



Partner Involvement in Type 2 Diabetes Self-Management: A Mixed-Methods Investigation

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Researchers have recognized the role of social environment in diabetes management, with substantial attention directed toward spouses or romantic partners of people with diabetes. However, the specific ways in which partners are involved have not been articulated. This study, which included 207 couples in which one person was recently diagnosed with type 2 diabetes, used a mixed-methods approach to assess types of partner involvement in diabetes management. First, different types of partner involvement were qualitatively identified from audiotaped interviews, and links between qualitative findings and demographics were examined. Next, qualitative codes were compared with quantitative measures of partner involvement. Finally, relations of qualitative codes to relationship quality and diabetes outcomes were assessed. Qualitative analyses identified three ways in which partners were involved in diabetes management (support provision, collaboration, and controlling behavior) and two ways in which they were not involved (independent coping and disengagement on the part of the person with diabetes). Participants with diabetes perceived less partner involvement than their partners. Comparisons with quantitative measures revealed that collaboration was distinct from partner support. Reports from participants with diabetes of collaboration, but not partner support, were connected to higher relationship quality and lower A1C, whereas partner reports of collaboration were related to better self-care. Diabetes disengagement was associated with poorer relationship and behavioral outcomes. These findings underscore the varied ways in which partners are and are not involved in diabetes management and suggest that collaboration is more beneficial than social support in terms of relationship quality and diabetes outcomes.

Traditionally, the coping literature has focused on individual coping strategies in the face of stress. However, humans both influence and are influenced by the broader social environment, and failing to take this fact into account renders an incomplete view of the coping process. Accordingly, recent years have seen a shift in the literature toward more interpersonal approaches to coping, as researchers have increasingly acknowledged the importance of relationships and the broader social context when dealing with stress (1).

Interpersonal coping plays a central role in managing a chronic illness such as diabetes. Diabetes requires a complex set of behaviors for successful management, including dietary monitoring, regular physical activity, and adherence to medication and glucose checking regimens. The nature of these behavioral demands lends itself to involvement from a romantic partner, as significant others often share food, exercise, and self-care habits. Although researchers have recognized that partners affect

how people with diabetes adjust to their disease (2), the specific ways in which partners are and are not involved in diabetes care have not been articulated. Thus, the primary goal of this study was to use a mixed-methods approach to examine the types of partner involvement in diabetes management.

One way partners may be involved in diabetes is through provision of social support. Partners may provide important social resources such as emotional support, advice, or concrete assistance with diabetes-related tasks. There is a wealth of literature linking social support to reduced psychological distress, better self-management, and better diabetes outcomes (2). In a study of people newly diagnosed with type 2 diabetes, emotional support from partners on a daily basis was linked to better mood and better self-care behavior (3). In another study of adults with type 2 diabetes, support from family and friends was linked to higher self-efficacy and better diabetes adherence in terms of diet, glucose checking, and medication (4).

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<https://doi.org/10.2337/ds21-0034>

This article contains supplementary material online at <https://doi.org/10.2337/figshare.17054165>

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Another way in which partners may be involved in diabetes extends beyond social support to communal coping (5). With communal coping, people define the stressor as shared between themselves and their partner and collaborate with their partner to manage the problem. In the context of diabetes, this would be people with diabetes and their partners appraising diabetes as a shared problem and actively working together to manage it (e.g., by cooking healthy meals and exercising together). A number of studies have shown links of communal coping to positive outcomes such as better diabetes self-care and improved mood (5).

Although related, social support and the collaboration component of communal coping represent distinct ways in which partners are involved in diabetes care. Whereas collaboration involves jointly working together to manage a stressor, social support is more transactional and one-sided in nature. For example, collaboration might include a couple grocery shopping and planning a healthy meal together. Support, by contrast, could be indicated by a partner reminding a person with diabetes to take medication. Whereas collaboration represents joint effort toward a mutual goal, social support represents one person's effort to help a partner with the partner's goal. Although social support and collaboration are theoretically distinct constructs, they may be difficult to distinguish empirically.

