

Implications of we-talk for relationships and health among patients with type 1 diabetes and their spouses

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Abstract

We-talk (first-person plural pronoun usage) is frequently used to represent the degree to which a person views an illness as shared within a couple. There is evidence that we-talk is related to good relationship and health. However, research has failed to examine the implications of we-talk for spouses and the interpersonal mechanisms that underlie relational and health benefits. To address these limitations, we investigated the association of we-talk to relationship and health among 199 couples in which one person had type 1 diabetes. We-talk was assessed in the context of a brief coping interview with patients and spouses separately. Patients reported their perceptions of their spouse's behavior over the past month. Actor–partner interdependence, regression, and bootstrap models showed that patient we-talk was unrelated to patient and spouse well-being, but greater spouse we-talk was associated with higher patient relationship satisfaction, higher patient self-efficacy, and better patient self-care behavior. For spouses, greater spouse we-talk also was associated with higher relationship satisfaction, lower stress, and fewer depressive symptoms. Mediation analyses showed that patients' perceptions of spouses' greater emotional support and fewer critical behaviors partially

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accounted for these associations. Spouse we-talk may be more important than patient we-talk because it signifies that spouses are involved in helping with diabetes management, namely by providing emotional support and refraining from criticizing the patient.

Keywords

Actor–partner interdependence modeling, communal coping, dyadic coping, shared appraisal, social support, type I diabetes, we-talk

Shared appraisal in the context of chronic illness reflects the understanding by one person that the illness is a shared problem rather than solely belonging to the patient (Helgeson, Jakubiak, Seltman, Hausmann, & Korytkowski, 2017). It has most commonly been measured through the use of first-person plural pronouns or “we-talk” (Helgeson et al., 2017; Rohrbaugh, Shoham, Skoyen, Jensen, & Mehl, 2012). In the context of chronic illness, greater patient we-talk has been associated with higher patient relationship quality (Rohrbaugh, Mehl, Shoham, Reilly, & Ewy, 2008) and improvements in patient health behavior following an intervention (Hallgren & McCrady, 2016). However, the findings regarding spouse we-talk tend to be more reliable (Karan, Rosenthal, & Robbins, 2018), suggesting we-talk used by partners may be especially important. Greater spouse we-talk has been associated with higher patient relationship quality (Robbins, Mehl, Smith, & Weihs, 2013), lower patient distress (Helgeson et al., 2017; Robbins et al., 2013), and positive changes in patient health (Rohrbaugh et al., 2008).

Despite these consistent findings on spouse we-talk, the mechanisms by which spouse we-talk is associated with improved patient outcomes have not been empirically examined. These mechanisms may be located within the support that spouses provide. Greater shared appraisal of either the patient or spouse may be associated with the spouse taking more responsibility for illness management and making more effort to understand the patient’s perspective, in turn relating to more supportive and fewer unsupportive behaviors (Helgeson et al., 2019; Helgeson, Jakubiak, Van Vleet, & Zajdel, 2018). Specifically, greater spouse shared appraisal may be related to greater spouse emotional and instrumental support and less spouse criticism, each of which then benefits relationships and health.

Moreover, the body of research on we-talk in chronic illness coping has focused mainly on patient relationship quality and health, ignoring implications for the spouse. Because chronic illness affects both patients and spouses (Helgeson et al., 2017), it is important to examine how we-talk is linked with spouse relationship quality and health. Spouses may benefit from becoming involved in the patients’ illness because it provides them with a way to affect patient outcomes and also because working together could enhance relational intimacy. Alternatively, support provision has potential to increase burden. For these reasons, it is important to understand the link of we-talk to spouse outcomes.

The current study had two aims. First, we investigated how patient and spouse we-talk were associated with patient and spouse relationship and health. We hypothesized that greater we-talk would be associated with better relationship functioning and health for

both patients and spouses, but that spouse we-talk would be especially predictive of patient well-being (Karan et al., 2018). Second, we examined patient reports of spouse behaviors as potential mechanisms linking we-talk and well-being. Specifically, we hypothesized that spouse we-talk would be related to greater spouse support and fewer spouse critical behaviors (Helgeson et al., 2019), and these behaviors would explain the link of spouse we-talk to relationship satisfaction, psychological well-being, and health. We examined these questions in the context of couples in which one person had type 1 diabetes, a population that has not been examined by this body of research. Type 1 diabetes is distinct from other chronic illnesses in that the patient is usually diagnosed in childhood and has managed diabetes without the spouse for a long time (e.g., in the current study, 76% of the patients were diagnosed before starting a relationship with their spouse; range 0.03–40.17 years, $M = 13.47$ years, $SD = 9.49$ years), which could reduce shared illness appraisal.

