

## POPULATIONS AT RISK

# Impoverished Diabetic Patients Whose Doctors Facilitate Their Participation in Medical Decision Making Are More Satisfied with Their Care

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**OBJECTIVE:** Greater participation in medical decision making is generally advocated for patients, and often advocated for those with diabetes. Although some studies suggest that diabetic patients prefer to participate less in decision making than do healthy patients, the empirical relationship between such participation and diabetic patients' satisfaction with their care is currently unknown. We sought to characterize the relationship between aspects of diabetic patients' participation in medical decision making and their satisfaction with care.

**DESIGN:** Cross-sectional observational study.

**SETTING:** A general medical county hospital-affiliated clinic.

**PARTICIPANTS:** One hundred ninety-eight patients with type 2 diabetes.

**MAIN MEASURES:** Interviews conducted prior to the doctor visit assessed patients' desire to participate in medical decision making, baseline satisfaction (using a standardized measure), and sociodemographic and clinical characteristics. Postvisit interviews of those patients assessed their visit satisfaction and perception of their doctor's facilitation of patient involvement in care. A discrepancy score was computed for each subject to reflect the difference between the previsit stated desire regarding participation and the postvisit report of their experience of participation.

**RESULTS:** Overall, patients reported low postvisit satisfaction relative to national standards (mean of 70 on a 98-point scale). Patients perceived a high level of facilitation of participation (mean 88 on a 100-point scale). Facilitation of participation and the discrepancy score both independently predicted greater visit satisfaction. In particular, a 13-point (1 SD) increase in the perceived facilitation score resulted in a

12-point (0.87 SD) increase in patient satisfaction, and a 1.22 point increase (1 SD) in the discrepancy score (the extent to which the patient was allowed more participation than, at previsit, he or she desired) resulted in a 6-point (0.5 SD) increase in the satisfaction score, even after controlling for initial desire to participate. For women, but not for men, physician facilitation of participation was a positive predictor of satisfaction; for men, but not women, desire to participate was a significant positive predictor of visit satisfaction.

**CONCLUSION:** Clinicians may feel reassured that encouraging even initially reluctant patients with diabetes to participate in medical decision making may be associated with increased patient satisfaction. Greater patient participation has the potential to improve diabetic self-care because of the likely positive effect of patient satisfaction on adherence to treatment. Further research to assess the prospective effects of enhancing physician facilitation of patient participation is likely to yield important information for the effective treatment of chronically ill patients.

**KEY WORDS:** patient participation; patient satisfaction; doctor-patient communication; diabetes.

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Type 2 diabetes is a common, chronic condition that can result in serious complications,<sup>1</sup> but tight control of blood glucose can reduce the chances for developing sequelae.<sup>2-4</sup> Active patient participation in treatment decisions is increasingly advocated for patients with type 2 diabetes for several reasons. First, a broad range of treatment options is available,<sup>5,6</sup> most of which involve complex behavioral changes on the part of the patient.<sup>7,8</sup> Patients differ regarding the extent to which they value available treatments, potential side effects, and health outcomes.<sup>9-13</sup> As a result, the approach for each patient must be highly individualized and requires the patient's informed input.<sup>5,6,12,14-21</sup> Second, involving diabetic patients in decision making can help to empower them to carry out their regimen.<sup>22-24</sup> Finally, enhanced patient participation in medical decision making has been shown to improve blood glucose control among patients with diabetes.<sup>25</sup>

At the same time, patients differ regarding their desire to participate in medical decision making.<sup>12,26-30</sup> Studies suggest that patients with diabetes prefer less involvement

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in medical decision making than do healthy adults or patients with other illness.<sup>30-33</sup> These findings spark concern that greater patient participation could reduce diabetic patients' satisfaction with their care. Theoretically at least, patient satisfaction is determined by the degree to which patients' wishes are met,<sup>34,35</sup> leading to the possibility that if providers involve reluctant patients in decision making, these patients may become dissatisfied. Alternatively, what patients say they want before a visit and what satisfies them in that visit may be two different things. The relationship between patient participation and patient satisfaction with a medical visit has not been well examined among patients with diabetes, and studies of general medical patients show conflicting results, perhaps because of variations in patients' expectations due to differences in their desires to participate.<sup>20,26,36-42</sup>

Although patient satisfaction is an important outcome in its own right, research also suggests that patients' satisfaction is related to their adherence to medical treatment recommendations.<sup>43,44</sup> The interplay between patient participation, patient satisfaction, and adherence to medical recommendations needs to be explored,<sup>45</sup> and a first step is to understand the relationship between patients' participation in making medical decisions, their preferences for participation, and their satisfaction with the medical care they receive. To address this issue, we designed and conducted a study to answer the following 2 research questions:

1. What is the relationship between diabetic patients' visit satisfaction and their perceptions that their doctor facilitated their participation in decision making during that medical visit?
2. What is the relationship between patients' satisfaction and their perceptions that they have been allowed to participate as much as they desired?

