

# Look Who's (Not) Talking

## Diabetic patients' willingness to discuss self-care with physicians

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**OBJECTIVE**—Nearly one-half of diabetic patients have glycated hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) levels above recommended targets. Effective physician–patient communication improves glycemia and diabetes self-care; however, communication gaps may exist that prevent patients from discussing self-care problems with treatment providers.

**RESEARCH DESIGN AND METHODS**—We assessed diabetic patients' ( $n = 316$ , 85% white, 51% female, 71% type 2 diabetes,  $59 \pm 11$  years old,  $16 \pm 3$  years education,  $19 \pm 13$  years diabetes duration, and  $HbA_{1c} = 7.9 \pm 1.4\%$ ) HbA<sub>1c</sub>, frequency of self-care, diabetes-related distress, depressive and anxiety symptoms, coping styles, diabetes quality of life, and self-care communication in the treatment relationship. Multivariate logistic regression models examined the main and interaction effects of health and psychosocial factors associated with patients' reluctance to discuss self-care.

**RESULTS**—Patients reported positive relationships with their doctors and valued honest communication; however, 30% of patients were reluctant to discuss self-care. Reluctant patients reported less frequent self-care ( $P = 0.05$ ), lower diabetes quality of life ( $P = 0.002$ ), and more diabetes-related distress ( $P = 0.001$ ), depressive symptoms ( $P < 0.001$ ), and anxiety symptoms ( $P = 0.001$ ). Patients who reported elevated depressive symptoms, although not necessarily major depression, were more likely to be reluctant to discuss self-care (odds ratio [OR] 1.66 for 10-point change in t score;  $P < 0.001$ ), whereas patients who were older (OR 0.78 for 10-year change;  $P = 0.05$ ) and those who used more self-controlled coping styles (OR 0.78 for 10-point change;  $P = 0.007$ ) were less likely to be reluctant.

**CONCLUSIONS**—Awareness of elevated depressive symptoms is important in clinical practice given that these patients may be more reluctant to discuss self-care. Interventions and evidence-based approaches are needed to improve both depressive symptoms and physician–patient communication about self-care.

*Diabetes Care* 35:1466–1472, 2012

Achieving glycemic targets (glycated hemoglobin A<sub>1c</sub> [HbA<sub>1c</sub>] level  $<7\%$ ) (1), with its reduced risk of diabetes complications, remains a problem for ~45% of diabetic patients (2). Diabetic patients face challenging self-care regimens, and these self-care challenges may lead to frustrations and emotional struggles that interfere with glycemic control and increase the risk for diabetes complications (3,4). Effective doctor–patient communication in the diabetes treatment relationship increases patient satisfaction, improves adherence

to treatment plans, and leads to better health outcomes (5–8). Inherent to effective communication are physicians' and patients' abilities to communicate openly about diabetes treatment and self-care (9). Patients' discussion of their self-care successes and failures with physicians enables physicians to individualize treatment prescriptions and recommendations, thus increasing the likelihood of treatment success. However, communication gaps may exist that prevent patients from expressing their concerns and problems with diabetes self-care (5).

Patients with other chronic illnesses, such as cancer and heart disease, report reluctance to discuss illness symptoms, depression, and self-care with their doctors (10–12). However, in diabetes, self-care communication between physicians and patients, specifically reluctance to discuss self-care, is not well studied. Because diabetes self-care behaviors (e.g., following medication, food, and exercise prescriptions) impact both glycemic control and quality of life, understanding barriers that patients face in implementing treatment recommendations is important for developing strategies and treatment alternatives to address these barriers effectively.

One potential barrier to successful diabetes self-care may be reluctance to discuss self-care information with diabetes physicians. To assess this issue, we examined type 1 and type 2 diabetic patients' relationships with their physicians and willingness to discuss self-care. We also assessed factors that may be associated with patients' difficulties communicating self-care information.