Method

Participants and procedure

The current study is part of a larger project investigating couples coping with type 1 diabetes. After Institutional Review Board approvals, patients were recruited from two clinics in Pittsburgh, Pennsylvania, USA, and Salt Lake City, Utah, USA. Patients were eligible if diagnosed with type 1 diabetes for at least 1 year, were taking insulin within 1 year of diagnosis, spoke English as their primary language, were 25+ years old, married or cohabiting for 1+ year, and the spouse had not been diagnosed with diabetes.

The final sample included 199 couples (398 individuals). The majority were married (92%) with the rest cohabiting (mean relationship length = 19.36 years, $SD = 14.56$), and 97% were in heterosexual relationships. Patients (mean age = 46.81, $SD = 13.95$; 90% White, 52% female) had been diagnosed on average 26.97 years ($SD = 13.88$), over half had a bachelor's degree or higher (60%), and 66% annually earned US \$60,000 or higher. The average age of spouses was 46.40 ($SD = 14.17$). Patients and spouses were highly correlated in age ($r = .95$; $p < .001$) and 91% of couples were the same race to each other. See Helgeson et al. (2019) for recruitment details and a complete sample description.

Participants provided informed consent, completed online questionnaires, and were interviewed separately in the lab (average 5 min) about how they were coping with diabetes. Monetary compensation was provided.

Coping interview. Participants were interviewed separately on how they were coping with diabetes. Specifically, they were asked: "Please describe how you are coping with or dealing with diabetes." After the initial response, they were asked two follow-up questions: "And is there anything specifically you or your spouse do in relation to diabetes?" and "And is there anything specifically you or your spouse avoid doing in relation to diabetes?"

Audiotaped responses were transcribed and submitted to the Linguistic Inquiry Word Count (Pennebaker & Francis, 1996) program. We-talk was computed using the

proportion of pronouns that were first-person plural (e.g., we). This ranged from 0% to 40% for patients ($M = 11.09\%$; $SD = 8.96\%$; skewness = 1.04, kurtosis = 3.76) and from 0% to 63% for spouses ($M = 21.52\%$; $SD = 12.82\%$; skewness = 0.78, kurtosis = 3.41). Patient and spouse we-talk were marginally positively correlated, $r(196) = .13$, $p = .06$.

Instruments

Relationship satisfaction. Participants completed a 16-item version of the Couples Satisfaction Index (Funk & Rogge, 2007; $\alpha_{\text{patients}} = .97$, $\alpha_{\text{spouses}} = .98$). Higher numbers indicate greater relationship satisfaction. See Online Supplementary Table S1 for more descriptive of relationship, health, and spouse involvement in diabetes variables.

Psychological health. Participants completed three measures of psychological health: the 4-item Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983; $\alpha_{\text{patients}} = .80$, $\alpha_{\text{spouses}} = .80$), with higher numbers indicating greater stress; the 20-item Center for Epidemiologic Studies Depression scale (20 items; Radloff, 1977; $\alpha_{\text{patients}} = .90$, $\alpha_{\text{spouses}} = .92$), with higher numbers indicating greater depressive symptoms; and the 7-item Satisfaction With Life Scale (7 items; Diener, Emmons, Larson, & Griffin, 1985; $\alpha_{\text{patients}} = .87$, $\alpha_{\text{spouses}} = .86$), with higher numbers indicating greater life satisfaction.

Diabetes outcomes. Patients completed the 6-item self-efficacy subscale from the Multidimensional Diabetes Questionnaire (Talbot, Nouwen, Gingras, Gosselin, & Audet, 1997; $\alpha = .83$), in which they indicate how confident they are on a 0–100% scale in managing different aspects of diabetes. Patients completed the 15-item Self Care Inventory (Lewin et al., 2009; $\alpha = .76$), in which they rate how often they engaged in self-care behaviors (e.g., glucose testing, administering correct insulin dose) as recommended by their physician in the past month, with higher numbers indicating better diabetes self-care. Glycosylated hemoglobin (HbA1c) was measured via finger prick using a DCA Vantage Analyzer.