## METHODS

### Overview

We conducted a cross-sectional study of patients with type 2 diabetes mellitus in a large southern California inner city teaching hospital's general medicine, faculty-supervised, resident-staffed clinic. All of the 61 physicians caring for patients there during the study period were invited to participate and 93% ( $n = 57$ ) agreed to do so.

### Sample Selection

We recruited a visit sample of patients who attended the clinic between October 30, 1995 and March 7, 1996. We sampled from among all patients diagnosed with type 2 diabetes who spoke English or Spanish, had the cognitive ability to complete the interview, were waiting

to see their doctor, and whose doctor had enrolled in the study. We prospectively screened the daily clinic appointment roster and the accompanying medical charts of all scheduled patients 2 to 5 days prior to the clinic visit for a diagnosis of type 2 diabetes. Because we were interested in obtaining adequate numbers of patients with a variety of characteristics for each physician, we used stratified sampling with predesignated enrollment goals. Specifically, eligible patients were stratified first by clinic physician and further by age, gender, and ethnicity. To minimize the imbalance of these 3 patient characteristics among each physician, we used a standardized algorithm that calculated an imbalance score for each patient given their set of characteristics compared with those of patients already enrolled and assigned to the same physician. We then compared the imbalance scores to select the patients with the minimal imbalance score to be recruited. Occasionally, some potentially eligible patients saw the doctor immediately and were, therefore, not available to be interviewed.

### Data Collection

For all participating patients, 4 bilingual research assistants used standardized instruments to conduct face-to-face interviews before and after the doctor visit and to review patients' medical records for demographic and clinical information. The previsit interview took 35 minutes and the postvisit interview took 5 minutes to administer. Spanish patient surveys were translated from English using standard translation and back-translation techniques. All study procedures were approved by the study site Institutional Review Board.

In the patient previsit interviews, we assessed patients' sociodemographic characteristics, the severity of their diabetic complications, their desire to participate in medical decision making at that visit, their baseline satisfaction with medical care, the duration of their relationship with their doctor, and their medication regimen (on insulin or pills). The interview conducted immediately after the visit assessed patients' perceptions that the doctor had facilitated their participation in medical decision making in the visit, their waiting time to see the doctor, and their satisfaction with the visit.

**Outcome Variable: Patient Satisfaction with the Visit.** We measured satisfaction with the medical visit in the postvisit interview, using an adaptation of the RAND-developed Patient Satisfaction Questionnaire (PSQ)-18, which has been widely used and validated in a broad range of medical settings.<sup>46</sup> The CSQ (chiropractic satisfaction questionnaire), a 14-item scale adapted from the PSQ-18 to be visit specific but otherwise identical to it, was previously validated and published.<sup>46,47</sup> We chose to adapt the CSQ because it was the only existing well-validated satisfaction scale that both was visit specific and assessed primarily the

conduct of the specific health provider seen in that visit by the patient.<sup>46</sup> This instrument includes items to assess interpersonal quality (8 items), technical quality (3 items), time spent with provider (1 item), cost of care (1 item) and overall satisfaction (1 item) (inter-item reliability was 0.95 in previous research).<sup>46,47</sup> The stem for each item reads, "... about the visit you just had. In terms of your satisfaction, how would you rate the following?" A sample item reads, "Friendliness, warmth, and personal manner of the doctor who treated you." Seven-point response options ranged from "very poor" (1) to "the best" (7). We constructed an overall satisfaction score that was the simple summated scale for the 14 items.

**Independent Variables of Particular Interest.** *Patient desire for participation.* Because we were interested in evaluating continuity visits that addressed a broad range of diabetes-related decisions, we sought to assess patients' general tendency to be involved in diabetes-related medical decisions. To measure patients' desire for participation in diabetes-specific medical decision making, we used the 11-item Desire to Participate in Medical Decision-making (DPMD) Scale. The items for this scale were developed and validated in a previous study<sup>48</sup> by operationalizing the first 6 steps of a conceptual model of patient participation in medical decision making: 1) creating a conducive atmosphere, 2) exchanging information, 3) integration of information, 4) assessing understanding, 5) expressing preferences and recommendations, and 6) negotiation.<sup>49</sup> Patients were asked to rate, on a 4-point scale (ranging from "not at all important" to "more important than almost anything else") the level of importance they placed on aspects of patient participation in medical decision making. A sample item is "How important is it to you to discuss with your doctor your opinions about your treatment options?" The scale score was the cumulative sum of values for each item that for convenience was then transformed linearly to a 0 to 100 scale. Internal consistency reliability for our "Patient Desire for Participation Scale" was very good (Cronbach's  $\alpha = 0.90$ ; in prior studies, test-retest reliability was 0.71).<sup>48</sup>

