American Psychological Association

Journal of Family Psychology

0893-3200/18/$12.00

2018, Vol. 32, No. 5, 654–663
http://dx.doi.org/10.1037/fam0000414

Communally Coping With Diabetes: An Observational Investigation Using the Actor-Partner Interdependence Model

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Communal coping is a form of interpersonal coping that involves a shared illness appraisal and collaborating to address illness-related issues. We hypothesized that communal coping among couples in which one person is recently diagnosed with Type 2 diabetes would be related to better diabetes problem-solving, better mood, greater relationship quality, and less psychological distress for both partners. Communal coping was coded from videotaped interactions in which 119 heterosexual couples discussed difficulties in managing diabetes. Actor-partner interdependence models were performed to isolate associations of actor communal coping and partner communal coping with outcomes, and examined whether the couple-member had diabetes and sex as moderator variables. We expected that communal coping would be more beneficial for women than men, and that partner communal coping would be more strongly linked to outcomes than actor communal coping. Results were largely consistent with hypotheses, suggesting that communal coping is beneficial to couples coping with diabetes.

Keywords: communal coping, relationships, psychological well-being, health, actor-partner interdependence model

Supplemental materials: http://dx.doi.org/10.1037/fam0000414.supp

Coping with a chronic illness is no small feat. Traditionally, research in this area has focused on how individuals cope with chronic illness, typically distinguishing between problem-focused and emotion-focused strategies (Lazarus & Folkman, 1984). However, it is becoming increasingly understood that coping occurs within a social context. For instance, family systems theory (Cohen, 1999; Patterson & Garwick, 1998) recognizes that the family influences the patient's adjustment, and that the patient also influences the family. Work in the adult coping literature also indicates that patients' and caregivers' mental and physical health are interconnected (Kershaw et al., 2015). Thus, for married individuals, adjusting to a chronic illness affects both partners. In the present study, we investigate the role of communal coping with a chronic illness on both partners' well-being.

Communal coping was first proposed by Lyons, Mickelson, Sullivan, and Coyne (1998) as an optimal way that couples might cope with one partner's stressor. The definition of communal coping adopted in this work reflects the original definition proposed by Lyons et al. (1998), and consists of a shared illness appraisal (viewing the illness as "our" problem rather than "his or her" or "my" problem), and collaboration in managing the illness and its demands (Helgeson, Jakubiak, Van Vleet, & Zajdel, 2017). Couples who have shared illness appraisals are likely to communicate about the illness (Lyons et al., 1998), leading to shared expectations for illness management. Collaboration involves joint input, mutual effort, and a team approach to successfully managing a problem (Berg, Schindler, & Maharajh, 2008; Berg, Schindler, Smith, Skinner, & Beveridge, 2011). There are a variety of ways

This article was published Online First May 28, 2018.

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We are grateful to Pamela Snyder, Tiona Jones, Gianna Davis, Katilyn Mascatelli, and Shaquille Charles for their assistance in conducting this study. We also acknowledge that we received recruiting assistance from the University of Pittsburgh Clinical and Translational Science Institute, which is supported by the National Institutes of Health Grant UL1TR000005. Financial support for this work was received from R01 DK095780. The authors disclosed receipt of the grant for the research, authorship, and/or publication of this article.

Two other publications involve data described in this work (Helgeson, Mascatelli, Seltman, Korytkowski, & Hausmann, 2016; Helgeson et al., 2017), which had different hypotheses and aims than the current work. Initial findings of this article were presented at the International Association for Relationship Research conference in Toronto, 2016.

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in which partners can collaborate—including discussing illness issues, combining efforts, skills, and knowledge to engage in joint problem-solving; negotiating responsibilities; and pooling resources (Berg et al., 2008)—but all of these strategies reflect joint efforts to address the problem. When partners collaborate, their roles as patients (partner with the illness) and spouses (partner without the illness) are de-emphasized, and they work together to address and adapt to illness demands. Although Lyons and colleagues defined communal coping 20 years ago, little empirical work has examined this phenomenon.

However, research has been conducted on a related construct, dyadic coping, that also acknowledges coping's interpersonal context and has been linked to good health outcomes (Bodenmann, 2005; Bodenmann, Pihet, & Kayser, 2006). Bodenmann (1995, 1997) developed the concept of dyadic coping to reflect many ways in which couples relate to one another when coping, and articulated a framework that includes both positive and negative forms of dyadic coping. Common dyadic coping, one of Bodenmann's positive forms of dyadic coping, has some overlap with the collaboration element of communal coping. Specifically, common dyadic coping includes collaboration (i.e., joint problem-solving) but also other dyadic behaviors such as sharing feelings, mutual commitment, and relaxing together. More important, the shared appraisal element of communal coping is not represented in Bodenmann's dyadic coping.

A context in which interpersonal coping—in particular communal coping—is likely to be especially effective is the management of Type 2 diabetes. Type 2 diabetes is associated with a host of health complications (e.g., heart disease, stroke, kidney disease, and lower limb amputation) that threaten quality and quantity of life (American Diabetes Association, 2012; Center for Disease Control and Prevention, 2014), and involves a self-care regimen in which spouses may be involved (i.e., diet and exercise). The little research that has examined communal coping in a diabetes context suggests that it may be beneficial for couples. In a daily diary study of couples coping with Type 2 diabetes, spousal support was associated with decreases in patients' diabetes distress only when couples appraised diabetes management as a shared responsibility (Stephens et al., 2013). In previous work involving the first 70 couples of this sample, patients' self-reported communal coping was related to better relationship quality and greater spousal support, and spouses' self-reported communal coping was related to lower psychological distress and better patient self-care (Helgeson, Jakubiak, Seltman, Hausmann, & Korytkowski, 2016). The goal of the present work was to expand this area by using an observational measure of communal coping and using a dyadic analysis framework to examine how both patient and spouse communal coping are related to their own and their partner's well-being.

First, we hypothesize that communal coping will lead to enhanced diabetes problem-solving (e.g., addressing obstacles to self-care). When one's partner is equally invested in diabetes management, brainstorming with him or her could optimize solutions. Couples who cope communally will share responsibility for self-care, pool resources, and share knowledge to address diabetes problems. This is likely to spur more open and effective illness-related communication (Lyons et al., 1998), because communal coping allows spouses to understand the illness, its demands, and management.

Previous work provides some indirect support for the hypothesis that communal coping is linked with better diabetes problem-solving. In a study involving children with Type 1 diabetes and their parents, children's diabetes management was best when the responsibility for self-care was shared between the parents and children (Helgeson, Reynolds, Siminerio, Escobar, & Becker, 2008; Wiebe et al., 2005). In focus groups of people with Type 1 diabetes using continuous glucose monitoring devices, patients reported that the device worked best on days in which they collaborated with their partners (Ritholz et al., 2014). Other research has linked shared illness appraisal, operationalized as the use of first-person plural pronouns, with problem-solving among couples in which one person had obsessive–compulsive disorder or panic disorder (Simmons, Chambless, & Gordon, 2008; Simmons, Gordon, & Chambless, 2005).