### RESEARCH DESIGN AND METHODS

#### Setting and participants

Participants were recruited from the Joslin Clinic in Boston and from advertisements in the Joslin Newsletter, extensive mailings from Joslin's database, and advertisements in local papers. Adults aged 18–80 years diagnosed with type 1 or type 2 diabetes for at least 2 years, in order to ensure a minimum of 2 years of experience with diabetes treatment, were eligible for enrollment. Exclusion criteria included inability to read and speak English; HbA<sub>1c</sub> levels  $>14.0\%$ ; untreated proliferative retinopathy; severe complications of diabetes including renal disease (albumin/creatinine ratio  $>300 \mu\text{g}/\text{mg}$ ), severe peripheral diabetic neuropathy, and/or severe peripheral vascular disease that prevented brisk walking; symptomatic severe autonomic neuropathy; a history of severe, unstable myocardial infarction, congestive heart failure, or other severe cardiac disease; or severe hypertension (systolic  $\geq 160$  mmHg or diastolic  $\geq 90$  mmHg). Patients who had a heart attack, angioplasty, or coronary

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Received 13 December 2011 and accepted 12 March 2012.

DOI: 10.2337/dc11-2422

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stent placement in the previous year were excluded. Patients with a history of a heart attack, angioplasty, or coronary stent placement at least 1 year previously were included in the study after consulting with their physicians to determine if they were healthy enough to participate. Other exclusion criteria included a diagnosis of bipolar disorder, schizophrenia, dementia, mental retardation, organic mental disorder, and alcohol or drug abuse. These exclusions were made to avoid confounding due to severe complications/comorbidities, concurrent changes in mental status, and the effects of ongoing psychiatric treatment. Patients with treated or stable major depression were eligible for participation. Inclusion/exclusion criteria were assessed by a 20-min telephone screening, medical chart review, and physician or clinical psychologist consultation when necessary. The Joslin Diabetes Center Committee on Human Studies approved the protocol and all recruitment procedures and materials. All participants provided written informed consent prior to participation.

### Procedures

Assessments included HbA<sub>1c</sub> using the HPLC ion capture method (Tosoh Medics, Inc., San Francisco, CA; reference range is 4.0–6.0%), height, weight, waist circumference, and blood pressure. In addition to a survey on communication in the doctor-patient relationship, participants completed a battery of psychosocial surveys, measuring frequency of diabetes self-care, diabetes-related distress, depressive and anxiety symptoms, emotion-based and self-controlled coping styles, and diabetes quality of life. Sociodemographic factors (age, sex, race/ethnicity, education level, marital status, and occupation) also were collected.

### Measures

The following surveys were completed by participants.

Self-care Inventory-R is a 19-item scale that measures the self-reported frequency of self-care behaviors and has been validated for use with both type 1 and type 2 diabetes populations (13).

Brief Symptom Inventory is an 18-item checklist that assesses three primary dimensions (somatization, depression, and anxiety) and also yields a total score that summarizes the overall level of psychological distress (Cronbach  $\alpha = 0.89$ ). This measure renders *t* scores and is widely used with repeated assessments

of its reliability and validity (14). A *t* score of 63 or greater is indicative of clinical depression.

Problem Areas in Diabetes is a 20-item measure of diabetes-related emotional distress that assesses a broad range of feelings related to living with diabetes and its treatment, including guilt, anger, frustration, depressed mood, worry, and fear. Problem Areas in Diabetes has high internal reliability (Cronbach  $\alpha = 0.95$ ) (15,16).

Coping Styles is a 15-item measure that assesses copying styles as either emotion-based coping or self-controlled coping. Patients are asked to rate each item on a 4-point scale, ranging from “not at all like me” to “very much like me”. Criteria for self-controlled or emotion-based coping is derived from Peyrot et al.’s (17) biopsychosocial model of glycemic control in diabetes, which explores relationships among coping strategies, stress, and diabetes self-care. Self-controlled coping strategies include stoicism and pragmatism, indicated by statements of controlling one’s emotions and problem solving to alleviate frustration. Emotion-based coping strategies include anger, impatience, and anxiety, indicated by angry statements, impulsive actions, anxious behaviors (nervous, worried, upset, and difficulty relaxing), and avoidant behaviors (not doing something or giving up). This measure is validated in diabetes populations (17).

