regard to managing diabetes—may be similarly related to relationship quality. Patients who report higher scores on the diabetes-specific IOS may share their illness with their partner and promote an orientation toward the illness as "ours." Although we could not locate any studies, to date, examining the relation of an illness-specific IOS to health, we reason that this explicit measure should reflect a collaborative or communal approach to the illness, which should lead to positive health. Patients who have a communal approach to chronic illness might feel more comfortable asking for support from their partners and may be more receptive to offers of support from their partners. In addition, partners who have a communal approach to chronic illness may provide more support to patients. Communal coping may be critical in the case of diabetes because the health behaviors required to manage the disease—diet and exercise—involve and affect both patients and partners. Partner involvement in disease management has the potential to improve patient adherence and health.

We created the diabetes-specific IOS rather than rely on self-report questions to assess communal coping for many of the same reasons that the original IOS was developed (Aron et al., 1992). The use of a pictorial representation has the advantage of generalizing across age, social class, and culture, because the specific content of the questions is not specific to any one group. In addition, this 1-item measure is relatively quick to administer, making it an efficient assessment of communal coping. Finally, the original IOS taps the central component of close relationships—interconnection. Interconnection when coping with chronic illness is essential to the construct of communal coping.

# Implicit communal coping: We-talk

Our use of first-person plural pronouns is a measure of implicit communal coping because individuals do not report on their level of communal coping; instead, their communal coping is inferred from their verbal behavior. In their research on language, Pennebaker et al. argued that pronouns in particular are *markers of* relationship processes rather than measures of overt aspects of relationships because they are less conscious than specific words used to describe relationships (e.g., happy; Pennebaker, Mehl, & Niederhoffer, 2003). In their research on relationships and coping with chronic health problems, Rentscher, Soriano, Rohrbaugh, Shohan, and Mehl, 2015 refer to first-person pronoun usage, or we-talk, as "an *implicit* marker of shared identity and a communal orientation to coping with health problems." Thus, researchers argue that pronoun use is a more implicit marker of relationship processes than over self-report questionnaires in which people are fully aware that they are responding to a relationship question.

Implicit communal coping, defined by we-talk, has been linked to better relationship functioning among college students in romantic relationships (Agnew et al., 1998) and better relationship functioning among patients with heart or lung disease trying to quit smoking (Rohrbaugh, Shoham, Skoyen, Jensen, & Mehl, 2012). In an oral history interview with couples, remarks were coded for "we-ness versus separateness" (i.e., how much a person identifies the self as part of a couple vs. emphasizing one's individuality and independence), and we-ness was related to higher marital satisfaction and predicted a lower likelihood of divorce 3 years later (Buehlman, Gottman, & Katz, 1992).

We-talk also has been linked to more constructive behavior during marital interaction tasks. One study showed that we-talk was linked to more positive and less negative emotional behavior during a conversation about a marital conflict, whereas greater use of "me" and "you" words was associated with more negative emotional behavior and lower marital satisfaction (Seider, Hirschberger, Nelson, & Levenson, 2009). In the studies of couples in which one person has agoraphobia (Simmons, Gordon, & Chambless, 2005) and in families in which one person has obsessive–compulsive disorder (Simmons, Chambless, & Gordon, 2008), greater we-talk has been linked to greater problem-solving behavior, whereas the use of singular pronouns (e.g., you and I) has been linked to more negative interactions.

We-talk also has been linked to health. In two studies of healthy couples, we-talk during a marital conflict discussion (Seider et al., 2009) and an oral history interview (Buehlman et al., 1992) were related to lower cardiovascular reactivity. In a study of patients with congestive heart failure, greater use of we-talk relative to I-talk by spouses predicted improvement in patient health outcomes 6 months later (Rohrbaugh et al., 2008). In a smoking cessation intervention for couples, greater we-talk during an interaction task predicted smoking abstinence 12 months later (Rohrbaugh et al., 2012). In a study of families of women with breast cancer, partner we-talk during a family coping interview was related to reduced patient depression, whereas patient we-talk and children we-talk were not (Robbins, Mehl, Smith, & Weihs, 2013). In two couple-based interventions to address one person's alcohol problems, patient and partner we-talk during the intervention predicted successful patient outcomes in one study (Hallgren & McCrady, 2016), whereas only partner we-talk during the intervention predicted successful patient outcomes in the other (Rentscher, Soriano, Rohrbaugh, Shohan, & Mehl, 2015). Thus, partner we-talk seems to be an especially powerful predictor in the health domain.

## Relation between explicit and implicit communal coping

Measures of explicit and implicit communal coping may be related to one another. Agnew, Van Lange, Rusbult, and Langston (1998) showed that greater total plural pronoun usage was related to the general IOS in romantic relationships. They suggested that these two measures represented components of cognitive interdependence, a mental merging of the self and partner into a collective unit. Experimental research has shown that pronoun usage can influence scores on the IOS. For example, Fitzsimons and Kay (2004) had college students write about their relationships using the plural pronoun we or singular pronouns "John and I" and found plural pronoun usage increased general IOS scores. However, these studies used the original IOS without the modified instructions that we employed.