*Patients' perceptions of doctor's facilitation of their participation.* We used an established, previously validated 9-item scale, the Facilitation of Patient Involvement (FPI) in Care Scale to assess patients' perceptions that their doctor had facilitated their involvement in medical decision making.<sup>50</sup> Similar to the DPMD, the FPI was conceptualized to assess the extent to which physicians generally shared information, listened carefully to patients' views, provided patients with opportunities to ask questions and share ideas, and created an equal partnership in negotiation.<sup>50</sup> We chose to use the FPI because in prior validation studies, it was positively associated with more active provider communication style, greater general satisfaction with medical care, and adherence to medical recommendations ( $P < .001$  for all).<sup>50</sup> The scale score was the cumulative sum

of values for each item that for convenience was then transformed linearly to a 0 to 100 scale. A sample item from this scale is, "My doctor strongly encourages me to express all of my concerns about the prescribed treatment." Responses were coded on a 6-point Likert scale ranging from "none" to "all of the time."

*Discrepancy between DPMD and FPI.* To assess whether patients got what they wanted regarding participation, we constructed a score using the DPMD and FPI scales to represent the discrepancy between patients' desire to participate in their care and their perception that the doctor facilitated their participation. This discrepancy score between these 2 scales was possible because both scales measure the same constructs in similar clinical contexts and assess them through patients' reporting of their perceptions—one, before the visit, of "what they want" and the other, after the visit, of "what they got." Because variances of the scales differed, we standardized the FPI and DPMD scores to z scores and then subtracted each individual's standardized DPMD score from his or her standardized FPI score to create the discrepancy score. A more positive discrepancy score represents receiving more participation relative to that desired and a more negative score represents receiving less participation relative to that desired.

**Measures of Additional Covariates.** *Sociodemographic and clinical factors.* Patients' demographic factors were elicited during the previsit face-to-face interview. We used the previously validated Diabetes Mellitus Severity Scale to assess disease severity.<sup>51</sup> This scale was chosen because it provides detailed self-assessment of the severity of diabetic complications and has been previously validated against the short form (SF)-36 among people with diabetes in the Veterans Health Study.<sup>51-54</sup> We also asked patients whether they were on insulin.

*Previsit satisfaction with medical care.* We measured general satisfaction before the doctor visit to control for general tendency to be satisfied with health care. This assessment utilized a previously validated 2-item, 5-point Likert scale with the scale score formed by summing the responses to the 2 items (Cronbach's  $\alpha = 0.60$ ). These items, a general satisfaction subscale from the RAND-developed PSQ-18, asked patients how strongly they agreed or disagreed with each of the following 2 statements: "The medical care you have been receiving is just about perfect," and "You are dissatisfied with the medical care you receive."<sup>55</sup> Because the second item was negatively phrased, it was reversed prior to summing the 2 items.<sup>55</sup>

*Duration of relationship with doctor and waiting time to see the doctor.* We asked patients how long they had been seeing this doctor and, after the visit, to estimate their total waiting time (in minutes) to see the doctor for this visit (including time at the registration desk and in the exam room before the doctor first appeared).

## Data Analysis

**Descriptive Analyses.** Initial univariate analyses were conducted to describe the study population. We then used bivariate analyses to compare respondents to nonrespondents with regard to demographic characteristics. Bivariate analyses were conducted using Pearson correlations, 2-sample *t* tests, analysis of variance, and  $\chi^2$  tests as appropriate to assess the association between patient visit satisfaction and patient demographic characteristics, duration of relationship with the doctor, baseline satisfaction, waiting time to see the doctor, the DPMD score, the FPI score, and the discrepancy score. We created categorical variables of the discrepancy scale to assess whether the bivariate association between these variables and satisfaction would reveal a U-shaped relationship. We also examined correlations among the predictors to assess collinearity, and because other aspects of communication sometimes differ by gender, we conducted exploratory analyses to determine whether patients' gender acted as an effect modifier.

