Speaking the same language? Contrasting provider and patient definitions of good diabetes control

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Article points

1. As primary care providers and patients define good diabetes control differently, each group may be working toward different goals.
2. By understanding the obstacles that prevent their patients from achieving diabetes control, primary care providers can better work with their patients to develop specific ways to help overcome these barriers.
3. Primary care providers emphasise laboratory parameters while people with diabetes utilise blood glucose measurements and the impact of diabetes on their daily lives in their definitions of diabetes control.

Key words

- Patient and provider definition of 'good' diabetes control
- Obstacles to glycaemic control
- Patient self-management

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The development of an effective patient–primary care provider (PCP) partnership is important in improving diabetes outcomes. Differences in the definition of what constitutes 'good diabetes control' in the eyes of people with diabetes and PCPs, and the perceived obstacles to achieving such control, may compromise such a partnership. In this study, the authors surveyed people with diabetes and PCPs on their respective definitions of good diabetes control, and their perceptions of the main obstacles to achieving such control.

The prevalence and incidence of type 2 diabetes is growing worldwide as the population ages and becomes increasingly obese, sedentary and urbanised. It is estimated that the population with diabetes could double by 2030 (Wild et al, 2004). The American Diabetes Association (ADA, 2008) estimates that 20.8 million adults and children in the US have diabetes and another 54 million have pre-diabetes. The World Health Organization (WHO) estimated that in the year 2000 around 5% of excess global mortality was attributable to diabetes (Roglic et al, 2005) and by 2002, the direct and indirect medical costs of diabetes were approximated to be US$132 billion (ADA, 2003; approximately £75 billion).

As the prevalence and burden of diabetes increases, improving glycaemic and other biomedical measures of diabetes control are becoming more urgent. The importance of glycaemic control in the management of diabetes has been well established (UK Prospective Diabetes Study [UKPDS] Group, 1998). Achieving adequately controlled diabetes, however, continues to be elusive for many patients. Saaddine et al (2006) reported that only 42% of adults in the National Health and Nutrition Examination Survey 1999–2002 had HbA_{1c} levels at the ADA goal of <7%.

Most patients with type 2 diabetes receive their diabetes care from primary care providers (PCPs). Therefore, it is imperative that patients and their PCPs work together effectively to optimise individual patients' diabetes outcomes. Multiple studies have shown that the more effective the patient–provider communication, the better the patients' overall disease management and health (Wasson et al, 1992; Roter et al, 1998; Heisler et al, 2003; Cramer, 2004).

Previous studies have focused mainly on patients' perceived obstacles to glycaemic control, but have not compared the perceptions of people with diabetes and

PCPs on the main obstacles to achievement (Nagelkerk et al, 2006). To address these gaps in the literature, we surveyed a group of people with diabetes and their PCPs in two different healthcare systems in order to determine their definitions of diabetes control and the obstacles to achieving control.

Methods

The people with diabetes and the PCPs who participated in this survey were either in the Veterans Affairs Healthcare System or members of a managed care organisation based at a large academic medical centre in the US Midwest. The study was performed from May to December 2001. Patients were identified as eligible for participation if they were ≥30 years of age, were on at least one prescription medication for diabetes, had been hospitalised with a diabetes-related ICD-9 code (International Statistical Classification of Diseases; WHO, 2008) or had two office visits with a diabetes-related ICD-9 code (ICD-9 codes are diagnostic codes used to identify diseases and are also used for billing purposes in the US). Patients were also required to have seen their PCP during the previous 6 months and to have a follow-up appointment scheduled within the next 6 months.

In the Veterans Affairs system, 562 people were eligible and were mailed surveys; 720 of the 1060 people eligible from the managed care system were randomly selected and mailed

Table 1. Characteristics of study participants.

People with diabetes (*n*=663)			**Primary care providers (*n*=67)**	
Age (%)				
	≤59 years	34	≤29 year	12
	60–69 years	25	30–49 years	69
	≥70 years	41	≥50 years	17
Sex (%)				
	Male	75	Male	56
	Female	25	Female	44
Ethnicity (%)				
	Caucasian	85	Caucasian	85
	African American	8	Other	15
	Other	8		
Education (%)			Specialty (%)	
	Less than high school	23	Internal medicine	82
	High school	30	Family medicine	6
	Some college	47	PA and NP	12
Healthcare site (%)			Level of training (%)	
	Veterans Affairs	31	Resident	19
	Managed care	69	Attending	81
Income (%)			Years in practice	12.3*
	≤$30 000	61	Patients with type 2 diabetes (%)	22**
	$30 001–$60 000	20		
	≥$60,001	19		

*Residency included, figure is mean, standard deviation 9; **mean (SD 14.1); NP, nurse practitioner; PA, physician's assistant.