Of course, partner involvement in chronic illness management is not always beneficial. Miscarried support or support that inadvertently undermines a person's self-efficacy may be detrimental. One type of miscarried support is a partner's controlling behavior. Although the controlling behavior is generally intended to benefit the person with diabetes, it can come across as overbearing and critical. The social control literature shows that controlling behaviors are often associated with negative affect, but their influence on health behavior change is mixed (6).

The majority of research in this area is quantitative in nature and focuses on behaviors reported by people with diabetes. Few studies have assessed the nuanced ways in which partners are involved in diabetes from either the viewpoint of the person with diabetes or the partner. It is important to know whether the quantitative measures we have developed over the years are capturing key aspects of partner involvement and whether people are able to distinguish between collaboration and support. This study aimed to fill these gaps with a mixed-methods approach.

Our first goal was to examine how people with diabetes and their partners cope with diabetes. We conducted separate qualitative interviews with people with diabetes and their partners, paying particular attention to the ways in

which the partners are or are not involved in diabetes management and distinguishing between collaboration and partner support. Second, we explored whether these ways of coping were linked to couples' background variables, such as sex and diabetes duration. Third, to the extent we had quantitative measures of the qualitative coping codes that emerged, we aimed to link the qualitative responses to more conventional quantitative measures, partly as evidence for the validity of our codes. Finally, we examined whether the qualitative coping responses were related to current relationship quality and diabetes outcomes.

Research Design and Methods

Participants

Participants included 207 couples in which one person had been diagnosed with type 2 diabetes within the past 5 years. To be eligible, the person with diabetes had to have no other chronic illness that restricted daily life more than diabetes and to be married to or living in a marital-type relationship with a partner who did not have diabetes. Most couples were in other-sex relationships (98%) and were married (72%). The mean relationship duration was 18.5 ± 14.67 years). Fifty-five percent of participants with diabetes were male and 45% were female; 53% were White, and 47% were Black. The average age of participants and their partners was 53 years (range 24–83 years). The average time since diagnosis was 1.88 ± 1.68 years (range 1–8 years; although diagnosis within the past 5 years was an eligibility requirement, verification of diagnosis by medical records revealed that 95% had been diagnosed within the past 5 years and the remaining 5% had been diagnosed between 5 and 8.5 years ago).

Recruitment

Participants were recruited from the community. Advertisements and brochures were distributed through physicians' offices, mass transit, newspapers, and community centers. Interested individuals contacted us and were screened for eligibility. Although 210 couples completed the study, three were dropped from analyses because one couple was intoxicated during the study, one couple was not romantically involved, and one participant had type 1 diabetes instead of type 2 diabetes.

Procedure

The study received approval from the Carnegie Mellon University Institutional Review Board. Participants with diabetes and their partners were met by two research assistants in their homes (71.5%) or at the university

(28.5%). After providing informed consent, the couples were separated for their interviews. Each session began with a brief, audio-recorded interview regarding how they were coping with diabetes, followed by a structured interview that included questions about support, relationship quality, and self-care behaviors. Next, couples were reunited and asked to talk about their difficulties in managing diabetes for 8 minutes, with the goal of finding solutions. Conversations were videotaped and later coded by independent raters for communal coping (7). At the end of the session, the participants with diabetes gave a capillary blood sample to a trained research assistant to measure A1C using a Siemens DCA Vantage Analyzer. Participants were paid for each portion of the study.

Qualitative Data

Audio-Recorded Interview

Participants were asked the following question: "Please describe how you are coping with or dealing with diabetes." Two follow-up questions were asked to elicit further elaboration: 1) "Is there anything specifically you or your spouse do in relation to diabetes?" and 2) "Is there anything specifically you and your spouse avoid doing in relation to diabetes?" Interviews averaged between 2 and 3 minutes, were audio-taped, and were transcribed for coding.