Diabetes Quality of Life scale is a 46-item scale rated on a 5-point Likert scale and yields a total score with five subscales (satisfaction, general health, impact of treatment, future effects of diabetes, and social effects) (18,19). The psychometric properties of the Diabetes Quality of Life scale are well established and it has been used in both type 1 and type 2 diabetic patients (18).

Talking With Your Doctor (TWYD) survey is a 15-item measure assessing self-care communication in the doctor-patient relationship. A qualitative study exploring doctors’ ( $n = 19$ ) and patients’ ( $n = 34$ ) perceptions, attitudes, and behaviors that support or impede the type 2 diabetes treatment relationship informed the development of this survey. A panel of experts, including two health psychologists, a clinical psychologist, a primary care physician, and an endocrinologist, developed the questions. Over the course of 6 months, this panel reviewed and rated each question to determine whether the questions were necessary, useful, and relevant to the

construct being measured in order to establish face validity and content validity. The survey was pilot tested in a sample of 20 adults with diabetes; participant feedback helped our panel identify difficult, confusing, or unnecessary survey questions. The outcome variable was derived from the patients’ responses to the question, “Have you ever misrepresented or withheld information from your diabetes doctor about any of your diabetes self-care?” Patients were then grouped into “reluctant” (i.e., patients who were reluctant to discuss self-care information) and “nonreluctant” (i.e., patients who were not reluctant to discuss self-care information) categories. Patients also completed a short-answer question, “Why do you think some people with diabetes misrepresent or withhold information about their self-care to their diabetes doctor?”

To facilitate comparison, survey scores were transformed to a 100-point scale, with a score of 100 representing greater self-care, distress, coping, or quality of life. However, the Brief Symptom Inventory yielded normalized *t* scores.

### Statistical analysis

Demographic and health factors are presented as means and SDs or sample size and percents. We used  $\chi^2$  and Fisher exact tests for categorical data, to compare differences in the TWYD survey responses for reluctant versus nonreluctant patients. Next, after checking normality of the variables’ distributions, we used Wilcoxon two-sample *t* tests to examine differences between reluctant and nonreluctant (to discuss diabetes self-care) patients on the sociodemographic and health factor and psychosocial surveys. Lastly, we estimated multivariable logistic regression models, adjusting for covariates, to determine which factors were associated with patients’ reluctance to discuss self-care, controlling for other factors. Our initial regression model included HbA<sub>1c</sub> levels, depressive symptoms, diabetes distress, and emotional coping as predictors of reluctance to discuss self-care, and covariates included age, diabetes duration, type of diabetes, sex, BMI, years of education, race/ethnicity, self-controlled coping, and frequency of self-care. Nonsignificant predictors and covariates were excluded from the final regression model. We estimated the odds ratios (ORs) using 10-point changes for surveys on a 100-point scale. Analyses

used SAS statistical software version 9.2 (SAS Institute, Cary, NC).