Spouse's involvement in diabetes. Patients rated their perceptions of spouse diabetes-specific emotional support (5 items, e.g., understanding, listening, empathy; $\alpha = .82$; higher numbers indicating greater emotional support), instrumental support (4 items, e.g., advice and assistance with diabetes tasks; $\alpha = .87$; higher numbers indicating greater instrumental support), and critical behaviors (3 items; e.g., criticism, argument, nagging; $\alpha = .92$; higher numbers indicating more critical behaviors) during the past month (Helgeson et al., 2019).

Results

Overview of analysis

We examined the relation of demographic variables (patient age, gender, race [White vs. non-White], education level, marital status, household income, relationship length,

length of disease, continuous glucose monitoring use, comorbidity) to patient and spouse we-talk with correlations for continuous variables and *t*-tests for categorical variables, in order to determine covariates.

White patients ($M = 0.11$, $SD = 0.09$) used a lower proportion of we-talk compared to non-White patients ($M = 0.15$, $SD = 0.09$; $t[196] = 2.29$, $d = 0.44$, $p = .02$). Patient age and comorbidity were negatively associated with spouse we-talk ($r[196] = -.16$, $p = .03$; $r[196] = -.17$, $p = .01$, respectively), such that spouses to older patients and to patients with more comorbidities used less we-talk. No other demographic or illness-related variables were related to we-talk. Thus, we controlled for patient age, race, and comorbidity in subsequent analyses.

To test the associations between patient and spouse we-talk and relationship and health variables, we used multivariate modeling (actor–partner interdependence model; Kenny, Kashy, & Cook, 2006) to analyze distinguishable dyadic data. The package nlme (version 3.1-137; Pinheiro, Bates, DebRoy, & Sarkar, 2018) in R was used to model potential interdependence between the patient and spouse variables using a two-intercept model (Kenny et al., 2006), as this models different error variances for the actor- and partner-dependent variables and covariances between them. Couple member (patient, spouse) was the distinguishing variable. We ran a two-intercept multivariate model for each of the four outcomes common to patients and spouses (relationship satisfaction, stress, depressive symptoms, and life satisfaction).

For the three diabetes outcomes (self-efficacy, self-care, and HbA1c), we ran linear regression models and evaluated whether the assumptions of homoscedasticity and normality of residuals were met. Because the model with self-efficacy did not meet those two assumptions, we used the lavaan package (Rosseel, 2012; version 0.6-2) in R to compute 95% bias-corrected confidence intervals (CIs) based on 2,000 bootstrap samples for this model. Finally, we again used the lavaan package in R to test the three potential mediators by computing 95% bias-corrected CIs based on 2,000 bootstrap samples.

We-talk and outcomes

Across the multivariate, regression, and bootstrap models, there were no associations of patient we-talk to any patient outcome (see Tables 1, 2, and 3). By contrast, greater spouse we-talk was associated with higher patient relationship satisfaction, higher patient self-efficacy, and better patient self-care.

Greater spouse we-talk was also associated with greater spouse relationship satisfaction, lower spouse stress, and fewer spouse depressive symptoms (see Table 1). There were no associations of patient we-talk with any spouse outcome.

Mediation analyses

Spouse we-talk was unrelated to spouse instrumental support, but was related to greater spouse emotional support ($r[196] = .16$, $p = .03$) and fewer spouse critical behaviors ($r[196] = -.17$, $p = .02$; see Online Supplementary Table S2). Thus, we examined the extent to which the latter two variables explained the relation of spouse we-talk to the

Table 1. Multivariate models predicting common patient and spouse outcomes.