A subset of transcripts was reviewed by the first author and two research assistants. Each independently identified a set of ways in which participants with diabetes and partners were coping with diabetes. After discussing potential codes, we agreed on five codes, which reflected the literature and also had the benefit of distinguishing support from collaboration. The codes were: 1) partner support, 2) person with diabetes/partner collaboration, 3) partner controlling behavior, 4) person with diabetes independent coping, and 5) disengagement with diabetes on the part of the person with diabetes (Table 1). Examination of additional transcripts did not reveal any new codes.

Each transcript was rated on all five codes, using a four-point scale in which 1 = no evidence of this at all; 2 = a little bit, one or two mentions of code; 3 = somewhat, more than two mentions of code but not a lot; and 4 = strong evidence of the code throughout the transcript. Two research assistants were trained to reliability (overall intraclass correlational coefficient [ICC] >0.80) and then independently coded all transcripts. The ICCs for each code were high (Table 1), with the exception of controlling behavior coded from partner transcripts. We averaged the two research assistants' ratings for all analyses. Because there were audiotape problems for three couples (one

audiotape did not work, and responses from two couples could not be coded because they were uninterpretable), our final sample size was $n = 204$.

Couple Discussion

Two research assistants independently rated the extent to which participants displayed communal coping over the course of the 8-minute diabetes discussion. Two coders rated the person with diabetes, and two other coders rated the partner. The coding of the videotapes was described in more detail in a previous article using this sample (7). Communal coping was defined as the extent to which diabetes seems to be a joint problem from the speaker's point of view, which included "we-talk" (e.g., "We watch what we eat"). Ratings were made on a scale from 1 = not at all to 5 = high.

Quantitative Data

Structured Interview

Support

Participants with diabetes reported their perception of emotional support, instrumental support, and controlling behavior received from their partners. These instruments have been described elsewhere and have been shown to have good reliability (8). All items were rated on a scale from 0 = none of the time to 4 = all of the time, with respect to the past month.

Relationship Quality

We used the five-item Quality of Marriage Index (9) ($\alpha = 0.94$ for people with diabetes and partners) by adapting it for cohabiting couples and the six-item emotional intimacy subscale from the Personal Assessment of Intimate Relationships scale (10) ($\alpha = 0.86$ for people with diabetes; $\alpha = 0.85$ for partners). Because the two instruments were strongly correlated (people with diabetes: $r = 0.76$, $P < 0.001$; partners: $r = 0.77$, $P < 0.001$), we standardized them and took the average to form a relationship quality index for people with diabetes and partners.

Self-Care Behavior

We used the Summary of Diabetes Self-Care Behavior (11), which assesses diet, exercise, blood glucose checking, and medication adherence ($\alpha = 0.91$).

Results

How Do People With Diabetes and Their Partners Cope With Diabetes?

We present mean levels of each qualitative code for the audio-recorded interviews in Table 1. Within responses

TABLE 1 Descriptive Statistics on Coping Codes (*n* = 204)

	People With Diabetes, mean ± SD	Partners, mean ± SD	<i>r</i>	<i>t</i> test	People With Diabetes ICCs	Partners ICCs
Partner provides support “Extent to which the person mentions the partner helping the patient with diabetes”; could be emotional or instrumental support	1.34 ± 0.57	1.72 ± 0.67	0.12*	†	0.83	0.78
PWD/partner collaboration “Extent to which the person describes the couple working together to manage diabetes”; may use “we-talk”	1.61 ± 0.66	1.82 ± 0.80	0.24†	†	0.91	0.87
Partner controlling “Extent to which the person describes the partner as trying to control what the patient does; doing things for the patient instead of helping the patient”	1.10 ± 0.30	1.21 ± 0.45	0.14‡	†	0.79	0.66
PWD independent coping “Extent to which the person describes the problem as belonging to the patient”; patient describes managing diabetes on own	2.35 ± 0.83	1.74 ± 0.75	0.20\$	†	0.85	0.85
PWD diabetes disengagement “Extent to which the person describes the patient as not doing what they need to do to take care of diabetes”; patient neglects self-care	1.29 ± 0.51	1.20 ± 0.43	0.27†	‡	0.82	0.74