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1. PCPs and people with diabetes in our sample had significantly different definitions of 'good diabetes control'.
2. PCPs overwhelmingly stressed improved HbA_{1c} levels as defining good control.
3. People with diabetes emphasised the ability to manage one's own life without interference as an indicator of good control.

surveys. Thirty-four PCPs from Veterans Affairs and 57 PCPs from the managed care system were sent surveys. Seventy-four patients were excluded because they reported not having diabetes, had severe dementia, or were deceased. The response rate among people with diabetes was 55% and among practitioners was 74%.

A patient-specific questionnaire was also sent to PCPs on the same day they had an office visit with a participating patient. A maximum of three patient-specific questionnaires were sent to any one PCP. Ninety-three per cent of PCPs contacted returned at least one patient-specific questionnaire. This created a subset of patient–provider dyads.

People with diabetes and PCPs were asked to describe 'good diabetes control' and given a choice of five response categories and an 'other' category in which they could write in their own answer. To define obstacles to diabetes control, PCPs and people with diabetes were asked to rate seven response categories. PCPs were also surveyed regarding obstacles to diabetes control faced by the specific patients they had just seen. Both providers and people with diabetes were surveyed regarding reasons for poor adherence with treatment recommendations.

Table 2. Definitions of good diabetes control as cited by people with diabetes (PWD, *n*=663) and primary care providers (PCPs, *n*=67).

	PCPs (%)	PWD* (%)
Improved HbA_{1c}	84.0	10.0
Normal/near normal blood glucose	3.0	34.0
Little life interference	9.0	36.0
Few/no symptoms	4.0	17.0
Little life interference and normal blood glucose	NA	0.5

**People with diabetes who answered 'other' to this question make up the remaining 2.5%; NA, this category was not offered for practitioner surveys.*

Table 3. Obstacles to diabetes control as cited by people with diabetes (PWD, *n*=663) and primary care providers (PCPs, *n*=67).

	PCPs* (%)	PWD (%)
Poor adherence to treatment plan	34	27
Need to increase or change medications	46	9
Need new medications	3	3
Unwilling to start insulin	5	9
Impact of other illnesses	45	19
Unstable diabetes	6	8
Other	6	24

**Answering always or almost always.*

Table 4. Biggest obstacle to diabetes control as identified by primary care providers (PCPs) in a PCP–patient dyad (%, *n*=124).

Patient failing to adequately follow treatment recommendations	27
Other illnesses affecting patient's diabetes	21
Medication dosage needs to be increased	15
Patient's disease is difficult to control	6
New medications needed	4
Patient is unwilling to start insulin	2
Other	23

Results

Table 1 shows the characteristics of the survey respondents. The majority of people with diabetes who responded to the survey were ≥60 years of age (66%), male (75%) and Caucasian (85%). Most (77%) had at least a high school education and had an income <$30 000 (61%; approximately £17 000). The majority of PCPs were attending physicians (81%), ≥30 years of age (86%), Caucasian (85%) and male (56%). PCPs had spent an average of 12 years in practice and approximately 22% of their patients had type 2 diabetes.

Definition of good control

PCPs and people with diabetes in our sample had significantly different definitions of 'good diabetes control' (*Table 2*). PCPs overwhelmingly stressed improved HbA_{1c} levels as defining good control (84%). People

with diabetes emphasised the ability to manage one's own life without interference (36%) as an indicator of good control, a factor only 9% of PCPs agreed was important. Thirty-four per cent of people with diabetes indicated that normal or near-normal blood glucose levels also defined good diabetes control.

Obstacles to good control

The results of our survey are summarized in *Table 3*. Twenty-seven per cent of people with diabetes identified their own inability to follow treatment recommendations as the cause of their uncontrolled diabetes. Although many PCPs also indicated that a lack of adherence was an obstacle to good control (34%), they more frequently indicated that the need for a change in medications (46%), or a patient's co-morbidities (45%) were the principal obstacles to achieving good diabetes control.

When asked about specific patients experiencing uncontrolled diabetes in the patient-specific questionnaires, PCPs had differing viewpoints regarding the main obstacles to diabetes control (*Table 4*). PCPs indicated that patient non-adherence was most commonly the reason for uncontrolled diabetes (27%), with the impact of other illnesses (21%), or the need to increase medication dosages (15%) being cited as the other main reasons.