Second, as outlined in recent theoretical work (Helgeson et al., 2017), communally coping should lead to enhanced relationship quality because it communicates positive messages to both partners about their relationship. Communal coping communicates investment in the relationship and helps to maintain the relationship (Mickelson, Lyons, Sullivan, Coyne, & Sarason, 2001). Couples who engage in communal coping realize that the current stressor is one of many challenges that they may face and that each of these stressors can be shared. In line with this hypothesis, self-reported communal coping has been linked to better relationship quality in couples in which one person had heart failure (Rohrbaugh, Mehl, Shoham, Reilly, & Ewy, 2008) or diabetes (Helgeson et al., 2016). We-language has also been associated with greater marital quality in couples in which one person had heart or lung disease (Rohrbaugh, Shoham, Skoyen, Jensen, & Mehl, 2012), and daily collaboration in illness management has been linked with greater relationship satisfaction among couples coping with prostate cancer (Berg et al., 2008).

Third, feeling that one is facing the illness with a team-mate rather than on one's own should improve mood and reduce psychological distress (Helgeson et al., 2017). Relatedly, in a study of couples coping with prostate cancer, both partners reported better mood on days in which they collaborated in illness management (Berg et al., 2008). Spouse we-talk has also been linked to reduced patient depression in a study of families of women with breast cancer (Robbins, Mehl, Smith, & Weihs, 2013). Especially relevant to this work, Stephens et al. (2013) linked daily spousal support to decreased patient distress in couples in which one partner had diabetes, only when couples appraised diabetes management as shared.

The literature investigating links of communal coping to the outcomes we propose has relied on patients' and spouses' self-reports of communal coping or use of we-language. We aim to add richness to the understanding of communal coping by examining observed communal coping as it unfolds in the laboratory during a diabetes stressor discussion. This will allow us to draw links from actual communal coping behavior (as opposed to self-reports or language from interviews) to its outcomes. Specifically, we expect to link observed communal coping to better diabetes problem-solving, mood, and relationship quality and lower psychological distress. This is the first observational study focused on communal coping within a diabetes context.

A primary aim of this work is to consider outcomes of communal coping for both couple-members. One concern with communal

coping is that there might be costs to the spouse who does not have diabetes in terms of illness involvement. Spouses may feel burdened by their involvement in the illness and may become distressed by either the increased knowledge surrounding the health problem and/or exposure to the patient's distress. The extent to which these costs exist is not clear. We argue that the costs of communal coping are outweighed by the benefits for both partners. Spouses who are not involved in the illness may feel excluded, which could have adverse effects on the relationship. Our previous work with the first 70 couples in this study showed that self-reported communal coping was related to lower distress among both patients and spouses (Helgeson et al., 2016). This work, however, did not examine links of observed communal coping to outcomes, did not take into consideration the simultaneous influence of both patient and spouse communal coping in predicting distress, and did not examine couple-member or sex as potential moderators in the link from communal coping to distress. Here we investigate whether communal coping observed in the laboratory is beneficial for patients and spouses using a dyadic data analytic approach and a larger sample size.

Although we expect communal coping to be beneficial to everyone, we believe that sex is likely to moderate the links from communal coping to outcomes. We predict that communal coping will be more strongly related to good outcomes for women than men because women are more responsive than men to the quality of their relationship. Whereas the mere presence of social network members is more strongly linked to men's than women's health (e.g., Yang, McClintock, Kozloski, & Li, 2013), the quality of those ties is more strongly linked to health for women than men (Acitelli & Badr, 2005; Kiecolt-Glaser & Newton, 2001). Most relevant to communal coping, one study showed that greater noncommunal language was associated with more marital distress for women but not men (Seider, Hirschberger, Nelson, & Levenson, 2009).

Not only is it important to consider the impact of communal coping on spouses' well-being, it is also critical to consider *whose* communal coping impacts patient and spouse outcomes. First, one's own communal coping may lead to benefits for oneself (this is referred to as an "actor effect"; Kenny, Kashy, & Cook, 2006). Second, one's partner's communal coping is likely to impact one's own outcomes (referred to as a "partner effect"; Kenny et al., 2006). In other words, spouse communal coping is likely to impact patients' outcomes, and patient communal coping is likely to impact spouses' outcomes. This work contributes to the literature on communal coping in diabetes by using dyadic data analysis to examine both of these effects.

We expect that partner communal coping will be more strongly linked to outcomes than actor communal coping. Partner communal coping conveys important signals to the other couple-member. For instance, spouse communal coping indicates to the patient that the spouse is willing to be involved in diabetes management and reminds the patient that he or she is not facing the illness alone. Likewise, patient communal coping communicates to the spouse that their input in diabetes management is valued, which may make the spouse feel appreciated and competent. The we-language literature provides some evidence that partner communal coping is more strongly related to patient outcomes than their own communal coping (Robbins et al., 2013; Rohrbaugh et al., 2008). To the best of our knowledge no investigation has used observational measures of communal coping or dyadic data analytic techniques to investigate this issue.

The current investigation is the first to simultaneously examine the influence of both patient and spouse communal coping on each other's well-being. That is, we will take into consideration not only the role of the person—patient or spouse—but also the influence of own communal coping (i.e., actor effect) and partner communal coping (i.e., partner effect) on outcomes. We predict an interaction between couple-member (patient vs. spouse) and the partner effect. While we expect partner communal coping to be beneficial for both couple-members, we expect partner communal coping to be particularly beneficial for patients.

The aims of the present investigation were to examine the influence of observed communal coping during a diabetes stressor discussion in the laboratory among couples in which one partner had been recently diagnosed with Type 2 diabetes. This work substantially contributes to the small literature on communal coping in diabetes and is the first observational and dyadic investigation of communal coping in diabetes. We hypothesized that communal coping would be linked with better diabetes problem-solving, better postdiscussion mood, better relationship quality, and less psychological distress for both patients and spouses. We predicted that women would benefit more from communal coping than men and that partner communal coping would be particularly beneficial, especially for patients.

Method

Participants

Participants were 119 heterosexual persons diagnosed with Type 2 diabetes in the past 5 years and the person to whom they were married (68%) or with whom they were living in a marital-type relationship (32%). After patients were enrolled in the study, we verified date of diagnosis with physician records. Of the 119 patients in the study, 4 were outside the 5-year range (3 had been diagnosed for less than 6 years, and 1 had been diagnosed for 8.5 years). Comparisons between those whose diagnoses were less than and more than 5 years on demographic variables and all study variables examined in this article revealed no group differences, so they were retained in the analysis. Patients had been diagnosed with diabetes on average 1.54 years ago (SD = 1.41). Average glycemic control measured by hemoglobin A1c was 7.01% (SD = 1.73). The majority of patients were on oral medication (68%) only, 7% were on insulin, 15% were on a combined regimen of oral medication and insulin, and 11% took no medication. Average age of patients and spouses was 54, ranging from 31 to 82. Just over half of the sample was white (59% patients, 60% spouses), with the remainder being largely African American. Notably, only 13% of patients and 18% of spouses had completed college. Complete demographic information about the sample is provided in supplementary materials Table 1.