Item response scale: 1 = no evidence of this at all; 2 = a little bit, one or two mentions of code; 3 = somewhat, more than two mentions of code but not a lot; and 4 = strong evidence of the code throughout the transcript. **P* < 0.10. †*P* < 0.001. ‡*P* < 0.05. \$*P* < 0.01.

from participants with diabetes, independent coping was rated highest. The next highest code was collaboration, and the lowest-rated code was partner controlling behavior. Partners had a slightly different view. The highest rated partner code was collaboration, with support and independent coping being rated nearly as high. The least frequent partner responses were partner controlling behavior and diabetes disengagement on the part of the person with diabetes.

As shown in Table 1, the codes for participants with diabetes and their partners were modestly related. However, a paired *t* test comparison of the responses of people with diabetes and partner responses revealed that partners were more likely than people with diabetes to say they provide support, collaborate to manage diabetes, and are controlling. Participants with diabetes were more likely than partners to make comments reflective of their independent coping and diabetes disengagement.

The intercorrelation of the five qualitative codes was small to nonexistent for people with diabetes (*r* values ranged from -0.12 to 0.21) and partners (*r* values ranged from -0.15 to 0.11), with one exception. Partners who described themselves as controlling were likely to score high on diabetes disengagement on the part of the person with diabetes (*r* = 0.45, *P* < 0.001), and people with diabetes who described their partner’s behavior as controlling

were more likely to score higher on their own diabetes disengagement (*r* = 0.28, *P* < 0.001).

Theme 1: Partner Support Provision

Many people with diabetes and partners discussed the support that partners provide. For example, a 64-year-old Black woman with diabetes stated that, “He checks on me daily. He makes sure that I’m eating proper foods, he prepares proper foods, you know, I’m taking my medicine . . . anything related to diabetes that he thinks is important for both of us to know, he finds it out.” A 52-year-old White female partner said, “Sometimes he and I forget to eat, especially in the middle of the day, so knowing how sometimes I will feel and knowing that it’s important for him to sort of have, you know, regular meals or snacks, I’ll say, ‘Hey, it’s 2:30, did you have lunch today?’ . . . and if I have a suspicion that he’s forgotten to take his oral diabetic [medications] for the day, I might say, ‘Hey, did you take your prescription stuff today?’” Thus, partners supported people with diabetes in a variety of ways, including researching diabetes, providing daily reminders, and engaging in activities specific to diabetes care such as preparing food.

Theme 2: Person With Diabetes/Partner Collaboration

Although many couples provided examples of partners helping with diabetes management, this type of behavior was distinct from either person in the couple reporting

that they collaborated or worked together to manage diabetes. One indication of collaboration is the difficulty in determining whether the response was made by a person with diabetes or a partner without context. For example, a 70-year-old Black woman with diabetes said, “We exercise . . . We eat a lot of . . . vegetables. That’s one thing we do. And we eat chicken and fish. We try to keep our diet with mainly those things . . . We try to contain ourselves when it comes to sweets. And like I said, we try to exercise. And we talk about diabetes a lot. He tries to keep me on track.” Without this final, explicit reference to her role as the person with diabetes, it would be unclear which member of the couple was speaking. Similarly, we see this deemphasis of roles in the statement of the 66-year-old Black male partner, who said “We do the things that we’re supposed to do . . . We go to the gym, and we try to do that, like, at least five times a week. And we try to do that for 45 minutes to an hour a day. We try to eat the right recommended foods that we’re supposed to be doing.”