**RESULTS**—Three hundred and sixteen participants completed the surveys and had HbA<sub>1c</sub> measured (Table 1). Overall, patients were positive about their diabetes doctors, with 97% liking their doctor, 97% having confidence in their doctor, and 93% reporting a good working relationship with their doctor (Table 2). When asked who was at fault for high HbA<sub>1c</sub> results, only 2% of the patients attributed responsibility to their diabetes doctor while 87% attributed fault to themselves. Notably, 97.5% of patients rated honest communication with their diabetes doctor as “very important” and only 2.5% rated it as “somewhat important.” Despite the overwhelming majority of patients rating honest communication as “very important,” almost one-third of patients (30%; *n* = 95) endorsed being reluctant to discuss some aspect of self-care with their diabetes doctor. Reluctant patients most frequently misrepresented or withheld information about following a healthy diet (76%; *n* = 71), exercising regularly (53%; *n* = 49), checking blood glucose levels (42%; *n* = 39), taking medication (31%; *n* = 28), checking feet (30%; *n* = 28), and going to the eye doctor (14%; *n* = 13) (Table 2). Interestingly, more reluctant versus nonreluctant patients reported feeling like they had to say what their diabetes doctor wanted to hear (16.0 vs. 2.3%; *P* < 0.001), misrepresented or withheld information for fear of their diabetes doctor getting annoyed or frustrated with them (30.4 vs. 1.0%; *P* < 0.001), and did not understand their diabetes doctor's treatment recommendations (16.8 vs. 6.9%; *P* = 0.006). In addition, more reluctant patients rated honest communication with their diabetes doctor as “somewhat

important” compared with nonreluctant patients (7.5 vs. 0.5%; *P* = 0.001).

Two hundred and thirty-six patients (75%) responded to the short-answer question. Patients' most common reasons for not discussing self-care were “not wanting to disappoint their diabetes doctor or not wanting to feel judged by their doctor” (38%; *n* = 90), “shame, guilt, and embarrassment” (35%; *n* = 82), “not wanting to admit their lack of self-care to their doctor” (31%; *n* = 72), “denial of diabetes and/or its complications” (21%; *n* = 50), and “fear about diabetes and/or its complications” (10%; *n* = 23). Reluctant versus nonreluctant patients did not differ on the five most common reasons for not discussing self-care. However, when comparing patients who had reached glycemic targets (HbA<sub>1c</sub> < 7%) with those who had not reached targets (HbA<sub>1c</sub> ≥ 7%), those achieving targets reported “not wanting to disappoint their diabetes doctor or not wanting to feel judged by their doctor” more frequently than those with HbA<sub>1c</sub> levels ≥ 7% (50.0 vs. 34.9%; *P* = 0.04). No other differences by HbA<sub>1c</sub> were observed. Further, groups did not differ by sex or type of diabetes.

In comparing sociodemographic characteristics, health factors, and psychosocial survey responses, reluctant versus nonreluctant patients had slightly fewer years of education (15.3 vs. 16.0 years; *P* = 0.02) and were less likely to be married (55.8 vs. 72.4%; *P* = 0.004) (Table 1). Reluctant patients reported less frequent self-care behaviors (61.4 vs. 64.5; *P* = 0.05) and used less self-controlled coping styles (54.3 vs. 61.0; *P* < 0.001) (Table 3). They also reported more diabetes-related distress (34.0 vs. 25.4; *P* = 0.001), depressive symptoms (53.5 vs. 47.6; *P* < 0.001), and anxiety symptoms (52.5 vs. 48.5; *P* = 0.001). Further, reluctant

patients reported lower diabetes quality of life (66.6 vs. 71.8; *P* = 0.002) and used more emotion-based coping (38.0 vs. 30.3; *P* < 0.001) (Table 3).

The final multivariate logistic regression model found patients who reported more depressive symptoms (OR 1.05 for 1-point change in *t* score; 1.66 for 10-point change in *t* score; *P* < 0.001) were more likely to be reluctant to discuss self-care, whereas patients who were older (0.78 for 10-year change; *P* = 0.05) and used more self-controlled coping (0.78 for 10-point change; *P* = 0.007) were less likely to be reluctant to discuss self-care (Table 4). HbA<sub>1c</sub> levels and sex did not contribute to the final model. (Note that diabetes duration, type of diabetes, BMI, years of education, race/ethnicity, emotion-based coping, diabetes distress, and frequency of self-care did not contribute to earlier versions of the regression model.)