Recruitment and Procedure

Participants were recruited from the community via community health fairs, mass transit advertisements, and placement of flyers and brochures in physician offices. Interested persons contacted the study director, were screened for eligibility, and scheduled. Of

the 397 people who contacted the study director, 256 were deemed not to be eligible for participation, largely because they reported being diagnosed more than 5 years ago. Of the remaining 141, 4 refused without being able to determine eligibility, 12 refused after screening, and the remaining 125 agreed and completed the study protocol. Of the 125 couples who completed the study, 2 were dropped from analyses. One was removed because the couple was intoxicated during the study, the other because the researchers learned upon verification of medical records that the patient had Type 1 diabetes. Finally, four same-sex couples were dropped from analyses, because couple-member and sex were examined as potential moderators. The final sample size was 119 couples.

Couples completed study procedures in their homes (80%), unless they preferred to come to the university (20%). The study protocol consisted of the administration of measures of relationship quality and psychological well-being (among other measures as part of the larger study). After completing these measures, both partners independently completed a questionnaire in which they rated the extent to which a series of 12 diabetes issues posed difficulties (e.g., diet, exercise, taking medication, and visiting the doctor). The couple was then instructed to discuss their most difficult diabetes issue, based on both couple-members' ratings, for 8 min with the goal of trying to find ways to resolve the problem. After providing instructions, the research assistant started the video-recording and left the couple alone for their discussion. The research assistant returned 8 min later to end the recording and administer questionnaires to both partners, which included measures of current mood and perceived progress in resolving the diabetes problem. Couple-members completed all questionnaires separately. All study procedures were reviewed and approved by the Carnegie Mellon University Institutional Review Board (Communal Health Interactions in Couples Study, IRB approval #IRB-STUDY2015_00000203).

Instruments

Communal coping. The coding system was adapted from the observational coding systems and training methods of Feeney and colleagues (Collins & Feeney, 2000; Feeney, 2004, 2007). Before raters were allowed to code videos, they were trained to reliability on a set of behavioral codes, including communal coping. Coders provided a single rating for each behavioral code for the entire interaction, on a scale from 1 to 5. Raters practiced coding a set of videotaped interactions until their ratings were consistent with the codes that were established for those interactions (minimum of six videos); that is κ reached or exceeded .80.

Once trained, four research assistants coded each of the videotapes: two persons coded the patient, and two different persons coded the spouse. Coders watched the video once to get a sense of the interaction, then watched it a minimum of two additional times, stopping the video a minimum of every 2 min to take detailed notes on each of the codes (in actuality, coders usually paused more often than this). After training, coders typically took 1 hr to code a single person in a single video.

The behavioral code for communal coping in patients was defined as:

> **Extent to which the current situation seems to be a joint problem, from the patient's point of view**. The patient talks about the problem in a way that indicates diabetes is viewed as a joint problem. '**We-statements**' may be indicative of communal coping (e.g., "we watch what we eat; we exercise; we took that class"). A low score would indicate that the problem is currently perceived to be the patient's problem only or a behavior in which the patient engages in by him/herself.

Spouse communal coping was defined in the same way, except from the spouse's point of view. Thus, coders took into consideration the we-language that the person used to talk about the problem but also the content of those statements as to whether they reflected joint problem-solving. In addition, coders evaluated the entire exchange between couple-members to determine whether the person seemed to consider diabetes to be the patient's own problem or a joint problem. See Table 1 for examples of observed communal coping behavior from videotapes.

Communal coping behavior was coded for patients and for spouses on a 5-point scale: 1 = *not at all*, 2 = *rare or low quality*, 3 = *occasional or moderate quality*, 4 = *often or high quality*, 5 = *consistent and highest quality*. Coders were instructed to take into consideration both the frequency and intensity of the behavior when making ratings, consistent with previous researchers' behavioral coding schemes (e.g., Collins & Feeney, 2000; Feeney, 2004, 2007). When the two coders' ratings differed by 1 point, the average was taken. When the difference was more than 1 point or one of the coders selected *not at all* and the other coder selected any other code, the issue was resolved with a discussion arbitrated by a third party. Coders explained their rating with their detailed notes, and the third party made the final decision. Interrater reliability, measured by the intraclass correlation coefficient (before third-party arbitration), was .79 for patients and .80 for spouses. Observed communal coping was moderately correlated with self-reported communal coping for patients ($r = .34$, $p < .001$ and spouses, $r = .27$, $p = .002$.

Diabetes problem-solving. After the discussion, patients and spouses completed a questionnaire that contained two diabetes problem-solving items: "How much progress did you make in resolving this diabetes problem?" and "Do you think discussing this problem helped to resolve it?" Responses were on a 5-point scale from *none* to *a lot* for the first item and *not at all* to *a lot* for the second item. Because the two items were highly correlated ($r = .62$ for patients; $r = .61$ for spouses), they were averaged to form a diabetes problem-solving index.

Postdiscussion mood. After the discussion, patients and spouses completed a measure of their current mood with the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). The measure consisted of 10 positive affect items and 10 negative affect items, each of which was rated on a 5-point scale ranging from 1 = *not at all* to 5 = *extremely*. The internal consistencies were high for patients (positive affect $\alpha = .92$; negative affect $\alpha = .88$) and spouses (positive affect $\alpha = .92$; negative affect $\alpha = .84$).

Relationship quality. Two instruments were used to capture relationship quality: the 5-item Quality of Marriage Index (QMI; Norton, 1983; patient $\alpha = .91$; spouse $\alpha = .94$) and the 6-item emotional intimacy subscale from the Personal Assessment of Intimate Relationships scale (PAIR; Schaefer & Olson, 1981; patient $\alpha = .84$; spouse $\alpha = .86$). We adapted the QMI for use with cohabiting couples by replacing "marriage" with "relationship" in each of the items (i.e., "We have a good marriage" was

Table 1
Examples of Observed Communal Coping Behavior

Statements supporting of communal coping
"We have to get this handled and straightened out because we don't want it to be a problem."
"It would definitely benefit us both. We know what we have to do. We need to eat them in uh more moderation."
"We have several books that tell us what to eat, what not to eat, and portions."
"We're going to know more in a couple of weeks what to do and what not to do."
". . . for the most part, I think we are handling it pretty well."
"The main thing is we enjoy doing it together. When I was diagnosed as diabetic, you just said we have to handle this and get it straightened out because we don't want it to be a problem."
"The exercise part—that hasn't been difficult for us to manage. We found out our gym has a 4-mile walk class once a week that we go to. We really enjoy that."
"I'd say we've been doing pretty good at it. We just need to maintain what we've been doing maybe watch the meals a little more and get this specialist and see what he as to say, keeping your doctor's appointments, which you do, and working on this together."
"We talk about it every day."
"We try to eat right so we discuss different things about food."
In terms of dealing with diabetes "Another thing that I think is important is like when you're dealing with diabetes as a couple . . . we've been together a long time so we do act as one."
After she tells him she appreciates his help "We depend on each other."
"We're very new to this. We're only in it a month, and we've really been very active in finding out how to manage this."
"We like to think that we realized that things needed to be changed and we changed them."
Statements that detract from communal coping
"Not we, you, you need to because I don't have no problem."
"It's your problem but I am going to help you."
"You have to deal with it."
In response to exercise—"You need to strike out on your own."
"I can't do it for you. I wish I could."
She asks if she can help him and he says "I feel like it's pretty much going to be on me cause our style of exercising is completely different."

changed to "We have a good relationship"). Because the QMI and PAIR were strongly correlated ($r = .71$ and $r = .74$, $p's < .001$ for patients and spouses), we standardized the two scales and took the average to create a relationship quality index.