Theme 3: Partner Controlling Behavior

Some partners’ involvement seemed to be focused on taking control of the situation rather than supporting or working with the person with diabetes. For example, a 50-year-old Black woman with diabetes PWD said, “And he always tells me like, ‘Did you take your pills . . . ?’ ‘Now you know me better than that. Now don’t keep asking me that.’ That’s how we get in an argument . . . Oh, my goodness, . . . I was like, ‘Are you serious? Don’t ask me anymore.’” Another person with diabetes (a 59-year-old Black man) said, “My portion control is the biggest problem. And of course, she gets on my nerves about that and tells me, ‘That’s too much, more this, more that.’ Sometimes I listen; sometimes I don’t.” A 58-year-old white female partner said, “He still does not have very much self-control, so I have to control his environment a little bit so that that’s not right in front of him.” These comments illustrate how partner controlling behavior seems to be experienced hand-in-hand with people with diabetes neglecting or disengaging from diabetes.

Theme 4: Person With Diabetes Independent Coping

Responses from people with diabetes about independent coping suggested that diabetes management was managed largely by them, implying little involvement from their partner. In some cases, this seemed to be because the partners wanted to maintain their own habits. A 44-year-old white man with diabetes said, “I need to eat fish right now because of the cholesterol and the other issues. But she’s just like, ‘I’m not eating fish.’ She still eats the carbs . . . So, it’s just that added burden of

‘Okay, you’re cooking this for the kids and you, and I have to have something else.’” In other cases, people with diabetes were reluctant to share their disease management with their partner. For example, a 61-year-old White woman with diabetes said, “Sometimes, I have to tell him, ‘Just back off, it’s my disease. You don’t own this, I do.’” The lack of involvement of one partner (a 50-year-old White man) was evidenced by the following quote, in which he seemed confused regarding why he was asked how he is coping with diabetes: “Me? The way I cope with it is by doing anything she wants, if she asks for anything, but she typically handles it all herself. I know very little about it. I let her handle it. She knows mostly about it.”

Theme 5: Disengagement in Diabetes by the Person With Diabetes

Some people with diabetes said that they did not take care of themselves, which we coded as diabetes disengagement. A 56-year-old White man with diabetes said, “I know I have it, I know I should be watching it, but I don’t know, I just can’t get my mind wrapped around it. I know the consequences, and I should be doing better, and I’m not.” A 58-year-old White female partner said, “He won’t, he won’t, he just plain old won’t do it. He won’t own it. He won’t take total responsibility for it.” Some individuals expressed ambivalence about disengaging from diabetes, whereas others were frustrated by the disengagement.

Connection Between Background Variables and Qualitative Coping Codes

We examined the relations of sex, race, age, marital status, relationship duration, and length of diabetes to each of the qualitative codes. Because sex and race can be intertwined to affect coping, we conducted sex-by-race analyses of variance.

People With Diabetes

The only code that was related to the sex of the person with diabetes was collaboration. Males reported more collaboration (mean 1.71 \pm 0.66) than females (mean 1.49 \pm 0.65) ($F[1, 200] = 5.55, P < 0.05$, [partial $\eta^2 = 0.03$; 0.01 is considered a small, 0.06 is considered a medium, 0.14 is considered a large effect size]). The only code that was related to the race of the person with diabetes was controlling behavior, such that Black people with diabetes reported their partners to be more controlling (mean 1.15 \pm 0.38) than White people with diabetes (mean 1.05 \pm 0.19) ($F[1, 202] = 6.85, P < 0.01$ [partial $\eta^2 = 0.03$]). There was also

a sex-by-race interaction on diabetes disengagement by the person with diabetes, with higher disengagement reported by Black females (mean 1.39 ± 0.64) and White males (mean 1.38 ± 0.56) and lower disengagement by Black males (mean 1.22 ± 0.41) and White females (mean 1.17 ± 0.35). We found no links of qualitative codes to age, marital status, or diabetes duration. Longer relationship length was related to lower partner support ($r = -0.18$, $P < 0.05$).