**CONCLUSIONS**—In this cross-sectional study, we examined 316 adult type 1 and type 2 diabetic patients' views of diabetes self-care communication in the doctor-patient relationship. Overall, patients reported positive relationships with their diabetes physicians and valued honest communication. However, as many as one-third of patients were reluctant to discuss self-care with their diabetes doctor. Patients cited “not wanting to disappoint their diabetes doctor or not wanting to feel judged by their doctor” and “shame, guilt, and embarrassment” as reasons for not discussing self-care. Further, reluctant patients reported less frequent diabetes self-care, more diabetes-related emotional distress, more depressive symptoms, and a lower diabetes quality of life. Patients who reported more depressive symptoms were more likely to be reluctant to discuss self-care, whereas patients who were older and used more self-controlled coping were less likely to be reluctant.

Diabetic patients experience disproportionately high rates of social and emotional difficulties compared with the general population (16,20,21). Approximately 10–15% of diabetic patients suffer from comorbid major depression (20). Depression and depressive symptoms are associated with poor glycemic control (22), reduced self-care behaviors (23), and increased morbidity (24) and mortality (25). Further, diabetes-related emotional distress indicates common negative emotions related to living with diabetes and is associated with patients' coping, health beliefs, and

Table 1—Means and SDs for demographic characteristics of diabetic patients

	All patients	Reluctant	Nonreluctant	<i>P</i> value*
<i>n</i>	316	95	221	
HbA <sub>1c</sub> (%)	7.9 ± 1.4	8.1 ± 1.3	7.9 ± 1.5	0.07
BMI (kg/m <sup>2</sup> )	31.4 ± 7.2	32.8 ± 8.2	30.8 ± 6.7	0.08
Age (years)	59.0 ± 10.6	57.1 ± 12.2	59.9 ± 9.8	0.08
Diabetes duration (years)	19.0 ± 13.2	18.8 ± 13.1	19.2 ± 13.3	0.84
Education (years)	15.8 ± 2.5	15.3 ± 2.6	16.0 ± 2.5	0.02
Type 2 diabetes	71.2	69.5	72.0	0.66
Female	51.0	49.5	51.6	0.73
Non-Hispanic white	85.1	84.2	85.5	0.76
Married	67.4	55.8	72.4	0.004

Data are mean ± SD or percent. \**P* values based on Wilcoxon two-sample or  $\chi^2$  tests.

Table 2—Results from TWYD survey questions for all patients and patients who were reluctant or not reluctant to share self-care information

	All patients n = 316	Reluctant n = 95	Nonreluctant n = 221	$\chi^2$ P value
1. Have you ever misrepresented or withheld information from your diabetes doctor about any of your diabetes self-care? (% yes)*	30.1	100.0	0	<0.001
1a. If you have misrepresented or withheld information, what areas did you misrepresent or withhold about? Circle all that apply.				
a. Checking your blood glucose levels (% yes)	12.5	41.9	0	<0.001
b. Taking your medication (% yes)	9.0	30.8	0	<0.001
c. Following a healthy diet (% yes)	22.8	76.3	0	<0.001
d. Exercising regularly (% yes)	15.7	52.7	0	<0.001
e. Checking your feet (% yes)	9.0	30.1	0	<0.001
f. Going to the eye doctor (% yes)	4.2	13.8	0	<0.001‡
2. Have you ever guessed the numbers that you put in your blood glucose log? (% yes)	13.8	35.5	4.6	<0.001
3. How important do you think it is to be honest with your diabetes doctor?				
a. Very important	97.5	92.6	99.6	0.001‡
b. Somewhat important	2.5	7.5	0.5	0.001‡
4. Do you misrepresent or withhold information from your diabetes doctor for fear of him or her getting annoyed or frustrated with you? (% yes)	10.4	30.4	1.0	<0.001
5. When your diabetes doctor asks you questions about your self-care, do you feel like you have to say what he or she wants to hear? (% yes)	6.4	16.0	2.3	<0.001
6. Do you find it too hard to meet your diabetes doctor's expectations? (% yes)	36.5	42.7	34.0	0.15
7. Who is at fault when your HbA <sub>1c</sub> is high? Circle all that apply.				
a. Your diabetes (% yes)	18.5	15.2	19.9	0.33
b. Your doctor (% yes)	2.0	1.1	2.4	0.67‡
c. You (% yes)	86.5	86.2	86.6	0.91
d. Your family and/or friends (% yes)	1.6	3.3	0.9	0.16‡
e. Life in general (% yes)	15.6	21.5	13.1	0.06
8. Is your diabetes doctor an endocrinologist? (% yes)	81.9	81.5	82.1	0.91
9. Do you like your diabetes doctor? (% yes)	96.8	95.7	97.2	0.50
10. Do you have a good working relationship with your diabetes doctor? (% yes)	93.4	89.4	95.3	0.05
11. Do you have confidence in your diabetes doctor? (% yes)	97.1	94.7	98.2	0.14‡
12. Do you always understand your diabetes doctor's treatment recommendations? (% no)	9.9	16.8	6.9	0.006
13. Are you frustrated if nothing seems to change in your diabetes treatment from visit to visit? (% yes)	37.7	40.9	36.4	0.45
14. Does your diabetes doctor get frustrated if nothing seems to change from visit to visit? (% yes)	18.7	21.1	17.7	0.49