Psychological distress. We administered three measures of psychological distress to patients and spouses: (a) the Center for Epidemiological Depression Scale (Radloff, 1977) to measure depressive symptoms ($\alpha = .92$ patients; $\alpha = .88$ spouses); (b) the Life Satisfaction Scale (Diener & Larsen, 1984; $\alpha = .86$ patients; $\alpha = .83$ spouses); (c) the 4-item abbreviated Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983; $\alpha = .77$ patients; $\alpha = .74$ spouses). Because the three scales were highly correlated for patients (rs ranged from .65 to .70, all ps $< .001$) and spouses (rs ranged from .55 to .70, all ps $< .001$), we reverse-scored the life satisfaction scale, standardized the scales, and took the average to form a psychological distress index.

Data Analytic Strategy

To investigate the impact of both couple-members' communal coping on their own and each other's diabetes problem-solving, mood, relationship quality, and psychological distress, we performed actor-partner interdependence models (APIM; Kashy & Kenny, 1999; Kenny et al., 2006), using the mixed model procedure in SPSS for the analysis of distinguishable dyadic data. Couple-member was the distinguishing variable because all couples included one person who did and did not have diabetes. This technique allows researchers to estimate the impact of both couple-members' behavior on each other's outcomes by isolating "actor" and "partner" effects, and accounts for the nonindependence in couple-members' responses (see Kenny et al., 2006 for a detailed description of APIM analyses). For this study, an "actor effect" refers to the effect of one's own communal coping on one's own outcomes (i.e., the influence of patients' communal coping on their own psychological distress as well as spouses' communal coping on their own psychological distress). A "partner effect" reflects the influence of one's partner's communal coping on one's own outcomes (i.e., the effect of spouse communal coping on patient psychological distress and patient communal coping on spouse psychological distress).

To test whether the influence of communal coping on outcomes was stronger for patients than spouses, we used the interaction APIM approach. We tested for interactions between communal coping and couple-member (patient, spouse), where spouses were coded as 0 and patients were coded as 1. To test whether the influence of communal coping on outcomes was dependent on sex, we tested for interactions between communal coping and sex, where men were coded as 0 and women were coded as 1. Finally, to investigate whether the influence of communal coping on outcomes depended on *both* couple-member and sex, we investigated the influence of the interaction of communal coping, couple-member, and sex on outcomes. The statistical model is shown below:

$$Y_{ij} = b_0 + b_1X_{ij} + b_2X'_{ij} + b_3C_{ij} + b_4S_{ij} + b_5C_{ij}S_{ij} + b_6X_{ij}C_{ij} + b_7X'_{ij}C_{ij} + b_8X_{ij}S_{ij} + b_9X'_{ij}S_{ij} + b_{10}X_{ij}C_{ij}S_{ij} + b_{11}X'_{ij}C_{ij}S_{ij} + e_{ij} \quad (1)$$

The equation represents the model for person i in couple j with couple-member C and sex 'S'. X represents actor communal coping, X' is partner communal coping, b_o is the intercept, b_1 is the coefficient of X_{ij} on Y_{ij} (actor effect), b_2 is the coefficient of X'_{ij} on

Y_{ij} (partner effect), b_3 is the difference between patient and spouse on Y_{ij}, b_4 is the sex difference in Y_{ij}, b_5 is the interaction between couple-member and sex, b_6 is the actor communal coping interaction with couple-member, b_7 is the partner communal coping interaction with couple-member, b_8 is the actor communal coping interaction with sex, b_9 is the partner communal coping interaction with sex, b_{10} is the three-way interaction between actor communal coping, couple-member, and sex, b_{11} is the three-way interaction between partner communal coping, couple-member, and sex. This model is mathematically identical to the Actor-Partner Interaction Moderation Model (APIMoM; Garcia, Kenny, & Ledermann, 2015) but uses multilevel modeling (MLM), instead of structural equation modeling (SEM). Each estimation method has strengths and weaknesses (for a review see Ledermann & Kenny, 2017).

Models were gradually built to include the influence of interactions among variables on outcomes. First, models were conducted that regressed actor communal coping, partner communal coping, couple-member, and sex on the outcome. Second, models were performed that included two-way interactions: couple-member × sex, actor communal coping × couple-member, partner communal coping × couple-member, actor communal coping × sex, and partner communal coping × sex. Finally, models were conducted that also included the three-way interactions (actor communal coping × couple-member × sex; partner communal coping × couple-member × sex). The simplest models that best fit the data are reported for each outcome. That is, if three-way interactions were nonsignificant, the model with two-way interactions was retained (the three-way interactions were omitted from the equation). If none of the two-way interactions were significant, the model with the main effects was retained (the two-way and three-way interactions were omitted from the equation).

Before conducting inferential statistics, observed communal coping was grand mean-centered. To plot significant interaction effects, estimated marginal means were computed for individuals who were 1 *SD* above and below the mean for communal coping within each group. For instance, if a significant actor communal coping × sex interaction was revealed, estimated marginal means were computed for men who were 1 *SD* above and below the mean for actor communal coping, as well as for women 1 *SD* above and below the mean for actor communal coping. If a three-way interaction was significant, estimated marginal means were calculated for all eight groups.

Results

Descriptive Statistics

Descriptive statistics for communal coping and outcomes are shown in Table 2. Zero-order correlations of communal coping to outcomes are shown in supplemental materials Table 2. Patients' and spouses' communal coping were moderately correlated, $r = .50$, $p < .001$.

APIM results are shown in Table 3. Simple slopes analyses for interactions were conducted in SAS and are presented in the text below. However, the slopes for all eight parameters (actor communal coping effects for male spouses, male patients, female spouses, female patients; partner communal coping effects for male spouses, male patients, female spouses, and female patients) for each dependent variable are shown in supplemental materials Table 3. In this Table, we use Garcia et al.'s (2015) convention of partner effects referring to the *Y* variable. That is, the partner effect for male patients refers to the effect of the female spouses' communal coping on male patients' outcomes. Likewise, the partner effect for female spouses refers to the effect of the male patients' communal coping on the female spouses' outcomes.