Predictor	Relationship satisfaction			Stress			Depressive symptoms			Life satisfaction		
	β (SE)	t(396)	95% CI	β (SE)	t(396)	95% CI	β (SE)	t(396)	95% CI	β (SE)	t(396)	95% CI
Actor effects												
Pt int	61.70 (4.60)	13.42	[52.69, 70.71]	2.81 (0.21)	13.68	[2.40, 3.21]	14.63 (2.45)	5.97	[9.83, 19.44]	5.17 (0.32)	15.91	[4.53, 5.80]
Sp int	59.83 (4.64)	12.90	[50.74, 68.92]	2.76 (0.21)	13.35	[2.35, 3.16]	14.18 (2.54)	5.57	[9.20, 19.17]	5.40 (0.32)	16.77	[4.77, 6.03]
Pt race	5.00 (3.04)	1.65	[-0.95, 10.96]	-0.28 (0.13)	-2.13	[-0.54, -0.02]	-1.71 (1.60)	-1.07	[-4.84, 1.43]	0.45 (0.21)	2.16	[0.04, 0.86]
Pt age	-0.04 (0.07)	-0.61	[-0.19, 0.10]	-0.01 (0.003)	-1.94	[-0.01, 0.00001]	-0.11 (0.04)	-2.78	[-0.18, -0.03]	-0.001 (0.005)	-0.26	[-0.01, 0.01]
Comor	-1.39 (0.69)	-2.03	[-2.74, -0.05]	0.10 (0.03)	3.21	[0.04, 0.15]	1.69 (0.36)	4.67	[0.98, 2.40]	-0.20 (0.05)	-4.34	[-0.30, -0.11]
Partner effects												
Pt WT	8.20 (11.36)	0.72	[-14.07, 30.47]	-0.56 (0.55)	-1.01	[-1.64, 0.52]	-6.49 (6.31)	-1.03	[-18.88, 5.89]	-0.21 (0.89)	-0.24	[-1.95, 1.52]
Sp WT	17.20 (8.30)	2.07	[0.94, 33.47]	-0.94 (0.40)	-2.38	[-1.72, -0.17]	-10.49 (5.06)	-2.07	[-20.39, -0.56]	0.59 (0.60)	0.97	[-0.60, 1.77]
Partner effects												
Pt WT	9.11 (11.81)	0.77	[-14.04, 32.26]	0.13 (0.56)	0.24	[-0.97, 1.24]	4.07 (7.21)	0.56	[-10.07, 18.20]	-0.34 (0.86)	-0.40	[-2.02, 1.34]
Sp WT	17.49 (7.99)	2.19	[1.84, 33.15]	-0.55 (0.39)	-1.42	[-1.31, 0.21]	-6.34 (4.44)	-1.43	[-15.04, 2.35]	0.77 (0.62)	1.25	[-0.44, 1.99]

Note. CI = confidence interval; SE = standard error; Pt = patient; int = intercept; Sp = spouse; Comor = comorbidity; WT = we-talk. Significant CIs for primary predictors are in bold. Race is coded as 0 = Non-White and 1 = White. Unstandardized coefficients are shown.

Table 2. Regression models predicting patient outcomes.

Variable	Self-care	HbA1c
Patient age	0.01 (0.003) ^{***}	0.003 (0.01)
Patient race	0.01 (0.13)	−0.40 (0.28)
Comorbidity	−0.03 (0.03)	0.12 (0.06) [*]
Pt we-talk	−0.27 (0.44)	1.27 (0.91)
Sp we-talk	0.70 (0.31)[*]	0.29 (0.65)
R ² adjusted	0.07	0.03

Note. HbA1c = glycosylated hemoglobin; Pt = patient; Sp = spouse. Significant *p* values for primary predictors are in bold. Race is coded as 0 = *Non-White* and 1 = *White*. Unstandardized coefficients are shown.
^{*}*p* < .05; ^{**}*p* < .01; ^{***}*p* < .001.

Table 3. Bootstrap model predicting patient diabetes self-efficacy.

Predictor	β (SE)	95% CI
Patient age	0.24 (0.08)	[0.10, 0.39]
Patient race	2.95 (5.92)	[−7.35, 16.90]
Comorbidity	−1.61 (0.69)	[−2.99, −0.27]
Pt we-talk	−10.54 (12.35)	[−35.57, 12.38]
SP we-talk	18.64 (9.74)	[0.45, 38.46]

Note. CI = confidence interval; SE = standard error; Pt = patient; Sp = spouse. Significant CIs for primary predictors are in bold. Race is coded as 0 = *Non-White* and 1 = *White*. Unstandardized coefficients are shown.

significant-dependent variables, shown in Tables 1, 2, and 3. We controlled for patient age and comorbidity as they were related to spouse we-talk.