# The present study

The primary goal of the present study was to examine the links of patient and partner explicit and implicit communal coping to relationship and health functioning in a sample of couples in which one member was recently diagnosed with type 2 diabetes. In terms of relationships, we hypothesized that greater explicit and implicit communal coping with diabetes would be related to better relationship quality (as perceived by the patient) and receipt of greater partner support. In terms of health, we hypothesized that greater explicit and implicit communal coping with diabetes would be related to better relationship quality (as perceived by the patient) and receipt of greater partner support. In terms of health, we hypothesized that greater explicit and implicit communal coping with diabetes would be related to reduced psychological distress among patients and partners as well as enhanced patient self-care behavior.

Our second study goal was to explore how sex influenced communal coping and whether sex influenced the relation of communal coping to relationships and health. First, we predicted sex differences in communal coping, such that patients with female partners would report more communal coping than patients with male partners because it is the traditional female role to be the family caretaker. There is evidence that female spouses provide more support, are more sensitive support providers, and are more involved in their partners' health compared to male spouses (Goldzweig et al., 2009; Iida, Stephens, Rook, Franks, & Salem, 2010).

Second, we examined whether sex influenced the relations of communal coping to relationships and health. Due to sample size considerations, we viewed these moderation analyses as exploratory. Because research has shown that females are more sensitive to the quality of their relationship than males, one might expect that communal coping would be more strongly related to good relationships and health for female patients than male patients. Research has shown that the quality of relationships is more strongly related to women's than men's health (Acitelli & Badr, 2005; Kiecolt-Glaser & Newton, 2001). In fact, one study showed that noncommunal language was associated with more marital distress in women but not in men (Seider et al., 2009). However, in heterosexual relationships, as noted above, it is normative for women to take on the caregiver role, and women provide more support (Revenson, Abraido-Lanza, Majerovitz, & Jordan, 2005) and more responsive support (lida et al., 2010) than men when partners are chronically ill. Thus, men may be especially likely to benefit from communal coping compared to women because their partners are better equipped to engage in communal coping. Because this issue has not been examined in detail, we did not make a directional prediction.

This research expands on previous research in three ways. First, we move beyond prior research on interpersonal coping to focus on a specific way that couples relate to one another when confronted with stress—that is, communal coping. Second, we examine communal coping from two unique perspectives, one being an innovative self-report measure that was developed for this study based on a large body of research (i.e., the IOS) and one being a relatively implicit measure that has been used by prior research (i.e., we-talk). Third, we examine these two different measures of communal coping not

# Method

# Participants

Participants were 70 couples in which one person had been diagnosed with diabetes on average 1.4 years ago (standard deviation [SD] = 1.1). Because patients were recently diagnosed, their average glycemic control was quite good (hemoglobin A1c [HbA1c]: mean [M] = 6.81, SD = 1.62). The American Diabetes Association (2014) recommends that HbA1c be less than 7.0. In the present study, 74% of patients met these recommendations, which is not surprising as patients are newly diagnosed with type 2 diabetes.<sup>1</sup>

The majority of couples were married (64%): 99% were heterosexual (one lesbian couple). Couple race/ethnicity was 34 both White, 9 White patient with Black/other race partner, 20 both Black, and 7 Black patient with White/other race partner. For data analytic purposes, we categorized couples based on the race of the patient: 61% White and 39% Black. Average age was 54.6 years for patients (SD = 9.8) and 55.6 years for partners (SD = 9.9), and the median education category for both patients and partners was some college (10% of both patients and partners graduated college). Relationship length ranged from 15 months to 47 years, with a mean of 18.5 years.

# Procedure

*Recruitment.* The study was described as focusing on the role that partners played in the health of persons with diabetes. Couples were recruited from the community (i.e., health fairs, mass media advertising, and brochures in physician offices). Interested persons contacted us by phone and were screened for eligibility. To be eligible, participants had to have been diagnosed with diabetes in the past 3 years, not have another illness that affected their daily life more than diabetes (e.g., recent back surgery), be married or living with a partner in a marital-type relationship for at least 2 years, and have a partner who did not have diabetes. Of the 234 people who contacted us, 148 were determined not to be eligible. Of the remaining 86, 4 refused without us being able to determine eligibility, 11 refused after screening, and the remaining 70 agreed and completed this interview. After participants signed consent forms and were interviewed, we verified date of diagnosis with physicians and found that three persons had been diagnosed 4–6 years ago. However, these three couples were retained in the analyses because their inclusion did not alter the results.

*In-person interview.* Couples had the choice of being interviewed in their homes (n = 56; 80%) or coming to the University with mileage reimbursement (n = 14; 20%). Patient and partner were interviewed separately. The interview began with the research assistant asking each participant separately to describe how he or she was coping with diabetes.