Table 2
Descriptive Statistics for Study Variables

	Men				Women			
	Patients		Spouses		Patients		Spouses	
Study variables	*M*	SD	*M*	*SD*	*M*	*SD*	*M*	*SD*
Communal coping	2.31	1.04	2.29	1.06	2.31	1.18	2.63	1.15
Problem-solving	3.68	.97	3.71	.85	3.71	1.09	3.51	1.07
Positive affect	3.39	.95	3.57	.86	3.42	.90	3.53	.89
Negative affect	1.37	.47	1.33	.43	1.50	.74	1.43	.58
Relationship quality	5.94	.95	5.76	1.05	5.63	1.19	5.68	1.18
Psychological distress	.02	.97	.00	.74	.10	.99	−.10	.79

Note. *T* tests were conducted to test differences in communal coping and outcomes based on couple-member and sex. No significant couple-member or sex differences were detected.

Diabetes Problem-Solving

As shown in Table 3, for diabetes problem-solving, a marginal actor communal coping was found, indicating greater own communal coping was related to better perceived problem-solving. Results also revealed a significant partner communal coping × sex interaction. As shown in Figure 1a, more observed partner communal coping was linked with better perceived diabetes problem-solving for women ($\beta = .34$, $p < .001$) but not for men ($\beta = .04$, *ns*). No significant effects were found for any other interactions.

Mood

Positive affect. Results revealed a marginal actor communal coping effect that was qualified by a significant interaction with sex. One's own communal coping was linked with greater positive affect after the discussion for men ($\beta = .30$, $p < .001$) but not women ($\beta = .04$, *ns*, Figure 1b). A significant partner communal coping × sex effect was also revealed (Figure 1c), indicating that more observed partner communal coping was linked with more positive affect for women ($\beta = .20$, $p < .05$) but not men ($\beta = -.12$, *ns*). The finding for women parallels the problem-solving interaction described above. Three-way interactions were nonsignificant.

Negative affect. There was a significant partner communal coping × couple-member × sex interaction. The only significant slope was for female patients ($\beta = -.21$, $p < .05$), such that partner communal coping was linked to less negative affect (see Figure 2a). The beneficial effect of partner communal coping for female patients is somewhat consistent with findings described above.

Relationship Quality

Results for relationship quality revealed a significant partner communal coping effect and a marginal actor communal coping

Table 3
Actor-Partner Interdependence Model Results for Effects of Communal Coping and Interactions Among Communal Coping, Sex, and Couple-Member on Outcomes

Effects	Problem-solving			Positive affect			Negative affect			Relationship quality			Psychological distress		
	Coeff.	*SE*	CI	Coeff.	*SE*	CI	Coeff.	*SE*	CI	Coeff.	*SE*	CI	Coeff.	*SE*	CI
Intercept	3.72***	.13	[3.46, 3.99]	3.58***	.12	[3.35, 3.82]	1.33***	.07	[1.19, 1.48]	5.82***	.12	[5.59, 6.05]	.01	.11	[−.21, .22]
ACC	.20+	.12	[−.04, .43]	.20+	.11	[−.01, .41]	.03	.08	[−.12, .18]	.12+	.06	[.00, .25]	.00	.10	[−.20, .20]
PCC	−.02	.11	[−.24, .20]	−.11	.10	[−.30, .09]	−.07	.07	[−.20, .07]	.17**	.06	[.05, .30]	.06	.09	[−.12, .25]
CM	.00	.18	[−.35, .35]	−.09	.16	[−.41, .23]	.02	.11	[−.19, .23]	.04	.11	[−.17, .25]	.08	.16	[−.24, .39]
Sex	−.19	.18	[−.55, .17]	.01	.16	[−.31, .33]	.10	.10	[−.09, .30]	−.18+	.11	[−.39, .03]	−.07	.15	[−.36, .22]
Sex × CM	.22	.26	[−.30, .74]	−.05	.25	[−.54, .43]	.02	.16	[−.30, .34]				.06	.27	[−.48, .59]
ACC × CM	.08	.13	[−.19, .34]	.20	.12	[−.05, .44]	−.15	.12	[−.38, .08]				−.11	.13	[−.37, .14]
PCC × CM	.11	.13	[−.15, .38]	−.02	.12	[−.27, .22]	.17	.11	[−.04, .38]				−.26*	.13	[−.52, .00]
ACC × Sex	−.15	.13	[−.41, .12]	−.27*	.12	[−.51, −.02]	−.06	.10	[−.26, .15]				−.11	.13	[−.36, .15]
PCC × Sex	.30*	.13	[.04, .57]	.33**	.12	[.09, .58]	.10	.10	[−.11, .30]				.06	.13	[−.20, .31]
ACC × Sex × CM							.16	.15	[−.14, .46]						
PCC × Sex × CM							−.41**	.15	[−.71, −.11]						

Note. ACC = actor communal coping; PCC = partner communal coping; CM = couple-member; Coeff. = coefficient; CI = 95% confidence interval. Actor and partner communal coping variables were grand-mean centered and simultaneously entered into models. Coefficients presented in the table are unstandardized.
+ $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

effect. Partner communal coping (and own communal coping to a lesser extent) were linked to better relationship quality.

Psychological Distress

Analyses revealed a significant partner communal coping × couple-member interaction (see Figure 2b), such that partner communal coping was linked to less psychological distress for patients ($\beta = -.16$, $p < .10$), but was unrelated to psychological distress for spouses ($\beta = .09$, *ns*).

Discussion

This was the first observational and dyadic investigation of communal coping and its links to diabetes problem-solving, mood, relationship quality, and psychological distress for couples in which one person was recently diagnosed with Type 2 diabetes. There are many reasons to believe that communal coping would be helpful in the context of diabetes. Having two people's resources and ideas when diabetes problems arise is likely to improve problem-solving. Feeling like team-mates when dealing with diabetes issues is likely to communicate positive relational messages to both partners. Communal coping should also lessen the pressure of facing the problem alone, and so should improve mood and reduce psychological distress (Helgeson et al., 2017). Collectively, results indicated that communal coping was beneficial for couples. However, there were a number of qualifications to this claim that we discuss below. Our findings are largely consistent with previous research assessing communal coping by self-reports or use of we-language (Berg et al., 2008; Ritholz et al., 2014; Robbins et al., 2013; Rohrbaugh et al., 2008, 2012; Simmons et al., 2005, 2008; Stephens et al., 2013). This work extends the literature by establishing links from communal coping observed in the lab to both partners' outcomes.

An important goal of this investigation was to examine links of communal coping not only to patient outcomes but also to spouse outcomes. In line with predictions, our findings indicated that communal coping had links to better diabetes problem-solving, more positive mood and better relationship quality for both partners. In only one case did we find that communal coping was unrelated to a spouse outcome—psychological distress. Our results provided no evidence that communal coping came at a cost to spouse well-being.