Partners

Partner sex differences appeared for collaboration ($F[1, 200] = 4.64$, $P < 0.05$ [partial $\eta^2 = 0.02$]) and controlling behavior ($F[1, 200] = 14.61$, $P < 0.001$ [partial $\eta^2 = 0.07$]). Consistent with findings for people with diabetes, female partners reported more collaboration (mean 1.93 ± 0.81) than male partners (mean 1.68 ± 0.77), and female partners reported more controlling behavior (mean 1.32 ± 0.53) than male partners (mean 1.09 ± 0.28). Race differences appeared for collaboration ($F[1, 200] = 6.37$, $P < 0.05$ [partial $\eta^2 = 0.03$]) in the direction of White partners (mean 1.95 ± 0.87) reporting greater collaboration than Black partners (mean 1.66 ± 0.70). There was a sex-by-race interaction for independent coping on the part of people with diabetes ($F[1, 200] = 7.37$, $P < 0.01$ [partial $\eta^2 = 0.04$]). White male partners were the most likely to say their partners with diabetes manage diabetes by themselves (mean 1.95 ± 0.82), followed by Black female partners (mean 1.81 ± 0.79), with the least independent coping on the part of the person with diabetes noted by Black male partners (mean 1.51 ± 0.57) and White female partners (mean 1.68 ± 0.74). There also was a sex-by-race interaction for diabetes disengagement on the part of the person with diabetes ($F[1, 200] = 8.63$, $P < 0.01$ [partial $\eta^2 = 0.04$]). The greatest disengagement was reported by White female partners (mean 1.36 ± 0.59), followed by Black male partners (mean 1.20 ± 0.51), and the least disengagement was reported by White male partners (mean 1.09 ± 0.24) and Black female partners (mean 1.13 ± 0.28).

There was a marital status difference in partner reports of independent coping ($F[1, 200] = 8.09$, $P < 0.01$ [partial $\eta^2 = 0.04$]) and diabetes disengagement ($F[1, 200] = 6.30$, $P < 0.05$ [partial $\eta^2 = 0.03$]) on the part of the person with diabetes. Married partners had higher scores on independent coping (mean 1.84 ± 0.79) than unmarried partners (mean 1.51 ± 0.60), and married partners had higher scores on diabetes disengagement (mean 1.25 ± 0.47) than unmarried partners (mean 1.09 ± 0.23). Partners in longer relationships were more likely to report independent coping ($r = 0.15$, $P < 0.05$). Longer diabetes duration was related to less collaboration ($r = -0.21$, $P < 0.01$).

Correspondence Between Qualitative and Quantitative Measures

To determine whether the qualitative codes we identified were connected to conventional quantitative measures, we entered the five qualitative codes into a multiple regression analysis to predict each of the quantitative measures. The results for people with diabetes are shown in the top half and the results for partners are shown in the bottom half of Supplementary Table S1. Collaboration reported by people with diabetes was the only significant predictor of observed communal coping. Both partner support and collaboration reported by people with diabetes predicted partner emotional support provision. Collaboration reported by people with diabetes also predicted instrumental support provision. Only partner controlling behavior reported by people with diabetes predicted overprotective behavior. Partner-reported collaboration again predicted higher observed communal coping, whereas partner-reported independent coping by people with diabetes predicted lower observed communal coping. Partner-reported partner support and collaboration predicted partner reports of emotional and instrumental support provision. Partner reports of independent coping by the person with diabetes predicted less instrumental support provision. Partner-reported partner support and controlling behavior predicted greater partner overprotective behavior, whereas partner-reported independent coping predicted less overprotective behavior.

Connections of Qualitative Codes to Relationship Quality and Diabetes Outcomes

People With Diabetes

Controlling for the demographic variables that were linked to the qualitative codes (sex, race, and relationship length), we entered all five qualitative codes into a regression analysis to predict relationship quality reported by people with diabetes, diabetes self-care behavior, and A1C. As shown in the top of Table 2, reports of collaboration, but not partner support, by people with diabetes predicted better relationship quality reports by people with diabetes and lower A1C. Diabetes disengagement on the part of people with diabetes predicted worse relationship quality and poorer self-care, whereas independent coping predicted better self-care.