Specifically, participants were asked: "Please describe how you are coping with or dealing with diabetes." After the response, two follow-up questions were asked to elicit further elaborations: (1) "And is there anything specifically you or your spouse do in relation to diabetes?" (2) "And is there anything specifically you or your spouse avoid doing in relation to diabetes?" Each person was allowed up to 5 min to answer the question. The average interview was 2 min and 24 s for patients (SD = 61 s) and 2 min and 12 s for partners (SD = 63 s). Interviews ranged between 62 s and 5 min.

Audiotaped responses were transcribed and submitted to the Linguistic Inquiry Word Count (LIWC; Pennebaker & Francis, 1996) program. To measure implicit communal coping, we computed the proportion of pronouns that were first-person plural (e.g., we). The proportion of pronouns rather than the proportion of language captures the emphasis on whether patients and partners are talking about joint endeavors (we) rather than individual actions (I and he/she).<sup>2</sup> The proportion of pronouns that were first-person plural ranged from 0 to 100% for patients, with a mean of 17% and a SD of 22%, and 0 to 100% for partners, with a mean of 22% and a SD of 23%, respectively. The proportion of text that contained first-person plural pronouns ranged from 0 to 11.48% (M = 2.14, SD = 2.81) for patients and 0 to 15.91% (M = 3.48, SD = 3.57) for partners. Over a third of patients (39%) and 21% of partners did not use any first-person plural pronoun language.

The rest of the interview was structured, including the relationship and health questionnaires described below. Couples were each paid US\$50 for their participation in this interview.

## Interview instruments

*Explicit communal coping.* We assessed explicit communal coping among both patients and partners using a modified IOS scale (Aron et al., 1992). This scale presents participants with a set of seven pairs of concentric circles that vary in their degree of overlap from 1 (*two separate circles*) to 7 (*almost completely overlapping circles*). Patients and partners separately viewed the seven IOS response options and reported which picture best described how they and their partner deal with diabetes. Higher scores indicate greater communal coping with diabetes. We also administered the original IOS (select picture that best depicts your relationship) so that we could determine whether the modified IOS predicted relationship and health functioning independent of the original IOS.

**Relationship quality.** We adapted the 5-item Quality of Marriage Index (QMI; Norton, 1983;  $\alpha = .91$ ) for cohabiting couples (i.e., "We have a good marriage" changed to "We have a good relationship") and administered the 6-item emotional intimacy subscale from the Personal Assessment of Intimate Relationships scale (PAIR; Schaefer & Olson, 1981;  $\alpha = .83$ ) to patients. QMI and PAIR items are scored on 7-point scales, and average scores were high: 6.20 QMI and 5.46 PAIR. Because the two instruments were strongly correlated (r = .67, p < .001), we averaged the two standardized scales to form a relationship quality index.

Social support. We examined the positive aspects of social interaction by measuring patients' perception of emotional support and instrumental support received from

#### Table 1. Support scale items.

How often did your partner do the following in the last month?
There for you by giving you his/her undivided attention
Try to understand your situation
Point out your strengths in managing diabetes
Listen to you talk about your feelings
Try to put him/herself in your shoes
Instrumental support
Help you to figure out how to take care of diabetes.
Suggest things that might help you manage diabetes.
Help you decide if you need to make changes in managing diabetes.
Overprotective behavior
Think that you can't take care of yourself
Try to do everything for you
Think that he/she needs to be around for you to take proper care of diabetes.
Continuously keep an eye for you.
Illness avoidance
Encourage you to stop dwelling on your problems.
Tell you that you worry too much.
Change the topic to a happier one.
Controlling behavior
Criticize how you take care of your diabetes.
Argue with you about how you take care of diabetes.
Nag you about not taking care of diabetes.

partners. We also examined problematic social interactions by measuring patients' perceptions of partner overprotective behavior, illness avoidance, and controlling behavior. Because we could not identify existing scales in which all items conceptually mapped onto the kinds of social interactions in which we were interested, we created our own scales by selecting items from the following instruments. Specifically, emotional support was measured with 5 items from Fekete, Stephens, Mickelson, and Druley's emotional support scale (2007;  $\alpha = .69$  patients); instrumental support was measured with 3 items from Schaefer, Glasgow, McCaul, and Dreher's Diabetes Family Behavior Checklist (1983;  $\alpha = .62$  patients); overprotective behavior was measured with 4 items from Hagedoorn, Buunk, Kuijer, Wobbes, and Sanderman's Overprotection Scale (2000;  $\alpha$  .72 patients); illness avoidance was measured with 3 items from Fekete et al.'s problematic support scale (2007;  $\alpha = .60$  patients); and controlling behavior was measured with 3 items from Schaefer et al.'s Diabetes Family Behavior Checklist (1983;  $\alpha = .76$ patients). Intercorrelations among the support scales were modest (average r = .35), with the exception of overprotective and controlling behavior, which were correlated .66. The specific items for each of these five scales are shown in Table 1.