Many of our findings were qualified by sex. In most cases, it was partner communal coping that interacted with sex. These findings suggested that women benefit more than men from their partners' communal coping. Partner communal coping was related to greater perceived progress and more positive mood after the discussion—but only for women. Among female patients, partner communal coping was also related to less negative mood. For both men and women, partner communal coping was linked to better relationship quality, but no other outcomes were linked to partner communal coping for men. However, when men engaged in more communal coping, themselves, they reported more positive mood after the discussion.

The findings for women are consistent with previous research that indicates women are more sensitive to the quality of their relationships and interactions with close others compared with men (Acitelli & Badr, 2005; Kiecolt-Glaser & Newton, 2001; Seider et al., 2009; Yang et al., 2013), and with research indicating that women tend to be more influenced by their relationship partners than men. For example, men's emotional communication skills are linked to wives' marital satisfaction, but women's emotional communication skills are not related to husbands' satisfaction (Cordova, Gee, & Warren, 2005). Wives are also more influenced by their spouse's psychological state than husbands (Larson & Pleck, 1999). Research involving same-sex couples has also linked one partner's emotions during a conflict discussion to the other partner's relationship satisfaction for female but not male same-sex couples (Gottman et al., 2003).

Women may be more affected by their partners' communal coping than men because they are socialized to focus on others and are more skilled than men in detecting others' emotions (Larson & Pleck, 1999). By contrast, men are socialized to focus on the self. This may explain why partner effects found in this investigation

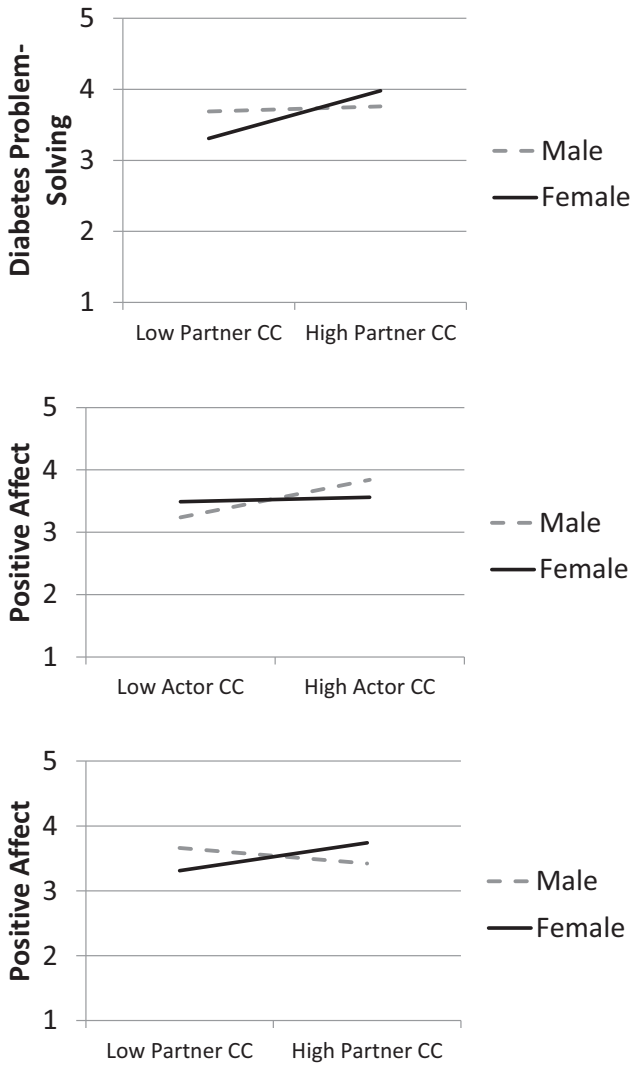

Figure 1. (a) Interaction among observed partner communal coping (CC) and sex on diabetes problem-solving. (b) Interaction among observed actor CC and sex on positive affect. (c) Interaction among observed partner CC and sex on positive affect.

were often qualified by sex. Sex differences in sensitivity to relationships, sociability and preferences for independence may not only stem from differences in socialization, but also from differing levels of sex hormones implicated in social behaviors (e.g., estradiol, testosterone, and oxytocin; van Honk, 2009).

In the current investigation, we thought it important to consider the dyadic nature of the relations between communal coping and its proposed benefits. Our dyadic data analytic technique allowed us to investigate the relation of one's own communal coping to one's own outcomes as well as one's partner's communal coping to one's outcomes. This was the first dyadic work in this area. Findings revealed that, by and large, partner communal coping had more consistent links to outcomes than own communal coping for both patients and spouses. Specifically, our findings indicated several of what Kenny and Ledermann (2010) refer to as partner-only effects, in which the partner effect is nonzero and the actor effect is zero. This pattern is somewhat rare (Kenny & Ledermann, 2010). Therefore, it is important to replicate these findings. Nonetheless, these results echo findings from previous research that found spouse we-language was more strongly linked to patient outcomes than patient we-language (Robbins et al., 2013; Rohrbaugh et al., 2008).

The current investigation has several strengths. First, the use of observational methods in the study of communal coping is novel and adds richness to the understanding of the phenomenon. Couples' behavior during the discussion may be more representative of how they typically handle diabetes problems than other methods of assessment that rely on individuals' recall of how they usually handle diabetes issues. Our observational method also allowed us to capture other behaviors indicative of communal coping in addition to we-language, which we consider a contribution to the greater literature on communal coping with chronic illness. Second, we examined communal coping in the context of a significant, real-world stressor—couples who are facing the recent diagnosis of a chronic illness in one couple-member.

The study also examined links of communal coping to both patient and spouse outcomes, the latter having often been overlooked in the literature. This study is the first to use a dyadic analytic approach to the study of communal coping. This allowed us to examine links between own and partner communal coping to outcomes for both patients and spouses, presenting a more nuanced picture of the relations between communal coping and outcomes. There is a substantial literature on couples coping with chronic

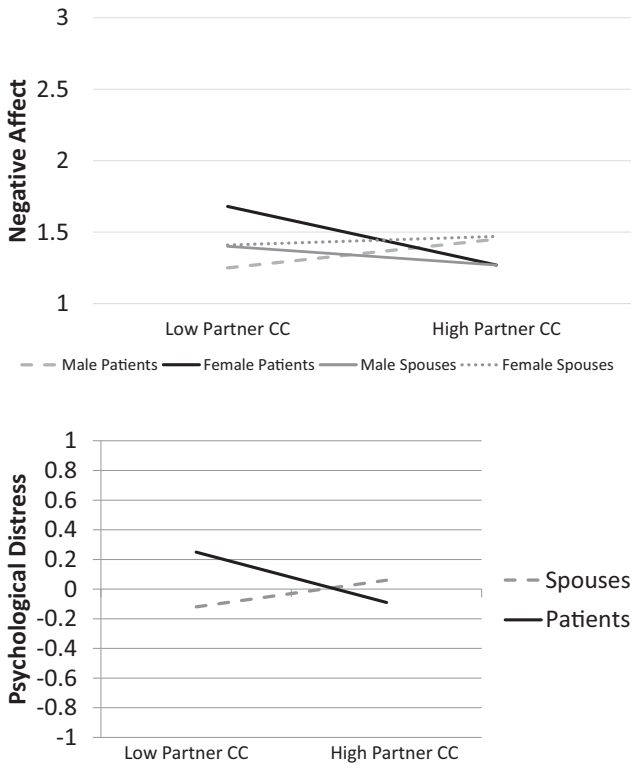

Figure 2. (a) Interaction among observed partner communal coping (CC), sex, and couple-member on negative affect. (b) Interaction among observed partner CC and couple-member on psychological distress.

illness, but rarely are distinctions made between patients and spouses, men and women, and actor and partner effects.