**Hypothesis Testing.** Because, in bivariate analyses, the discrepancy score demonstrated a linear relationship with satisfaction, we used multiple linear regression analyses to assess the effect of each of the patient participation measures on patient satisfaction with the visit, while controlling for potential confounding factors. Because the discrepancy score was calculated from both the facilitation of participation scale and the desire for participation scale, we could not include all 3 of these variables in 1 model. Therefore, we ran 2 regressions that both controlled for desire for participation, one examining the effect of facilitation of patient participation in medical decision making on patient visit satisfaction and the second examining the effect of the discrepancy scale on visit satisfaction. In both regression models, we controlled for age, gender, ethnicity, diabetes severity, insulin requirements, and duration of relationship with the doctor, as well as baseline desire for participation.

In our initial exploratory analyses, key predictors of satisfaction differed by gender (see Table 3). Therefore, we also ran separate regression models for male and female subjects. To illustrate the magnitude of the effects of interest, we then used the total sample and gender-specific models to predict change in satisfaction for an average patient, and for an average male and average female patient for a 1-SD change in each of 3 scales (FPI, DPMD, and the discrepancy scale).

We specified the final regression models according to our a priori hypotheses regarding patient satisfaction and the results of descriptive analyses. Initially, we expected decreased waiting time, increased baseline satisfaction, and having had a longer relationship with the provider to be independently associated with greater visit satisfaction. We included all demographic and clinical characteristics in the final models as covariates except income, which was omitted

because 26% of participants did not respond to this question. To have more parsimonious models, we did not include several variables in the final models. In particular, previsit satisfaction and waiting time were omitted from the final models because they were not predictive of postvisit satisfaction in bivariate analyses, and their inclusion in the models did not substantially change the effects of the other covariates. Standard diagnostics were used to examine the fit of the models and to check for outliers that might unduly influence parameter estimates. Statistical analyses were conducted using SAS 6.12 and SAS 8.0 for Windows (SAS Institute Inc., Cary, NC). No important differences were noted when the regression analyses were rerun in STATA 7.0 (Stata Corp., College Station, Tex) to control for the nesting of patients within physicians.

## RESULTS

### Participation Rate

Of the total 312 patients identified as eligible at the clinic, 72 could not be interviewed because an interviewer was not available when the patient was waiting, or (in rare cases) because the patient was called in early from the waiting room before they could be interviewed. Of the 240 patients that we approached, 228 (95%) agreed and completed the previsit interview. Thirty previsit respondents did not complete the postvisit interview because they did not have time to stay after the doctor visit; 198 (87%) completed both interviews. Previsit respondents and nonrespondents did not differ with regard to age, gender, or ethnicity. There were no statistically significant differences found between the study participants (who completed both interviews) and those lost to follow-up (completed the previsit but not the postvisit interview) regarding demographics, clinical characteristics, or desire to participate in medical decision making (73 vs 74;  $P > .20$ ) except that study participants reported a slightly greater number of diabetic complications than those lost to follow-up, although both groups had relatively low levels of diabetic complications (3.4 vs 1.9 on a 0- to 18-point scale;  $P < .001$ ).<sup>51</sup>

### Background Characteristics (Table 1)

Among study participants, the mean age was 54. Sixty percent were female, 47% Latino, 31% African American, 13% white, and 9% Asian. Seventy-six percent reported making less than \$10,000 per year. About 25% of the sample fell into each education category, with 28% having less than a sixth grade education and 23% having had some college. Thirty-eight percent of participants reported taking insulin. On average, regarding the severity of their diabetic complications, study participants scored 3.4 out of a possible 18 (SD, 2.8; range, 0 to 12; median, 3.0).

Forty-four percent of patients reported that this was their first visit to this doctor. The mean waiting time to see the doctor (including time at the registration desk and in the exam room) was 94 minutes. Patients had relatively low

**Table 1. Characteristics of Study Sample**

Variable	Study Sample (N = 198)
<b>Demographics</b>	
Mean age, y	54
Female, %	60
Ethnicity, %	
Latino	47
African American	31
White	13
Asian	9
Income level, %	
<\$5,000	43
\$5,000–10,000	33
>\$10,000	24
Education, %	
≤6th grade	28
7–11th grade	24
High school grad	25
At least some college	23
Has health insurance, %	38
<b>Severity of illness</b>	
Diabetic complications severity, mean score, 1–18 scale (SD)	3.4 (2.8)
On insulin, %	38
In fair or poor health, %	69
<b>Experience with doctor</b>	
First visit to this doctor, %	44
Waiting time, mean min, n (SD)	94 (65)
Baseline satisfaction, mean score on a 2- to 10-point scale (SD)	5.6 (1.7)

baseline satisfaction (mean, 5.6; SD, 1.17; range, 2 to 9; median, 6.0) on a 2- to 10-point scale.