**Psychological distress.** We administered three measures of psychological well-being to patients and partners. First, we administered the Center for Epidemiological Depression Scale (Radloff, 1977) to measure depressive symptoms ( $\alpha = .92$  patients;  $\alpha = .89$  partners). Second, we administered Diener's Life Satisfaction Scale (Diener & Larsen,

1984;  $\alpha = .83$  patients and partners). Third, we administered the 4-item abbreviated Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983;  $\alpha = .72$  patients;  $\alpha = .70$  partners). Because these three scales were highly correlated for patients (*r*'s were -.59, .66, -.66, all *p*'s < .001) and partners (*r*'s were -.55, -.54, .72, all *p*'s < .001), we reverse scored the life satisfaction scale, standardized the three scales, and took the average to form a psychological distress index. Patient and partner psychological distress were modestly related, r = .24, p < .05.

Self-care. We measured self-care behavior with the summary of diabetes self-care activities (Toobert & Glasgow, 1994), which measures dietary intake, exercise/energy expenditure, and medication adherence. The reliability was good ( $\alpha = .86$ ).

# Overview of the analysis

Descriptive statistics on all the study variables have been provided in Table 2. Correlations among study variables are also shown in Table 2. First, we examined the distribution of the communal coping measures. Although the explicit measures were normally distributed, the implicit measures were positively skewed. Thus, we used a square root transformation to normalize the distribution of these variables.

Next, we used correlations to examine whether the communal coping measures were related to each other. We examined whether demographic and disease variables (patient/partner age, relationship status, patient/partner education, length of diabetes, and gly-cosylated hemoglobin) were related to communal coping, as this would mean they would need to be statistically controlled in subsequent analyses.

To address our primary aim, we conducted hierarchical multiple regression analyses. We entered patient age, marital status, partner sex, patient race, and relationship length on the first step of the equation as control variables. (We used partner sex rather than patient sex because there was one same-sex couple in the study.) Then we entered patient and partner explicit and implicit communal coping measures on the second step of the equation to predict patient relationship quality, patient perceived support, patient and partner psychological distress, and patient self-care. The results for this final step in the equation are shown in Table 3 (relationship quality and support) and Table 4 (psychological distress and self-care behavior). We present standardized  $\beta$ 's and cumulative  $R^2$  at each step.

To discern whether communal coping was distinct from relationship quality, we reran the analyses for social support, psychological distress, and self-care with statistical controls for relationship quality along with communal coping and the findings remained the same. To discern whether findings for the diabetes-specific IOS were independent of the general IOS, we reran the analyses with the diabetes-specific IOS with statistical controls for the general IOS. We found largely the same results as those reported below, but some effects for explicit communal coping were reduced. The general IOS and diabetes-specific IOS were highly correlated (r = .66, p < .0005), so there may have been a suppression effect with general IOS included.<sup>3</sup> Results are reported without general IOS to avoid suppression, but differences in main results are depicted in Tables 3 and 4 in italics with the primary results.

	M (SD)	Range of responses	_	2	3	4	5	6	7	8	6	01	Ξ	12
<ol> <li>Patient explicit</li> <li>Partner explicit</li> <li>Parient implicit</li> </ol>	4.32 (2.20) 4.84 (1.90) 0.17 (0.22)	to 7   to 7 0 to 1	.22+ 17	4										
4. Partner implicit	0.22 (0.23)	0 to	0. 40.	<u> </u>	.24* 2.4	<u>!</u>								
5. Relationship quality	0.00 (0.91)	-3.33 to .99	.26*	9.	<u>.</u>	<u>.</u>								
6. Emotional support	1.92 (0.66)	0.40 to-3.00	.42*	.07	.30*	.25*	.57**							
7. Instrumental support	1.81 (0.99)	0 to 3	.40*	.12	.23+	<b>6</b> 0 <sup>.</sup>	<u>.</u> 04	.46**						
8. Overprotective	1.38 (0.86)	0 to 3	.I5	08	Ξ.	08	08	.23+	.68**					
9. Illness avoidance	1.17 (0.94)	0 to 3	EI.	30*	<u>ю</u>	 I3	04	.37**	.36**	.45**				
10. Controlling behavior	0.83 (1.02)	0 to 3	.03	05	.05	29*	–. <b>I</b> 5	90.	.47**	.67**	.45**			
II. Patient distress	0.00 (0.87)	-1.37 to 2.30	0 <u>.</u>	—. <b>16</b>	02	29*	48**	—. <b>15</b>	.16	.3 <b>1</b> *	<b>4</b> . **	.45**		
12. Partner distress	0.00 (0.86)	-1.32to 2.23	29*	–.35*	90.	<u>.</u> 03	=.	.02	.03	.23+	.27*	.27*	.24*	
<ol> <li>Diabetes self-</li> </ol>	0.00 (0.52)	-1.23 to 1.24	01.	<u>.</u>	.06	.29*	<u>8</u>	.22+	03	. <u> </u> 3	31**	31*	28	0
care behaviors														
Notes. Relationship qualit based on the actual mea +p < .10; *p < .05; **p *	:y, partner disti sures; and trar < .01; ***p < .0	ress, patient distre nsformed variable 001.	ss, and di s were us	abetes sel ed in all a	f-care bel inalyses. I	havior vai M: mean;	riables are SD: stanc	standardi lard devia	zed comp tion.	osite varia	bles; Mea	ins for imp	licit copir	ıgare

Table 2. Zero-order correlations.