Partners

Controlling for the same demographic variables, we entered all five partner qualitative codes into a regression analysis to predict partner-reported relationship quality, self-care behavior on the part of people with diabetes,

TABLE 2 Multiple Regression: Qualitative Codes Predict Relationship Quality, Self-Care, and A1C (Standardized Beta Coefficients)

Predictor	Relationship Quality	Self-Care of Person With Diabetes	A1C of Person With Diabetes
<i>People with diabetes</i>			
Partner provides support	0.10	0.12*	0.01
Person with diabetes/partner collaboration	0.16†	0.10	−0.14‡
Partner controlling	0.07	−0.10	−0.12
Person with diabetes independent coping	0.04	0.18§	−0.06
Person with diabetes disengagement	−0.20§	−0.34‡	0.09
<i>Partners</i>			
Partner provides support	0.03	0.06	0.05
Person with diabetes/partner collaboration	0.14*	0.21§	−0.03
Partner controlling	−0.02	0.01	0.05
Person with diabetes independent coping	0.01	0.04	0.09
Person with diabetes disengagement	−0.16*	−0.16†	0.09

Regression with person with diabetes predictors controlled for person with diabetes sex, race, and relationship duration; regression with partner predictors controlled for partner sex, race, relationship duration, marital status, and diabetes duration. * $P < 0.10$. † $P < 0.05$. ‡ $P < 0.001$. § $P < 0.01$.

and A1C, as shown in the bottom half of Table 2). Partner-reported collaboration marginally predicted higher partner relationship quality and significantly predicted better self-care behavior. Partner reports of diabetes disengagement marginally predicted lower partner relationship quality and significantly predicted worse self-care behavior.

Discussion

The first goal of this study was to learn more about the different ways that people with diabetes and partners cope with diabetes. We identified three ways that partners are involved, including by 1) working together or collaborating with people with diabetes, 2) offering support to assist people with diabetes with self-care, and 3) becoming overly involved or controlling. These types of partner involvement are consistent with those identified by previous theoretical research (12) and corresponded to the existing quantitative measures we included. We also identified two ways in which partners are not involved, including people in: 1) independent coping and 2) diabetes disengagement of people with diabetes.

We found that partners express more collaboration and controlling behavior than people with diabetes, which is consistent with previous research showing that partners see themselves as more involved in diabetes care compared with how people with diabetes see them (13). In contrast, people with diabetes are more likely than partners to perceive that they are handling diabetes on their

own. This discrepancy in perceptions may have a number of consequences. Partners may be helping people with diabetes in ways that go unrecognized, with the potential to create feelings of burden and resentment in partners. Alternatively, the support people with diabetes receive may be “invisible” to them, which could be beneficial because it is less likely to undermine their self-efficacy and threaten their self-esteem (14).

In our effort to identify ways partners are involved in diabetes management, we aimed to distinguish between collaboration and support. Whereas collaboration implies joint efforts that people with diabetes and partners take to manage diabetes, partner support is more of a transactional behavior in which partners provide people with diabetes with assistance in their self-management. Collaboration was evidenced in part by raters’ difficulty in determining whether the respondent was the person with diabetes or the partner. Not only were we reliably able to distinguish between collaboration and partner support, but it was also clear that collaboration was more strongly linked to relationship quality and diabetes outcomes than to partner support. Although previous research has linked partner support to good diabetes outcomes (15), there is evidence that partner support can detract from self-efficacy (14). Partner support also may communicate that managing diabetes is a responsibility that lies with the person with diabetes alone, whereas collaboration is linked to perceiving diabetes as “our” problem rather than “my/your” problem (16).

In some couples, partners appeared uninvolved in diabetes. The most common way people with diabetes said they coped with diabetes was on their own. Their independent coping was not linked to either their own or their partner's relationship quality but was linked to reports of good self-care behavior. The nature of the couple's relationship might influence whether independent coping is a useful strategy for the person with diabetes. According to partners, when people with diabetes coped independently, partners were less likely to provide support. It is unclear whether it is difficult for partners to be involved when people with diabetes cope on their own or whether partners' lack of involvement leads people with diabetes to cope on their own.