### Patient Participation in Medical Decision Making (Table 2)

On the desire for participation scale, patients averaged 74.0 out of a possible 100 (SD, 13; range, 37 to 100; median, 73). On the scale measuring actual physician facilitation of participation as reported by the patient at the postvisit interview, also transformed to a 0 to 100 scale, patients averaged 88 (SD, 13; range, 44 to 100; median, 92). After standardizing the scores, the discrepancy score, by definition, had a mean of 0 (SD, 1.22; range, –3.6 to +3.5; median, 0.07).

### Patient Satisfaction with Visit (Table 2)

On average, patients scored approximately 70 (SD, 12.8; range, 30 to 91; median, 70) on the patient postvisit satisfaction scale. The mean score in this study of 70 (out of a possible 98) is equivalent to an average response of “very good.”<sup>46</sup>

### Predictors of Satisfaction: Bivariate Results (Table 3)

Correlations among our independent variables were generally low. Of note, the correlation between the DPMD and FPI was only 0.25 (not shown in table).

All 3 participation-related scales were associated with postvisit satisfaction (Table 3). Specifically, patients who wanted to participate more, patients whose doctors facilitated their participation more, and patients who received more facilitation of participation than they had wanted were more satisfied. Age, gender, ethnicity, education, insulin use, severity of diabetic complications, duration of relationship with doctor, satisfaction with prior care, and waiting time to see the doctor were not significant predictors of satisfaction.

In gender-stratified analyses, the correlation between postvisit satisfaction and baseline desire to participate was much stronger for men ( $r = .42$ ;  $P < .0001$ ) than for women ( $r = .16$ ). In contrast, the correlation between postvisit satisfaction and facilitation of participation was stronger for women ( $r = .50$ ;  $P < .0001$ ) than for men ( $r = .33$ ;  $P < .002$ ). Further, postvisit satisfaction and the discrepancy scores were positively associated among women ( $r = .26$ ), but unrelated to each other among men ( $r = -.11$ ).

### Predictors of Satisfaction: Multivariate Results (Tables 4, 5, and 6)

In the first model (Table 4), patients' perception of their doctor's facilitation of patient participation in medical decision making independently predicted patient satisfaction with the medical visit, after controlling for age, gender, ethnicity, acculturation, education, severity of diabetes complications, insulin requirements, duration of relationship with the doctor, and baseline desire for participation. Patients who perceived greater facilitation of participation from their doctor were more satisfied. In particular, for the whole sample, we found that a 13-point increase (1 SD) in the perceived facilitation score resulted in a 12-point (0.92 SD) increase in patient satisfaction. In addition, the effect of patient desire for participation remained significant after controlling for the other factors in the model. Specifically, patients who desired greater participation were more satisfied. Of note, different factors were significant predictors of satisfaction for men as compared with women. Specifically, greater facilitation of participation was a significant predictor of greater satisfaction for women, but not for men. For men, but not women, a greater desire to

**Table 2. Patient Participation in Medical Decision Making and Patient Satisfaction (N = 198)**

Variable	Mean (SD)
DPMD	74 (13)
FPI	88 (13)
Discrepancy score (standardized FPI – standardized DPMD)	0 (1.22)
Satisfaction with visit	70 (13)

DPMD, Desire to Participate in Medical Decision-making Scale; FPI, Facilitation of Patient Involvement Scale.

**Table 3. Pearson Correlations between Patients' Characteristics and Patients' Satisfaction with Their Doctor Visit for the Total Sample, Men and Women**

Variable	Total Sample (N = 193)		Men (n = 78)		Women (n = 115)	
	Pearson Correlation	P Value	Pearson Correlation	P Value	Pearson Correlation	P Value
Age	0.05	.52	0.006	.95	0.04	.66
Education	0.05	.56	0.14	.20	-0.002	.97
Gender	0.09	.19	NA	NA	NA	NA
African American	0.06	.43	0.19	.09	-0.03	.68
Latino	-0.08	.27	-0.23	.04	0.03	.74
Insulin use	0.08	.23	0.07	.56	0.10	.29
Severity of diabetes complications	0.08	.30	-0.07	.50	0.16	.09
Duration relationship with doctor	0.11	.14	0.09	.43	0.10	.30
Waiting time to see doctor	0.13	.15	0.009	.95	0.20	.10
DPMD	0.25	.0003	0.42	.0001	0.16	.09
FPI	0.44	.0001	0.33	.002	0.50	.0001
Discrepancy score	0.14	.05	-0.11	.33	0.26	.0001

DPMD, Desire to Participate in Medical Decision-making Scale; FPI, Facilitation of Patient Involvement Scale; NA, not applicable.

participate was a significant predictor of greater visit satisfaction.