Another important strength of this work is the examination of a large community sample. Only 59% of patients were white, increasing the representativeness of our sample in terms of race and ethnicity. The median level of education was "some college." Participants were recruited from a variety of sources, with the largest single source providing 22% of patients. However, even that source—health fairs—comprised numerous activities. Thus, the characteristics of this sample increase the generalizability of the findings.

This work, however, is not without its limitations. The data presented are correlational and cross-sectional. Therefore, causation cannot be inferred, no claims can be made whether the links revealed last over time, and reverse causation cannot be ruled out as an alternative explanation. The outcomes examined in this investigation also did not include physical health outcomes, as the primary goal of this report was to examine links between communal coping and outcomes that were common to patients and spouses. It is also important to note that the current investigation used the APIMoM approach for data analysis, but there are alternative approaches. The multimember multigroup APIM (MMMG APIM; Ledermann, Rudaz, & Grob, 2017) would also be appropriate, as our data consist of two-members (couples) and two-groups (female patient and male spouse, male patient and female spouse). The MMMG APIM is a flexible framework that allows researchers to examine the degree to which members influence one another as well as the influence of group composition on these effects. Thus, future researchers may consider this statistical approach.

Several steps are needed to expand this research area. First, it will be important for future research to replicate these findings to determine the stability of these patterns with couples coping with diabetes, as well as with other illnesses and in other dyadic relationships. Longitudinal research is needed to link communal coping to outcomes over time and to establish the temporal sequence of communal coping and its outcomes. Experimental work manipulating communal coping in the lab would be important to establish causal relations between communal coping and its proposed benefits. Also, future research should probe potential mechanisms underlying links of communal coping to relationship and health outcomes.

The current investigation as well as future work in this area may be used as the basis for interventions in which couples are encouraged to engage in communal coping, with the goal of enhancing the couple's relationship, psychological well-being, the patient's self-care and, ultimately, their health. Such interventions may facilitate communal coping by helping participants take mutual responsibility for managing the chronic illness, and assisting couples in identifying ways to work together when problems arise. Before this work can be pursued, however, researchers need to investigate contexts in which communal coping may be more beneficial for men. Coping with a chronic illness is a daunting task. Getting through it together, through the process of communal coping, may not only improve problem-solving and lighten the load for patients and improve their well-being, but it may also bring couple-members together in a unique way that strengthens their relationship.

References

Acitelli, L. K., & Badr, H. (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: Emerging perspectives on dyadic coping* (pp. 121–136). Washington, DC: American Psychological Association. http://dx.doi.org/10.1037/11031-006

American Diabetes Association. (2012). *Statistics about diabetes*. Retrieved from http://www.diabetes.org/diabetes-basics/statistics/

Berg, C. A., Schindler, I., & Maharajh, S. (2008). Adolescents' and mothers' perceptions of the cognitive and relational functions of collaboration and adjustment in dealing with type 1 diabetes. *Journal of Family Psychology, 22,* 865–874. http://dx.doi.org/10.1037/a0013641

Berg, C. A., Schindler, I., Smith, T. W., Skinner, M., & Beveridge, R. M. (2011). Perceptions of the cognitive compensation and interpersonal enjoyment functions of collaboration among middle-aged and older married couples. *Psychology and Aging, 26,* 167–173. http://dx.doi.org/10.1037/a0021124

Berg, C. A., Wiebe, D. J., Butner, J., Bloor, L., Bradstreet, C., Upchurch, R., . . . Patton, G. (2008). Collaborative coping and daily mood in couples dealing with prostate cancer. *Psychology and Aging, 23,* 505–516. http://dx.doi.org/10.1037/a0012687

Bodenmann, G. (1995). A systematic-transactional conceptualization of stress and coping in couples. *Swiss Journal of Psychology, 54,* 34–49.

Bodenmann, G. (1997). Dyadic coping: A systematic-transactional view of stress and comping 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: Emerging perspectives on dyadic coping* (pp. 33–49). Washington, DC: American Psychological Association. http://dx.doi.org/10.1037/11031-002

Bodenmann, G., Pihet, S., & Kayser, K. (2006). The relationship between dyadic coping and marital quality: A 2-year longitudinal study. *Journal of Family Psychology, 20,* 485–493. http://dx.doi.org/10.1037/0893-3200.20.3.485

Center for Disease Control and Prevention. (2014). *2014 National diabetes statistics report*. Retrieved from http://www.cdc.gov/diabetes/data/statistics/2014statisticsreport.html

Cohen, S. (1999). Families coping with childhood chronic illness: A research review. *Families, Systems, & Health, 17,* 149–164. http://dx.doi.org/10.1037/h0089879

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24,* 385–396. http://dx.doi.org/10.2307/2136404

Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology, 78,* 1053–1073. http://dx.doi.org/10.1037/0022-3514.78.6.1053

Cordova, J. V., Gee, C. B., & Warren, L. Z. (2005). Emotional skillfulness in marriage: Intimacy as a mediator of the relationship between emotional skillfulness and marital satisfaction. *Journal of Social and Clinical Psychology, 24,* 218–235. http://dx.doi.org/10.1521/jscp.24.2.218.62270

Diener, E., & Larsen, R. J. (1984). Temporal stability and cross-situational consistency of affective, behavioral, and cognitive responses. *Journal of Personality and Social Psychology, 47,* 871–883. http://dx.doi.org/10.1037/0022-3514.47.4.871

Feeney, B. C. (2004). A secure base: Responsive support of goal strivings and exploration in adult intimate relationships. *Journal of Personality and Social Psychology, 87,* 631–648. http://dx.doi.org/10.1037/0022-3514.87.5.631

Feeney, B. C. (2007). The dependency paradox in close relationships: Accepting dependence promotes independence. *Journal of Personality*

and Social Psychology, 92, 268–285. http://dx.doi.org/10.1037/0022-3514.92.2.268

Garcia, R. L., Kenny, D. A., & Ledermann, T. (2015). Moderation in the actor-partner interdependence model. *Personal Relationships, 22,* 8–29. http://dx.doi.org/10.1111/pere.12060

Gottman, J. M., Levenson, R. W., Gross, J., Frederickson, B. L., McCoy, K., Rosenthal, L., . . . Yoshimoto, D. (2003). Correlates of gay and lesbian couples' relationship satisfaction and relationship dissolution. *Journal of Homosexuality, 45,* 23–43. http://dx.doi.org/10.1300/J082v45n01_02

Helgeson, V. S., Jakubiak, B., Seltman, H., Hausmann, L. R. M., & Korytkowski, M. (2016). Implicit and explicit communal coping in couples with recently diagnosed type 2 diabetes. *Journal of Social and Personal Relationships, 34,* 1099–1121.