\*Categories "reluctant" and "nonreluctant" were formed based on the responses to question 1. ‡Fisher's exact test used to examine differences in reluctant vs. nonreluctant patients.

social support in addition to glycemic control (15,26). Recent research (27) noted the importance of distinguishing between diabetes-related distress and depressive symptoms assessed by symptom inventories. Other studies found that diabetes-related emotional distress was independently associated with diabetes complications, comorbidities, and self-management behaviors (28) and associated more with psychosocial and behavioral factors than depression and depressive symptoms (28). Thus, our finding that patients who reported more

diabetes-related distress and more depressive symptoms were more likely to be reluctant to discuss self-care suggests that these patients may warrant physicians' greater clinical attention and concerns.

In our study, patients who reported elevated depressive symptoms were more likely to be reluctant to discuss self-care with their diabetes physicians. Specifically, for every 10-point increase in depressive symptom t scores, patients had 66% higher odds of being reluctant to discuss self-care. One explanation for this finding is that the

cognitive behavioral changes (e.g., cognitive distortions, avoidance behavior, and attention deficits) associated with depression and depressive symptoms may impair patients' ability to recall self-care information. For example, cognitive distortions (29,30), such as overgeneralizations or magnifications, may contribute to patients thinking that they performed more self-care behaviors than they actually did, and therefore contribute to misrepresenting information from their diabetes physician. Another explanation is that patients

Table 3—Means and SDs for diabetic patients' psychosocial assessment results

	All patients	Reluctant	Nonreluctant	P value*
n	316	95	221	
Frequency of self-care behaviors	63.6 ± 13.5	61.4 ± 14.4	64.5 ± 13.0	0.05
Diabetes distress	28.0 ± 20.5	34.0 ± 22.8	25.4 ± 18.9	0.001
Depressive symptoms t score*	49.4 ± 10.0	53.5 ± 11.1	47.6 ± 8.9	<0.001
Anxiety	49.7 ± 9.5	52.5 ± 10.8	48.5 ± 8.7	0.001
Self-controlled coping	59.0 ± 15.0	54.3 ± 12.5	61.0 ± 15.6	<0.001
Emotional coping	32.6 ± 18.1	38.0 ± 17.6	30.3 ± 17.8	<0.001
Diabetes quality of life	70.3 ± 12.3	66.6 ± 13.3	71.8 ± 11.5	0.002

Data are mean ± SD. \*Screening cutoff for depression ≥63.

reporting more depressive symptoms may be more socially withdrawn and less willing to communicate with their diabetes doctors. A study by Swenson et al. (31) found that the presence of severe depressive symptoms in patients with type 2 diabetes predicted suboptimal clinician-patient communication across multiple domains, including clinicians' decision-making, empowerment, elicitation of patient problems, and explanation of conditions; patient communication, specifically self-care communication, was not assessed. We expand on this finding and show that elevated depressive symptoms that do not reach threshold for major depression are also associated with reluctance to discuss self-care information.