In the second regression analysis, the discrepancy scale was a highly important predictor of satisfaction, after controlling for the same covariates (Tables 5 and 6). Patients who got more participation than they had wanted were more satisfied with their care. In particular, for the sample as a whole, a 1.22-point increase (1 SD) in the discrepancy score resulted in a 6-point (5 SD) increase in the satisfaction score. Again, for women but not men, the discrepancy score was a significant predictor of satisfaction. For both regression analyses, similar results were obtained when the regression analyses were rerun in STATA to control for the nesting of patients within physicians. When we reran the regression with the

discrepancy scale divided into categorical variables, we found no evidence of a U-shaped relationship.

Using our 2 multivariate models, we predicted for an average patient, and an average male and average female patient, the change in satisfaction score (DPMD, FPI and the discrepancy score) (Table 6). For example, for an average woman, as one progresses 1 SD (13 points) along the facilitation of participation scale, satisfaction increases by 15 points. Similarly, for an average woman, moving 1 SD along the discrepancy scale (1.3 points for women) resulted in an 8.4-point increment in satisfaction. For an average man, using our first model, as one moves 1 SD (14 points for men) along the desire for participation scale, satisfaction increases by 16 points. Of note, the direction of the relationship for all variables was the same for both genders.

**Table 4. Results of Multivariate Regression Models of Patient Visit Satisfaction that Include the Influence of Facilitation of Patient Involvement\***

Variable	Total Sample (N = 193)		Men (n = 78)		Women (n = 115)	
	$\beta$ Coefficient (SE)	P Value	$\beta$ Coefficient (SE)	P Value	$\beta$ Coefficient (SE)	P Value
Age	0.07 (0.08)	.38	0.10 (0.15)	.49	0.10 (0.10)	0.31
Female gender	2.49 (1.83)	.17	NA	NA	NA	NA
Education	1.11 (1.01)	.27	1.80 (1.41)	.21	1.31 (1.38)	.34
Latino Spanish-speaking	0.94 (2.79)	.74	-3.6 (3.99)	.37	4.55 (3.85)	.24
Latino English-speaking	-6.33 (2.90)	.03	-7.24 (3.77)	.06	-5.38 (4.25)	.21
African American	-2.99 (2.44)	.22	-1.50 (3.93)	.70	-2.70 (3.12)	.39
Severity of diabetes complications	0.08 (0.32)	.80	-0.91 (0.52)	.08	0.64 (0.40)	.11
Insulin use	2.84 (1.79)	.11	3.28 (2.68)	.22	1.19 (2.40)	.62
Duration relationship with doctor	-0.51 (0.66)	.45	-0.10 (1.03)	.93	-0.40 (0.88)	.65
DPMD	0.46 (0.20)	.02	1.30 (0.32)	.0001	0.34 (0.27)	.20
FPI	0.92 (0.16)	.0001	0.42 (0.26)	.12	1.13 (0.19)	.0001

\*  $r^2 = .28$ .

DPMD, Desire to Participate in Medical Decision-making Scale; FPI, Facilitation of Patient Involvement Scale; NA, not applicable.

**Table 5. Results of Multivariate Regression Models of Patient Visit Satisfaction that Include the Influence of the Discrepancy Score (FPI – DPMD)\***

Variable	Total Sample (N = 193)		Men (n = 78)		Women (n = 115)	
	β Coefficient (SE)	P Value	β Coefficient (SE)	P Value	β Coefficient (SE)	P Value
Age	0.07 (0.08)	.38	0.10 (0.15)	.49	0.10 (0.10)	.31
Female gender	2.49 (1.83)	.17	NA	NA	NA	NA
Education	1.11 (1.01)	.27	1.80 (1.41)	.21	1.31 (1.38)	.34
Latino Spanish-speaking	0.94 (2.79)	.74	-3.6 (3.99)	.37	4.55 (3.85)	.24
Latino English-speaking	-6.33 (2.93)	.03	-7.24 (3.77)	.06	-5.38 (4.25)	.21
African American	-2.99 (2.44)	.22	-1.50 (3.93)	.70	-2.70 (3.12)	.39
Severity of diabetes complications	0.08 (0.32)	.80	-0.91 (0.52)	.08	0.64 (0.40)	.11
Insulin use	2.84 (1.79)	.11	3.28 (2.68)	.22	1.19 (2.40)	.62
Duration relationship with doctor	-0.51 (0.66)	.45	-0.10 (1.03)	.93	-0.40 (0.88)	.65
DPMD	1.66 (0.25)	.0001	1.84 (0.38)	.0001	1.83 (0.33)	.0001
Discrepancy score	5.28 (0.88)	.0001	2.38 (1.5)	.12	6.49 (1.10)	.0001

\* r<sup>2</sup> = .28.