Helgeson, V. S., Jakubiak, B., Van Vleet, M., & Zajdel, M. (2017). Communal coping and adjustment to chronic illness: Theory update and evidence. *Personality and Social Psychology Review*. Advance online publication. http://dx.doi.org/10.1177/1088868317735767

Helgeson, V. S., Mascatelli, K., Seltman, H., Korytkowski, M., & Hausmann, L. R. (2016). Implications of supportive and unsupportive behavior for couples with newly diagnosed diabetes. *Health Psychology, 35,* 1047–1058.

Helgeson, V. S., Reynolds, K. A., Siminerio, L., Escobar, O., & Becker, D. (2008). Parent and adolescent distribution of responsibility for diabetes self-care: Links to health outcomes. *Journal of Pediatric Psychology, 33,* 497–508. http://dx.doi.org/10.1093/jpepsy/jsm081

Kashy, D. A., & Kenny, D. A. (1999). The analysis of data from dyads and groups. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social psychology*. New York, NY: Cambridge University Press.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford Press.

Kenny, D. A., & Ledermann, T. (2010). Detecting, measuring, and testing dyadic patterns in the actor-partner interdependence model. *Journal of Family Psychology, 24,* 359–366. http://dx.doi.org/10.1037/a0019651

Kershaw, T., Ellis, K. R., Yoon, H., Schafenacker, A., Katapodi, M., & Northouse, L. (2015). The interdependence of advanced cancer patients' and their family caregivers' mental health, physical health, and self-efficacy over time. *Annals of Behavioral Medicine, 49,* 901–911. http://dx.doi.org/10.1007/s12160-015-9743-y

Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin, 127,* 472–503. http://dx.doi.org/10.1037/0033-2909.127.4.472

Larson, R., & Pleck, J. (1999). Hidden feelings: Emotionality in boys and men. In D. Bernstein (Ed.), *Gender and motivation* (Vol. 45, pp. 25–74). Lincoln, NE: University of Nebraska Press.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York, NY: Springer.

Ledermann, T., & Kenny, D. A. (2017). Analyzing dyadic data with multilevel modeling versus structural equation modeling: A tale of two methods. *Journal of Family Psychology, 31,* 442–452. http://dx.doi.org/10.1037/fam0000290

Ledermann, T., Rudaz, M., & Grob, A. (2017). Analysis of group composition in multimember multigroup data. *Personal Relationships, 24,* 242–264. http://dx.doi.org/10.1111/pere.12176

Lyons, R. F., Mickelson, K. D., Sullivan, M. J. L., & Coyne, J. C. (1998). Coping as a communal process. *Journal of Social and Personal Relationships, 15,* 579–605. http://dx.doi.org/10.1177/0265407598155001

Mickelson, K. D., Lyons, R. F., Sullivan, M. J. L., Coyne, J. C., & Sarason, B. R. (2001). Yours, mine, ours: The relational context of communal coping. In S. Duck (Ed.), *Personal relationships: Implications for clinical and community psychology* (pp. 181–200). New York, NY: Wiley.

Norton, R. (1983). Measuring marital quality: A critical look at the dependent variable. *Journal of Marriage and Family, 45,* 141–151. http://dx.doi.org/10.2307/351302

Patterson, J. M., & Garwick, A. W. (1998). Coping with chronic illness: A family systems perspective on living with diabetes. In G. A. Werther & J. M. Court (Eds.), *Diabetes and the adolescent* (pp. 3–34). Melbourne, Victoria, Australia: Miranova.

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385–401. http://dx.doi.org/10.1177/014662167700100306

Ritholz, M. D., Beste, M., Edwards, S. S., Beverly, E. A., Atakov-Castillo, A., & Wolpert, H. A. (2014). Impact of continuous glucose monitoring on diabetes management and marital relationships of adults with Type 1 diabetes and their spouses: A qualitative study. *Diabetic Medicine, 31,* 47–54. http://dx.doi.org/10.1111/dme.12276

Robbins, M. L., Mehl, M. R., Smith, H. L., & Weihs, K. L. (2013). Linguistic indicators of patient, couple, and family adjustment following breast cancer. *Psycho-Oncology, 22,* 1501–1508. http://dx.doi.org/10.1002/pon.3161

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 and Clinical Psychology, 76,* 781–789. http://dx.doi.org/10.1037/a0013238

Rohrbaugh, M. J., Shoham, V., Skoyen, J. A., Jensen, M., & Mehl, M. R. (2012). We-talk, communal coping, and cessation success in a couple-focused intervention for health-compromised smokers. *Family Process, 51,* 107–121. http://dx.doi.org/10.1111/j.1545-5300.2012.01388.x

Schaefer, M. T., & Olson, D. H. (1981). Assessing intimacy: The Pair Inventory*. *Journal of Marital and Family Therapy, 7,* 47–60. http://dx.doi.org/10.1111/j.1752-0606.1981.tb01351.x

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. http://dx.doi.org/10.1037/a0016950

Simmons, R. A., Chambless, D. L., & Gordon, P. C. (2008). How do hostile and emotionally overinvolved relatives view relationships? What relatives' pronoun use tells us. *Family Process, 47,* 405–419. http://dx.doi.org/10.1111/j.1545-5300.2008.00261.x

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

Stephens, M. A. P., Franks, M. M., Rook, K. S., Iida, M., Hemphill, R. C., & Salem, J. K. (2013). Spouses' attempts to regulate day-to-day dietary adherence among patients with type 2 diabetes. *Health Psychology, 32,* 1029–1037. http://dx.doi.org/10.1037/a0030018

van Honk, J. (2009). Neuroendocrine manipulation of the sexually dimorphic human social brain. In E. Harmon-Jones & J. S. Beer (Eds.), *Methods in the neurobiology of social and personality psychology* (pp. 45–69). New York, NY: Guilford Press.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063–1070. http://dx.doi.org/10.1037/0022-3514.54.6.1063

Wiebe, D. J., Berg, C. A., Korbel, C., Palmer, D. L., Beveridge, R. M., Upchurch, R., . . . Donaldson, D. L. (2005). Children's appraisals of maternal involvement in coping with diabetes: Enhancing our understanding of adherence, metabolic control, and quality of life across adolescence. *Journal of Pediatric Psychology, 30,* 167–178. http://dx.doi.org/10.1093/jpepsy/jsi004

Yang, Y. C., McClintock, M. K., Kozloski, M., & Li, T. (2013). Social isolation and adult mortality: The role of chronic inflammation and sex differences. *Journal of Health and Social Behavior, 54,* 183–203. http://dx.doi.org/10.1177/0022146513485244

Received March 14, 2017
Revision received December 13, 2017
Accepted December 22, 2017 ■