The importance of tight glycemic control has been demonstrated in multiple clinical trials (3,32,33). One critical element in achieving tight control is effective doctor-patient communication (7). In our study, the overwhelming majority of patients valued honest communication; however, 30% of patients were reluctant to discuss self-care with their diabetes doctors. Interestingly, HbA<sub>1c</sub> levels were not associated with patients' reluctance to share self-care information.

Table 4—Logistic regression model examining reluctance to share self-care information

	OR	CI	P value
Depressive symptoms*‡	1.66	1.27–2.16	<0.001
Self-control coping*	0.78	0.65–0.94	0.007
Age*	0.78	0.61–0.99	0.05
HbA <sub>1c</sub>	0.98	0.82–1.18	0.86
Sex	0.92	0.55–1.54	0.75

\*ORs based on 10-point scale. ‡ORs when depressive symptoms are based on 1-point scale (OR 1.05 [CI 1.02–1.08]).

Although one might expect patients with higher HbA<sub>1c</sub> values to be more reluctant, our finding suggests patients' HbA<sub>1c</sub> levels do not impact willingness to discuss self-care with doctors. One explanation is that patients blame themselves for difficulties achieving treatment goals and carrying out self-care recommendations, regardless of their HbA<sub>1c</sub> levels. Patients cited “not wanting to disappoint their diabetes doctor or not wanting to feel judged by their doctor” and “shame, guilt, and embarrassment” as the most common reasons for not discussing self-care. Further, patients with HbA<sub>1c</sub> levels <7% were more likely to report “not wanting to disappoint their diabetes doctor or not wanting to feel judged by their doctor.” Thus, patients may be reluctant to discuss self-care no matter their level of glycemic control. A qualitative study exploring doctor-patient communication found that type 2 diabetic patients sought approval for their successes and feared reproach for their failures with self-care (34). In general, patients may not feel comfortable sharing diabetes management struggles with their physicians. Another explanation for why HbA<sub>1c</sub> did not contribute to the model is patients with higher HbA<sub>1c</sub> levels may be experiencing more symptoms of hyperglycemia and/or diabetes complications and need to address these issues with their physicians. Alternatively, physicians treating patients with higher HbA<sub>1c</sub> levels may be more direct when addressing self-care due to the severity of their patients' glycemia.

The final logistic regression model also found older patients were less likely to be reluctant to discuss self-care. Older patients may have more health concerns (i.e., comorbid conditions) (35) and thus be more likely to discuss diabetes self-care with their doctors. As patients age, the health challenges they face can get more complicated and personal (36). For this

reason, older patients may have to prioritize open communication with their diabetes physician. In a large qualitative study of older patients' preferences for involvement in their healthcare, older patients reported desiring to be involved in their care and receive good information on their health (37). Patients who used more self-controlled coping were also less likely to be reluctant to discuss self-care. One explanation for this finding is patients who use self-controlled coping techniques (i.e., stoicism and pragmatism) may be more capable of handling the day-to-day challenges of managing a complex self-care regimen because they are better able to control their emotions and use problem-solving techniques to alleviate frustrations. In addition, patients using self-controlled coping may feel less judgment from their doctor and/or shame, guilt, and embarrassment because they are less emotionally responsive to what their doctors have to say.