DPMD, Desire to Participate in Medical Decision-making Scale; FPI, Facilitation of Patient Involvement Scale; NA, not applicable.

**DISCUSSION**

We found that the more patients perceived their doctor to have facilitated their participation in decision making, the more satisfied they were. This was true even among patients who had said they wanted little involvement in decision making. Regarding the clinical significance of the changes in satisfaction noted to be associated with facilitation of participation, an 18-point decrease in this satisfaction scale in other studies was associated with a 25% increase in intent to disenroll.<sup>46</sup> Remarkably, patients who were allowed to participate more than they said they wanted to were more satisfied. In contrast to some physicians' fears, our findings suggest that physicians' attempts to facilitate patient participation in medical decision making may be associated with greater rather than reduced satisfaction.

By looking at the discrepancy between what patients desire and what they experience as well as its association with satisfaction, our study uses a novel approach with some new findings. It is, however, conducted in 1 resident-run clinic among primarily poor, minority patients. As a result, further studies will be needed among other samples to confirm and further explore these relationships.

Our data are consistent with but also go beyond prior studies. Our findings support prior work showing an association between patient satisfaction and aspects of the doctor-patient interaction, such as greater information giving, partnership building, and expression of empathy.<sup>20,44,56-61</sup> Our results are also consonant with the study by Degner et al., which found that patients with breast cancer experienced a substantial disparity between their preferred and attained levels of involvement in treatment decision making,<sup>27</sup> although that study did not test the impact of the disparity on cancer patients' satisfaction with care. The finding, in our study, that patients who got more participation than they initially said they desired were more satisfied expands our understanding from prior studies that a disparity often occurs between what

patients say they want and how they behave in a doctor visit.<sup>27,62</sup> Our findings also support studies showing an association between aspects of doctors' facilitation of patient involvement and patient satisfaction,<sup>31,39,42</sup> although prior studies have not been visit specific and did not assess both desire for participation and perceived facilitation of participation as we did.

In an effort to understand when to promote patient participation in decision making, other studies have tried to assess the complex factors that influence patients' desires to participate. Preferences to participate appear to be related not only to patient characteristics, but also to illness severity, the clinical context, and the type of decision being made.<sup>27,30,33,39</sup> For example, the amount of information that women with breast cancer want depends on the specific type of information offered.<sup>27</sup> Patients have been

**Table 6. Predicted Change in Satisfaction Levels for a 1-SD Change in Each of 3 Aspects of Patient Participation for an Average Patient, and for an Average Male and Female Patient\***

	Average Satisfaction	Increase in Satisfaction when Each Scale Score Increases by 1 SD		
		DPMD†	FPI‡	Discrepancy‡
Total§	70 (SD 13, range 30 to 91)	6	12	6
Men	68 (SD 12, range 43 to 91)	16	5	3
Women¶	71 (SD 13, range 30 to 91)	4	15	8

\* Controlling for age, gender, ethnicity, education, diabetes complications severity, insulin use, duration of relationship with the doctor.

† Controlling for physician facilitation of involvement score.

‡ Controlling for desire to participate.

§ Based on distribution of variables among the full sample.

|| Based on distribution of variables among men.

¶ Based on distribution of variables among women.

DPMD, Desire to Participate in Medical Decision-making Scale; FPI, Facilitation of Patient Involvement Scale.

shown to prefer less involvement in decisions about severe illness than minor illness<sup>39</sup> but more involvement in decisions about major interventions, treatments that involve behavioral change, and illnesses with which they have had prior experience.<sup>30,39</sup> At the same time, in a large, population-based study, patients with severe, chronic diabetes preferred a less active role in decision making than did patients with other chronic illness.<sup>30,33</sup>

Our results suggest that some patients may not recognize the extent to which they prefer to participate in the medical decision-making process. These findings challenge the premise that patient dissatisfaction is determined by the discrepancy between patients' expectations and their experience.<sup>34,35</sup> The implications of our findings for understanding patient autonomy in the clinical context are confusing, however. Clinicians seek to encourage patient autonomy by encouraging patient involvement in decisions, yet ethical rules of patient autonomy mandate that physicians respect patients' wishes. What about the patients who wish for low autonomy? An "enhanced autonomy" model suggests that the active exchange of ideas between patient and provider to share power and negotiate differences will ultimately work to meet the wishes of patients.<sup>28,63,64</sup> Using this model, the physician could, when making specific decisions with patients, raise the issue of participation and inform them of the potential benefits of participation, including that some patients find active participation more satisfying than they had anticipated. For patients who want to participate actively, physicians may face a challenging role: to meet or exceed those high expectations.