	Relationship quality	Emotional support	Instrumental support	Overprotective	Illness avoidance	Controlling behavior
	В	В	В	В	B	В
Step I						
Patient age	31*	22+	16	04	07	04
Marital status	.04	07	08	15	21+	06
Partner sex	02	.03	34**	42***	60.	42***
Patient race	.05	.02	10.	Ξ.	20	01.
<b>Relation length</b>	.03	28*	16	39**	24+	31*
R <sup>2</sup>	.07	. <b>I4</b> +	.17*	.22**	.33***	Ξ.
Step 2						
Patient explicit	.32* (.05)	.45*** (.42***)	.28* (.28+)	02 (00)	.19+ (.28+)	<b>I5</b> ( <i>I7</i> )
Partner explicit	.14 (.14)	.03 (.03)	.03 (.03)	09 (09)	23* (23*)	03 (03)
Patient implicit	14 (04)	(.22+)	(22+(.23+))	.28* (.27*)	.09 (.05)	.31* (.32*)
Partner implicit	.14 (.11)	(+6++0)	02 (02)	22+(22+)	08 (07)	$45^{***}$ $(45^{***})$
R <sup>2</sup>	61.	45***	.31**	.31**	.42***	.31*

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0 = Black, I = White; numbers in parentheses are primary effects when general IOS is controlled; confidence intervals are available from the authors upon request. +p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001.

	Patient distress	ss Partner distress	Diabetes self-care behaviors
	В	В	В
°Step I			
Patient age	05	<b>—.03</b>	.11
Marital status	11	<b>—.16</b>	.01
Partner sex	06	<b>12</b>	.08
Patient race	22	15	.02
Relation length	08	<b>13</b>	03
R <sup>2</sup>	.14+	.16+	.02
°Step 2			
Patient explicit	01 <i>(</i> .06)	<i>−.</i> 27* ( <i>−</i> 24)	.13 (.26)
Partner explicit	06 (06)	25* (25 <sup>*</sup> )	.08 (.09)
Patient implicit	.11 (.09)	.19 (.18)	02 (02)
Partner implicit	2 <b>9</b> * (28*)	.00 (.0 <i>1</i> )	.31* (.32*)
R <sup>2</sup>	.22+	.30*´	.12

 
 Table 4. Multiple regression: predicting patient and partner psychological distress and patient selfcare behavior.

Note. Standardized  $\beta$ 's are reported; marital status is coded 0 = unmarried, 1 = married; partner sex is coded  $0 = female \ partner$ ,  $1 = male \ partner$ ; patient race is coded 0 = Black, 1 = White; numbers in parentheses are primary effects when general IOS is controlled; confidence intervals are available from the authors upon request.

+p < .10; \*p < .05; \*\*p < .01.

# Results

# Background analyses

First, we examined the correlations across the communal coping measures. Patient and partner explicit communal coping were marginally correlated, r = .22, p = .07. Patient and partner implicit communal coping also were marginally correlated, r = .22, p = .08. A comparison of the mean level differences in patient and partner explicit and implicit communal coping revealed trends in the directions of partners higher than patients (explicit patient M = 4.33 [SD = 2.20], partner M = 4.84 [SD = 1.87], p = .10; implicit patient M = 0.16 [SD = 0.22], partner M = 0.22 [SD = 0.23], p = .08). Patient explicit and implicit communal coping were unrelated (r = .17) as were partner explicit and implicit communal coping (r = .04).

Second, we examined whether there were demographic variables that were related to communal coping. Neither patient nor partner education or age, marital status, or length of time the patient had diabetes were related to explicit or implicit communal coping. Patient glycemic control also was unrelated to communal coping. However, relationship length was related to partner explicit communal coping (r = .30, p < .05) and patient implicit communal coping (r = .26, p < .05), such that those with longer relationships reported more communal coping. Thus, relationship length was statistically controlled in the regression analyses.

Third, we examined whether there were demographic differences between male and female patients and between male and female partners. There were no patient or partner

sex differences on race, education, or length of time with diabetes. However, male patients were older (M = 57.35, SD = 9.92) than females patients (M = 52.03, SD = 9.15), t(68) = 2.34, p < .05; there was no age difference between male and female partners. There also was no age difference between patients and spouses. There was a sex difference in marital status,  $\chi^2(1) = 4.28$ , p < .05, such that 53% of female patients were married compared to 77% of male patients.

# Sex comparisons in communal coping

To examine sex differences in communal coping, we conducted one-way analyses of covariance with statistical controls for patient age and marital status because these two variables were confounded with sex. There was a sex difference in patient explicit communal coping, F(1, 66) = 6.22, p < .05. As hypothesized, male patients reported greater explicit communal coping (M = 4.96, SE = .38) than female patients (M = 3.76, SE = .38). However, there were no sex differences on partner explicit communal coping or either report of implicit communal coping.