Most PCPs felt that poor treatment adherence was due to a lack of will power (31%), diabetes care being a low priority (25%), or other illnesses affecting the patient's ability to manage their disease (22%) (*Figure 1*). Likewise, people with diabetes most commonly cited a lack of will power (26%) or interference from other illnesses (13%) as the reasons why they did not adhere to treatment regimens (*Figure 1*). Failure to adhere to medication and diet regimens was commonly cited by people with diabetes as being the result of a lack of will power (13%, 35%, respectively); the interference of other illnesses in one's ability to adhere to medication, diet and exercise regimens (10%, 7%, 35%, respectively) was also a major obstacle (*Figure 2*).

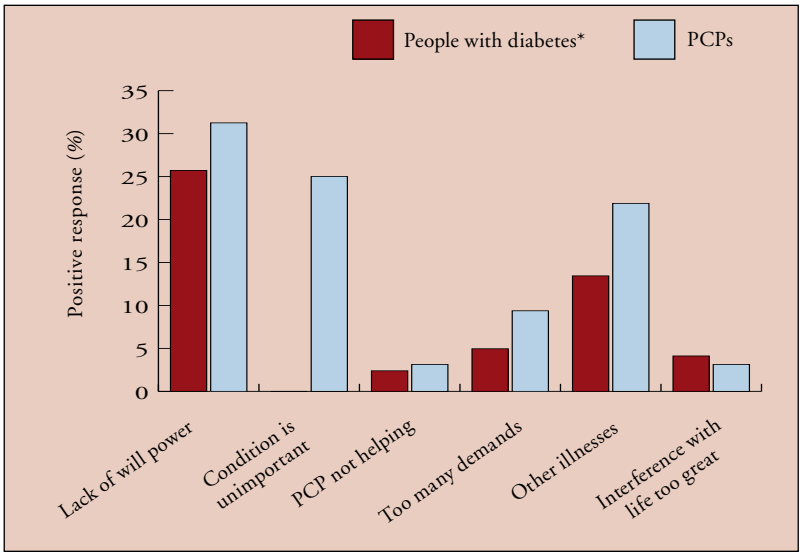

Figure 1. Reasons people with diabetes and their primary care practitioners (PCPs) cited for poor treatment adherence. **Overall response figures for people with diabetes were obtained by taking the mean frequency of each possible response across the subject area groupings of diet, exercise, medication and blood glucose.*

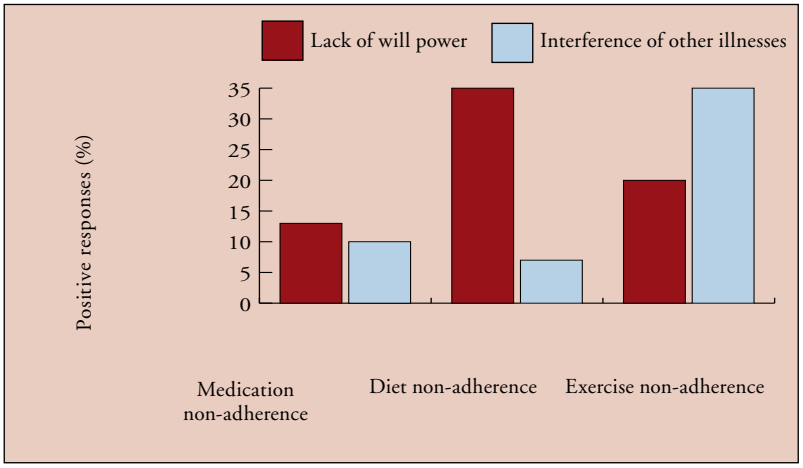

Figure 2. Reasons cited by people with diabetes for non-adherence to medication, diet and exercise recommendations.

Discussion

In order to improve glycaemic control and other diabetes clinical outcomes, it is important to examine how people with diabetes and PCPs define what 'good diabetes control' means to them. This study demonstrates that those with diabetes and PCPs continue to define good diabetes control differently. PCPs emphasise

laboratory parameters while patients utilise blood glucose measurements and the impact of diabetes on their daily lives in their definitions of diabetes control, reflecting the earlier findings of Cohen et al (1994) and Hunt et al (1998). People with diabetes may often be working toward minimising the number of tablets or injections they take in an attempt to reduce the disruption to their daily lives, while PCPs may be working toward tightening glucose control by intensifying therapy. Therefore, it is important for goals to be communicated between PCPs and people with diabetes, and specific treatment plans agreed on.