To our knowledge, this study is the first of its kind to examine and identify factors associated with patients' reluctance to discuss self-care in the treatment relationship. Strengths of this study include the large sample size and the use of well-validated measures of diabetes self-care, psychological symptoms, diabetes-related distress, coping, and diabetes quality of life. Study limitations include homogeneity of the study sample with regards to race/ethnicity and education, participant self-selection, and self-reported data. Our outcome variable despite its high face validity is vulnerable to social desirability bias. For example, patients may not want to admit to their doctor that they are performing a behavior that they know is wrong (e.g., eating an unhealthy meal) and has potentially negative consequences for them. Participants also may have forgotten about past interactions with their physician in which they misrepresented or withheld information or focused only on the most recent interactions with their physicians. Further, our results may not be applicable to patients with advanced comorbidities, as they were excluded. Next, the cross-sectional nature and design of the study prevent discerning causality. Longitudinal research is needed to determine causal associations between depressive symptoms and reluctance to discuss self-care. In addition, doctors' perspectives of patients' reluctance to discuss self-care are not known and warrant further study. Lastly, the mechanisms underlying the differential responses of depressive symptoms and HbA<sub>1c</sub> levels, whether

associated with avoidance behaviors, cognitive distortions, attention deficits, or some other factor, cannot be addressed. Future research in larger, more diverse samples should examine the underlying mechanisms that serve to support or interfere with self-care communication among patients and members of the diabetes care team and explore intentional versus unintentional misrepresentation or withholding by routine cross-checks with multiple data sources.

Physicians need to be aware of elevated depressive symptoms in clinical practice. Brief, effective screening tools may aid physicians in recognizing depression and elevated depressive symptoms during a medical visit. Improving clinicians' ability to recognize and respond to patients' emotional issues may help gain the trust of patients (38), which is associated with increased adherence to medical recommendations and self-care (39). Further, incorporating communication skills in medical training and patient education may improve patients' willingness to discuss self-care in the doctor-patient relationship. Specifically, incorporating techniques and tools that engage patients in taking an active role in self-care may help improve communication in the doctor-patient relationship. Finally, the diabetes treatment team can also assist doctor-patient communication through consistent messages, repetition of information, reinforcement and feedback of self-care behaviors, and greater availability to problem-solve concerns about self-care (40).

In summary, we examined self-care communication in the doctor-patient relationship and assessed factors that may be associated with diabetic patients' reluctance to discuss self-care. We found patients who report elevated depressive symptoms were more reluctant to discuss self-care with their physicians, whereas HbA<sub>1c</sub> levels did not influence willingness to discuss self-care. Interventions and evidence-based approaches that address both depressive symptoms and physician-patient self-care communication are needed.

**Acknowledgments**—This work was supported by the Kathleen P. Welsh Fund, National Institutes of Health (NIH) Grant R01-DK-60115, American Diabetes Association Grant 7-08-CR-62, the Diabetes and Endocrinology Research Core NIH P30-DK-36836, and NIH Training Grant T32-DK-007260.

O.P.G. has provided consulting services to Abbott; received payment for lectures from Merck, Abbott, GlaxoSmithKline, Bristol-Myers

Squibb, AstraZeneca, and Daiichi Sankyo; and has stock options with BMS. No other potential conflicts of interest relevant to this article were reported.

E.A.B. designed the study, acquired data, assisted with analysis and interpretation of the data, and wrote the manuscript. O.P.G. and K.M.B. acquired data, assisted with analysis and interpretation of the data, and reviewed and edited the manuscript. M.D.R., N.F.L.-S., and M.H. assisted with analysis and interpretation of the data and reviewed and edited the manuscript. Y.L. analyzed the quantitative data and reviewed and edited the manuscript. K.W. designed the study, acquired data, assisted with analysis and interpretation of the data, and reviewed and edited the manuscript. All contributors had access to the data. K.W. 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.

Parts of this study were presented in an audio tour poster form at the 71st Scientific Sessions of the American Diabetes Association, San Diego, California, 24–28 June 2011.

The authors thank the patients who participated in the study and the nurses and staff at the Joslin Clinical Research Center.

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