# Multiple regression analysis: Relationship

As shown in Table 3, sex was related to patient reports of partner support. Having a female partner was associated with patient reports of greater instrumental support, overprotective behavior, and controlling behavior. Relationship length also was related to support, such that patients with longer relationships reported less emotional support, less overprotective behavior, and less controlling behavior.

Patient explicit communal coping was related to higher relationship quality and to reports of receiving more emotional and instrumental support from partners. To understand the significance of these findings, one can evaluate the standardized regression coefficients. A 1 *SD* unit increase in explicit communal coping (2.2 units on the 7-point overlapping circles scale) is associated with a 0.32 *SD* increase in relationship quality (a 0.29 unit increase on the index), a 0.45 *SD* increase in emotional support (a 0.30 unit increase), and a 0.28 *SD* increase in instrumental support (a 0.28 unit increase). Admittedly, these are modest effects. Clinically, it is not clear what the impact is of a one-unit change on any of these scales. Comparing across coefficients, it appears that changes in explicit communal coping are associated with similar sizes of changes in relationship quality, emotional support, and instrumental support.

Partner explicit communal coping was associated with patient report of less partner illness avoidance, and the effect size was modest. Patient implicit communal coping was related to patient reports of greater partner overprotective behavior and greater partner controlling behavior. By contrast, partner implicit communal coping was associated with patient reports of less controlling behavior from partners, a more moderate effect.

Exploratory analyses revealed an interaction of partner sex with partner implicit communal coping for relationship quality (B = .62, p < .05). Partner implicit communal coping was related to marginally higher relationship quality for patients with male partners (B = .33, p = .089) but not for patients with female partners (B = -.25, p = .13). Partner sex also interacted with partner explicit communal coping to predict illness

avoidance (B = -.28, p < .05). Partner explicit communal coping was related to less illness avoidance for patients with male partners (B = -.40, p < .01) but not for patients with female partners (B = .00, p = .99). No other interactions with partner sex were observed.

#### Multiple regression analysis: Health

Regression results for health indices are shown in Table 4. None of the control variables were related to these outcomes. Patient and partner explicit communal coping were each associated with lower partner distress. Partner implicit communal coping also was associated with better patient distress. Partner implicit communal coping also was associated with better patient self-care behavior. This indicates that 1 *SD* increase in implicit communal coping (0.22 units on a scale ranging from 0 to 1) would be associated with a 0.31 *SD* increase in self-care behavior (a 0.16 unit increase on a scale ranging from -1.23 to +1.24).

Exploratory analyses revealed an interaction between partner sex and patient explicit communal coping on self-care (B = -0.74, p < .001). In the presence of a female partner, patient explicit communal coping was related to better self-care (B = .66, p = .001), but in the presence of a male partner, patient explicit communal coping was marginally related to worse self-care (B = -.33, p = .07). No other interactions with partner sex were observed.

# Discussion

The primary goal of this study was to investigate how communal coping was related to relationships and health among couples in which one person was recently diagnosed with diabetes. We predicted and found that communal coping—having a shared appraisal of diabetes and taking a collaborative approach toward dealing with diabetes—was bene-ficial when patients as well as partners coped communally. Specifically, communal coping was related to positive relationship indices, lower patient and partner distress, and positive patient self-care behavior.

We assessed patient and partner communal coping in two ways: explicitly and implicitly. Explicit communal coping was assessed by self-report of couples' overlap in regard to coping with diabetes (i.e., adapted IOS scale), whereas implicit communal coping was assessed by we-talk, or the proportion of we pronouns used when discussing diabetes. Explicit communal coping was marginally correlated between patients and partners, as was implicit communal coping, providing some evidence that couples agree as to whether they cope communally.

Somewhat surprisingly, there were no associations between an individual's explicit and implicit communal coping. We expected modest correlations consistent with Agnew et al. (1998) who found that we-talk and scores on the general IOS scale were correlated. In the present study, we did not find a relation between the general IOS or the diabetesspecific IOS and we-talk. Instead, the lack of association suggests that the two variables may be more distinct from one another in the context of diabetes management and may make independent contributions to relationships and health. This finding is consistent with other research that has shown weak to null relations between explicit and implicit measures (Fazio & Olson, 2003). Another possibility is that both measure cognitive interdependence, but the lack of correlation between implicit and explicit measures is due to differences in test format, as suggested by Payne, Burkley, and Stokes (2008). That is, because the formats of explicit and implicit measures differ (i.e., speaking vs. circling an answer, respectively), the tasks demands are different and tasks that are more similar in task demands will necessarily have greater correlation.