It is important for PCPs to teach their patients about well-established markers of controlled diabetes, such as an HbA_{1c} level <7%. Our results reveal that a majority of PCPs (84%) utilised a patient's HbA_{1c} level in their definition of glycaemic control, while only 10% of people with diabetes did. This large discrepancy may indicate that many people with diabetes do not understand the importance of achieving a target HbA_{1c} level, which in turn may indicate ineffective PCP communication.

Previous studies have shown that many diabetes patients have no knowledge of what their recent HbA_{1c} levels are, or what their target HbA_{1c} should be (Harwell et al, 2002; Heisler et al, 2005). While Heisler et al (2005) demonstrated that patients who knew their HbA_{1c} level had a better understanding of how well their diabetes was controlled, this knowledge did not predict better patient self-management. Thus, although it is imperative to teach people with diabetes about the meaning and importance of achieving target HbA_{1c} levels, other measures need to be taken to help motivate people to improve their clinical outcomes.

Our findings also point to poor treatment regimen adherence as one of the most prominent obstacles in achieving diabetes control. Helping to motivate patients to follow treatment recommendations is central to combating poor adherence. However, it is inherently difficult to motivate a person to perform multiple, lifestyle-altering activities such as losing weight, changing their diet, exercising consistently, checking blood glucose levels and taking multiple tablets or injections. This task becomes even more difficult given that many people with condition may not experience the complications of their disease for several years, nor feel the benefit of lifestyle changes immediately (Wolpert and Anderson, 2001). Strategies to enhance between-visit communication (Piette et al, 2000), peer-led self-management training (Lorig et al, 2005) and increased counselling, education and improvement in social support networks (Haynes et al, 2002) have been shown to be effective tools in improving patient adherence to treatment plans.

Interestingly, PCPs were most likely to cite the need for medication adjustment as the reason for poor glycaemic control (46%), while only 9% of people with diabetes highlighted this as an obstacle. This discrepancy may reflect PCPs' lack of awareness of poor adherence to prescribed medications. Roter et al (1998) showed that approximately 50% of patients were non-adherent to their medication regimens and Cramer (2004) demonstrated that oral hypoglycaemic agent adherence ranged from 36–93%, while insulin adherence was approximately 63%. Many PCPs are unaware of patient medication non-adherence and perhaps thus recommending medication adjustments that are unnecessary or ineffective.

The results of our study also highlight that other diseases affect people with diabetes' ability to manage their condition. People prescribed more complicated medication regimens requiring multiple doses a day are less likely to be able to adhere well to these regimens than patients on simpler regimens (Osterberg and Blaschke, 2005). People with multiple medical problems also have to cope with factors including financial burdens, depression and pain, which can further limit their ability to adhere to treatment recommendations (Ciechanowski et al, 2000;

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1. Strategies to enhance between-visit communication with patients, peer led self-management training and increased counselling, education and improvement in social support networks have been shown to be effective tools in improving patient adherence to treatment plans.
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1. People with type 2 diabetes as well multiple additional medical problems have much to cope with, further limiting their ability to adhere to treatment recommendations. Without addressing these other factors, it may be impossible to improve clinical outcomes.
2. Both primary care providers and people with diabetes agreed that poor treatment adherence was a major impediment to achieving diabetes control, and that a lack of will power was a major cause of poor adherence.
3. In order to improve glucose control and mitigate complications, people with diabetes and primary care providers need to work together to find ways of identifying and removing the barriers to improved treatment adherence.

Jerant et al, 2005). Without addressing these other factors, it may be impossible to improve clinical outcomes.

Our study is limited by the study group being in a single geographic location, and by the relative lack of ethnic diversity. A larger study involving participants from multiple ethnic groups, and a more even distribution of males and females, may yield different results. The findings are also limited by a possible social desirability bias in survey responses; poor adherence to treatment recommendations can be difficult to admit.

Conclusion

This study suggests that people with diabetes and PCPs continue to define diabetes control differently. While PCPs stress the importance of laboratory parameters, people with diabetes stress the impact of diabetes on their daily lives. Both PCPs and people with diabetes agreed that poor treatment adherence was a major impediment to achieving diabetes control, and that a lack of will power was a major cause of poor adherence.

In order to improve glucose control and mitigate complications, people with diabetes and PCPs need to work together to find ways of identifying and removing the barriers to improved treatment adherence. Treatment goals need to be agreed on jointly, and effective strategies put in place to support those living with this chronic and costly condition. ■

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