Although it occurred in a minority of cases, some people with diabetes disengaged from diabetes by disregarding diabetes self-care. There was some agreement between people with diabetes and partners regarding when this occurs, as evidenced by the positive correlation. Diabetes disengagement was linked to poor self-care behavior and to poor relationship quality for both people with diabetes and partners. Partner controlling behavior might play a role in these associations, as partner controlling behavior was linked to disengagement on the part of people with diabetes. Partners may be reacting to disengagement by being controlling rather than supportive, perhaps because previous support efforts have failed. However, controlling behavior often leads to psychological reactance (16), in which the behavior that one is trying to extinguish is reinforced.

Finally, we note that background variables were linked to coping. We found that partner involvement in diabetes management was most likely to occur when partners were female and people with diabetes were male. Additionally, there was evidence that White males and Black females were the most likely to disengage from diabetes. However, the reasons for doing so are likely to differ between the two groups. White males on average are socialized to be hyper-independent as a result of gender-role socialization, whereas many Black females may neglect self-care because they have a greater burden of caring for network members (17). One peculiar finding was that people with diabetes received less partner support when their relationship had lasted longer and were more likely to manage diabetes on their own and to be disengaged from diabetes when they were married. These counterintuitive findings merit replication before interpretation.

Before concluding, we acknowledge several study limitations. It is important to note that the conceptual distinctions that coders make in examining couple interactions may not

be viewed in the same way by people with diabetes and their partners. For example, we distinguished supportive behavior from controlling behavior by the way in which the behavior was described, but people with diabetes and their partners might not make this same distinction; a person with diabetes might perceive a controlling behavior such as restricting portion sizes as supportive. This is one reason it is important to have multiple perspectives of the same behavior. In addition, because the study is cross-sectional, we do not know whether couple interactions affect relationship quality and self-care or whether poor relationship quality and poor self-care set the stage for couple dynamics.

Conclusion

This study underscores several different ways in which people with diabetes and partners typically cope with type 2 diabetes and identifies implications for relationship quality and self-care. Through qualitative interviews, couples expressed a variety of coping behaviors, including collaboration, partner support provision, partner controlling behavior, lack of partner involvement, and disengagement on the part of the person with diabetes. Interestingly, the frequency with which participants endorsed these coping strategies was affected by demographic factors such as sex, race, and marital status. Collaboration was more strongly linked to relationship quality and diabetes outcomes than to partner support, and disengagement was linked to poor relationship quality and poor self-care. Future researchers should investigate whether demographics moderate the links of these coping strategies to relationship and health outcomes.

Recommendations for Health Care Professionals

Health care professionals should be mindful that there is not one ideal form of coping and that there may be benefits to a variety of coping strategies depending on the characteristics of the person with diabetes and the specific situation. This idea underscores patient-centered care. However, partners frequently play an indispensable role in diabetes self-care. Because we found that partner support and collaboration were linked to better self-care behavior, we recommend that health care professionals consider involving partners in diabetes management, in part by encouraging couples to embrace diabetes as a shared problem so they can collaborate to manage it. Providers should be mindful of signs of diabetes disengagement, such as cancelling or failing to show up for appointments or withdrawing during discussions of diabetes, as these may indicate poor self-care. It is worthwhile to discuss the reasons people with diabetes feel disengaged from the illness and consider incremental steps they can take toward regaining control over diabetes.

ACKNOWLEDGMENTS

The authors acknowledge the research assistants involved in the data collection, especially Gianna Davis, Tiona Jones, and Jennifer Melnyk, as well as the project director, Abigail Kunz Vaughn.

FUNDING

This work was supported by National Institutes of Health grant R01 DK095780.

DUALITY OF INTEREST

No potential conflicts of interest relevant to this article were reported.

AUTHOR CONTRIBUTIONS

V.S.H. oversaw data collection and drafted the initial manuscript, F.S.H. and J.B.N. identified the qualitative quotes to include, contributed to the discussion section, and edited the manuscript. V.S.H. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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