Because there was little overlap in the measures of explicit and implicit communal coping, it is not surprising that we found unique correlates of explicit and implicit communal coping. From the perspective of the patient, we found evidence that patients' explicit, but not implicit, communal coping was related to positive relationship indices. Specifically, patients who reported greater overlap with their partners in how they coped with diabetes reported better relationship quality and greater emotional and instrumental support from their partners than patients with less explicit communal coping. The findings for support, but not overall relationship quality, held when controlling for the general IOS, a widely used measure of relationship closeness. Thus, our adapted version of the IOS is tapping something distinct about relationships above and beyond relationship closeness that might contribute to support interactions during times of stress.

Patients' implicit communal coping, by contrast, was associated with relationship functioning, but not in the way that we had anticipated. Patient we language was not related to relationship quality but was linked to reports of partners engaging in more overprotective behavior and more controlling behavior. There also were trends indicating patient we language was linked to patient reports that partners provided more emotional support and instrumental support. Taken collectively, these results suggest that patients perceive the disease as shared in terms of the language they use when partners are involved in their disease management. However, this involvement crosses the line from being supportive to being viewed as controlling. It may be that the more extreme partner helping behaviors lead patients to perceive the illness as shared.

The results for partner communal coping also diverged based on whether the measure was explicit or implicit. Partners' explicit communal coping was only related to one index of relationship functioning—the absence of illness avoidance. Thus, when partners communicated that they viewed diabetes as a joint endeavor, patients recognized that their partners were not avoiding the illness but did not necessarily acknowledge any indications of support.

By contrast, partner we language was related to patients perceiving partners as less controlling and showed trends indicating that patients perceived partners as emotionally support and not overprotective. Thus, patients who had partners who talked about the illness in a communal way tended to report more positive and less negative interactions around diabetes.

The results for the two different measures of communal coping were quite divergent when health outcomes were examined. When patients and partners acknowledged that they perceived greater overlap in how they coped with diabetes, partners had lower levels of distress. This is the first study, to our knowledge, to link a form of the IOS to a health index. It is important to identify predictors of partner distress because a study of couples in which one person had type 2 diabetes showed that partner distress led to decreases in support provision (Iida et al., 2010). Explicit knowledge on the part of patient and partner that diabetes will be managed collectively may reduce partner distress by enhancing partner control and reducing partner burden. Individuals deal with difficult situations better when they feel that they have agency or control (e.g., Shapiro, Schwartz, & Astin, 1996).

Although patient implicit communal coping was not related to any health outcome, partner implicit communal coping was related to reduced patient distress and better patient self-care behavior. That is, when partners used language that highlighted that diabetes was "our" problem rather than solely the patient's problem, patients were less distressed and performed better self-care behavior. This finding is especially important because good self-care behavior is key to preventing diabetes complications, such as heart and kidney disease, retinopathy, and neuropathy (Skyler et al., 2009). The link of partner implicit rather than explicit communal coping to these health indices may be more reflective of processes that reflect invisible support, support, that is, provided to the recipient but not perceived by the recipient (Bolger, Zuckerman, & Kessler, 2000). When patients have partners who perceive that diabetes is a joint problem, patients may be used to working on diabetes together (e.g., exercising together and eating similar healthy foods) without consciously construing their partner's behavior as overt support attempts. Patients may respond more positively to partner collaboration that is indirect in this way.

A secondary goal of this study was to examine the implications of sex for communal coping. We predicted that male patients would report more communal coping than female patients because women are more typically the family caretaker and may therefore be more likely to provide support for diabetes management (Pinquart & Sörensen, 2006). We found support for this hypothesis for only one of our measures. Male patients reported more explicit communal coping than female patients. However, there were no sex differences in partner reports of explicit communal coping, and there were no sex differences in implicit communal coping from either patient or partner perspective. The discrepancy in the findings for the explicit and implicit measures of communal coping leads one to speculate that patients are aware of the stereotype or expectation that female partners share the burden of a male patient's illness but that this may not be the case on a more implicit level.

In addition to sex differences in the overall amount of communal coping, there were some sex differences in the links that communal coping had with relationships and health. Regarding relationship quality and illness avoidance, patients with male partners (typically, female patients) benefitted more from their partners' implicit communal coping than patients with female partners (typically, male patients). However, in terms of self-care behavior, patients with female partners (typically, male patients) benefitted more from their own explicit communal coping than patients with male partners (typically, female patients). These results suggest that the benefits of communal coping for women may be primarily relational, whereas the benefits for men may lie in the domain of health behaviors. Women may not benefit as much in terms of health behavior because they can receive support to promote health behaviors from their broader social network. However, relational benefits in terms of marital satisfaction must come from their partner. By contrast, men may be more likely than women to benefit from communal coping in terms of health behavior because health is a traditional female domain in which women are used to being involved (Green & Pope, 1999). Indeed, research has shown that spouses have more influence over men's than women's health behavior (Markey, Markey, Schneider, & Brownlee, 2005).