Emotional support. The bias-corrected bootstrap estimate of the indirect effect of spouse we-talk through emotional support was significant for patient relationship satisfaction ($\beta = 9.06$, $SE = 4.78$, 95% CI [0.20, 19.97]), patient self-efficacy ($\beta = 3.28$, $SE = 2.15$, 95% CI [0.22, 8.76]), and spouse relationship satisfaction ($\beta = 4.27$, $SE = 2.82$, 95% CI [0.14, 11.68]; see Online Supplementary Table S3). Thus, spouse emotional support provision partly explained the relation of spouse we-talk to these three dependent variables.

Critical behaviors. The bias-corrected bootstrap estimate of the indirect effect of spouse we-talk through critical behaviors was significant for patient self-efficacy ($\beta = 4.57$, $SE = 2.61$, 95% CI [0.42, 10.94]), patient self-care ($\beta = 0.23$, $SE = 0.12$, 95% CI [0.03, 0.53]), and spouse relationship satisfaction ($\beta = 2.61$, $SE = 2.12$, 95% CI [0.02, 8.43]; see Online Supplementary Table S4). Thus, the relation of spouse we-talk to these three dependent variables can be partly explained by fewer critical behaviors.

Discussion

Shared illness appraisal, as reflected in we-talk, was related to better patient and spouse relationships and health. Specifically, spouse we-talk was a robust predictor of both

patient and spouse well-being, whereas patient we-talk did not predict well-being. This underscores the importance of spouse we-talk for both members in couples coping with chronic illness.

A primary contribution of this research was to examine mechanisms underlying the association of we-talk to positive relationships and health. The associations of spouse we-talk were partially explained by patients' perceptions that spouses provided more emotional support and were less critical of patients. These results suggest spouse we-talk may be a strong indicator that the spouse is positively involved in diabetes management. When spouses appraise the illness as shared, they may be more willing to provide emotional support and be better able to refrain from negative behaviors. These spouse resources then seem to benefit patients in terms of their diabetes management. These positive practices also are likely to increase relationship closeness for both members of the couple. Interestingly, spouses who appraised the illness as shared also reported less rather than more distress, which is consistent with the idea that spouses also benefit from shared appraisal.

One reason why we did not see a mediation effect regarding spouse instrumental support might have to do with our patient population. Type 1 diabetic patients are unique in that the chronic illness typically predates the spouse relationship. These patients tend to grow up learning to handle diabetes independently, which may make the need for spouse instrumental support less clear. The relative advantage of our sample in terms of education and income also might explain why there was no association between we-talk and instrumental support.

Because our study by design does not support causality of effects, there might be other variables that account for the association between we-talk and well-being, such as particular personalities that are associated with greater we-talk, less criticism, and more support. Relationship factors such as stability may be important such that those who are in higher quality relationships use more we-talk (e.g., Robbins et al., 2013) and have better interactions. We-talk may also reflect interdependent thinking more generally rather than shared illness appraisal specifically (Karan et al., 2018). In addition, future research should consider other ways to think about patient and spouse we-talk, such as couple-level asymmetry (Rentscher, Rohrbaugh, Shoham, & Mehl, 2013).

Our study is the first to show that we-talk is related to good relationships and health in couples in which one person has type 1 diabetes. Our findings suggest that individuals with type 1 diabetes experience the theorized benefits of shared appraisal, and thus may benefit from an intervention solely targeting the spouse rather than a conjoint intervention involving both the patient and the spouse. In addition, unlike other couple pronoun studies which used speech samples from conjoint interviews with both partners present (for a review, see Karan et al., 2018), the present study used word counts from patients and spouses interviewed separately. This methodological variation supports the generality of findings regarding the importance of spouse (compared to patient) we-talk.

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Open research statement

As part of IARR's encouragement of open research practices, the authors have provided the following information: This research was not pre-registered. The data used in the research are available. The data can be obtained by emailing: vh2e@andrew.cmu.edu. The materials used in the research are available. The materials can be obtained by emailing: vh2e@andrew.cmu.edu.

Supplemental material

Supplemental material for this article is available online.

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