The interaction we found between patient gender and patient participation and satisfaction (that aspects of patient participation that are predictive of satisfaction differ by gender) are novel but consistent with research showing gender differences in communication and in patient satisfaction.<sup>65,66</sup> To our knowledge, gender differences in predictors of satisfaction are unstudied. In light of studies demonstrating associations between patients' ratings of physicians' participatory decision-making styles and physician gender, ethnicity, and race and gender concordance, future studies are warranted to explore further both patient and physician gender and race differences in determinants of patient satisfaction.<sup>66</sup>

Our study has several limitations. First, this study was conducted among poor minority patients from 1 faculty-supervised residency practice. In this study, on average, patients scored 70 (out of a possible 98) on the visit satisfaction scale (equivalent to an average response of "very good"), a relatively low level of satisfaction compared with other populations.<sup>46,47</sup> Patients in our sample may have been less satisfied because they experienced long waiting times or because they were treated by resident physicians with less experience who may be under more stress or perform less efficiently than physicians in practice. Therefore, caution is required in generalizing these findings to dissimilar populations. At the same time, this is an important and understudied group of patients.

Because diabetes is prevalent and rising among impoverished and minority patients,<sup>1</sup> understanding factors that affect these patients' satisfaction with care may enhance their adherence to self-care and may be critically important to addressing this illness. Interestingly, patients perceived a relatively high level of facilitation of their participation by these resident physicians compared with other patient populations.<sup>50</sup> Regarding their desire to participate, the mean DPMD score of 74 is comparable to that found among another sample of impoverished patients with diabetes mellitus.<sup>48</sup> Further studies will be needed to confirm these findings in similar as well as different settings.

Second, although our response rate was high and respondents did not differ from nonrespondents by demographic characteristics, we may have introduced a selection bias because to avoid delaying patient care, we did not sample patients whose doctor was immediately ready to see them. A large selection bias due to missing these patients is unlikely, however, both because the scheduling of appointments was a fairly random event not under patient or provider control and because few eligible patients were missed due to a lack of waiting time. Yet the possibility of this bias still must be kept in mind. Third, because a high proportion of our patients were new to their provider, the relationship between participation and satisfaction may be unique to newer provider-patient relationships and may have influenced our results. Perhaps patients at their first visit to a provider are less inclined to participate. To our knowledge this question has not been evaluated and warrants further study.

Because much of our data rely on self-reports, there is a potential for measurement error. We have tried to minimize this possibility by primarily using standard measures that have been previously tested for validity in broad-based population studies. Further, the cross-sectional nature of this study does not allow us to draw firm causal inferences regarding the effects that enhancing patient participation in decision making would have on patients' satisfaction levels over time. These issues warrant further study. In addition, our findings may be affected by bias introduced by a Hawthorne effect. For example, did asking patients about their desires for involvement before the medical encounter influence their perception of the doctor's facilitation of involvement? Although our study did not have adequate sample size to randomize a proportion of patients to exemption from receipt of the pre-interaction interview, other studies using this approach have found that previsit questions about expectations for a visit do not affect patients' reports of the visit.<sup>43</sup>

## CONCLUSION

Because a broad range of options that patients value differently are available to treat type 2 diabetes, patient participation in medical decision making is increasingly advocated for patients with type 2 diabetes.<sup>5,9,12,21,24,67</sup> Studies show that on average, patients with diabetes prefer



low levels of involvement in medical decision making,<sup>31-33</sup> raising concerns that greater patient involvement could reduce satisfaction among these patients. The findings reported here suggest the opposite: some patients with type 2 diabetes may be more satisfied the more they perceive that their doctor facilitates their participation, even after controlling for their baseline desires to participate. Because patient satisfaction with care has been shown to influence treatment adherence, encouraging greater participation in medical decision making may be a key to stimulating patients to take better care of their diabetes. Further research is needed to understand these relationships better and, once they are better understood, to assess the prospective effects of enhancing patient participation upon patient satisfaction and adherence to prescribed diabetic treatments.

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