Before concluding, we acknowledge several study limitations. First, the study was cross-sectional, which limited our ability to draw causal inferences. Intervention studies that increase communal coping in couples will better address its effects on relationships and health. Additionally, this study lacked a large enough sample to conduct tests of interactive effects between patient and partner communal coping (i.e., power would have been in the .60 range to detect a 5% increment in variance for an interaction term). Third, our study included very brief measures of communal coping. The explicit measure was only 1 item, which could be construed as an advantage or a disadvantage. The implicit measure was based on a very brief coping interview, which is a departure from other pronoun-based research that has used substantially longer interviews. However, pronouns based from this brief interview were associated with relationships and health. Finally, although our adaption of the IOS to measure explicit communal coping was novel in this study and has not been used by previous research, its correlation with the general IOS was quite substantial. Thus, we encourage future research in the area of chronic illness or stress to employ this adapted measure to learn more about its psychometrics.

We acknowledge that many of the effects found in this study are quite modest. However, obtaining modest links of psychosocial variables to important outcomes such as patient and partner psychological distress and patient self-care behavior can have important real-world effects. Modest changes in self-care behavior, in particular, may affect whether a person with type 2 diabetes has to switch from oral medication to insulin or begins to develop the myriad complications associated with diabetes.

Future research should address other individual difference variables beyond sex that could influence communal coping and moderate the effectiveness of communal coping. For example, individuals who prefer greater distance in their relationships or who are anxious about maintaining their close relationships (attachment avoidance and attachment anxiety, respectively) may not benefit as much from communal coping or may not communally cope with their partners as effectively. The mechanisms by which implicit and explicit communal coping lead to relational and health functioning also should be investigated. We suggest that communal coping not only leads partners to provide more support but leads patients to be more receptive to support and more willing to request support. This collaboration then makes it easier for patients to execute the behaviors needed to manage diabetes. It is unclear from this study whether couples' implicit communal coping is unique to diabetes or reflects a more general pattern of communication and problem solving. Because the behaviors involved in caring for diabetes occur on a daily basis, an EMA design might shed light on how implicit and explicit communal coping are translated into behaviors that contribute to relationship quality and health. With EMA, one could examine how daily social interactions are connected to patient and partner exercise and diet as well as diabetes-related communications and problem-solving.

Finally, the boundary conditions on communal coping, if they exist, should be identified. The fact that patients who reported greater overlap with their partners in coping with diabetes also saw those partners as overprotective and controlling suggest that there may a limit on how much communal coping is adaptive. Future research should distinguish communal coping—shared appraisal and collaboration—from enmeshment in which the overlap between partners is maladaptive for relationships and health (Barber & Buehler, 1996).

In addition, this study demonstrated that communal coping in couples in which one individual is newly diagnosed with diabetes is related to positive relationships and health. This research provides the first demonstration that explicitly including one's partner in diabetes management as well as using greater we-talk in discussing diabetes management is related to better relationships and health in individuals new to dealing with diabetes. It is important to take into consideration, however, whether communal coping is measured explicitly or implicitly. Findings for explicit measures were straightforward—links to positive relationship outcomes and lower levels of patient distress. The more implicit measure of patient we-talk was linked to partner involvement in disease management in both helpful and unhelpful ways. By contrast, partner we-talk was uniformly beneficial for patients in terms of partners being perceived as helpful, patients being less distressed, and patients being more likely to take care of themselves. Thus, it may be the partner's perception of the stressor as shared and the demonstration of this communal appraisal through language that is most adaptive for patients.

#### Authors' note

Portions of these data have been presented at the 2016 International Association of Relationship Research Conference.

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#### Notes

1. Although hemoglobin A1c (HbA1c) was quite good in this recently diagnosed sample, we examined its relation to outcome variables. The only relationship outcome linked to HbA1c was controlling behavior (B = .24, p = .04), such that more poorly controlled diabetes was related to more controlling behavior, accounting for 5% of the variance. The only health outcome linked to HbA1c was patient distress (B = .32, p = .01), such that more poorly controlled diabetes was linked to greater patient distress, accounting for 9% of the variance. HbA1c was also marginally related to poorer self-care behavior (B = .25, p = .06), accounting

for 5% of the variance. However, inclusion of HbA1c in the analyses reported in this article did not alter the significance of any of the findings reported for explicit or implicit communal coping.

- 2. We reanalyzed the data and replaced the percent of pronouns that were first-person plural with the percent of words that were first-person plural. This supplementary analysis is consistent with the majority of previous literature that examined the proportion of total words that were first-personal plural pronouns. Overall, findings remained unchanged. Two significant findings became marginal: partner implicit communal coping predicted marginally less patient distress (B = -.29, p = .051) and partner explicit communal coping predicted marginally less illness avoidance (B = -.20, p = .076). Additionally, two marginal findings became significant: patient implicit communal coping predicted higher emotional support (B = .26, p = .026) and partner implicit communal coping predicted less overprotective behavior (B = -.24, p = .035).
- 3. Patient general Other in the Self (IOS) was unrelated to partner diabetes-specific IOS (r = .144, p = .236), patient implicit communal coping (r = -.10, p = .430), or partner implicit communal coping (r = -.00, p = .978).

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